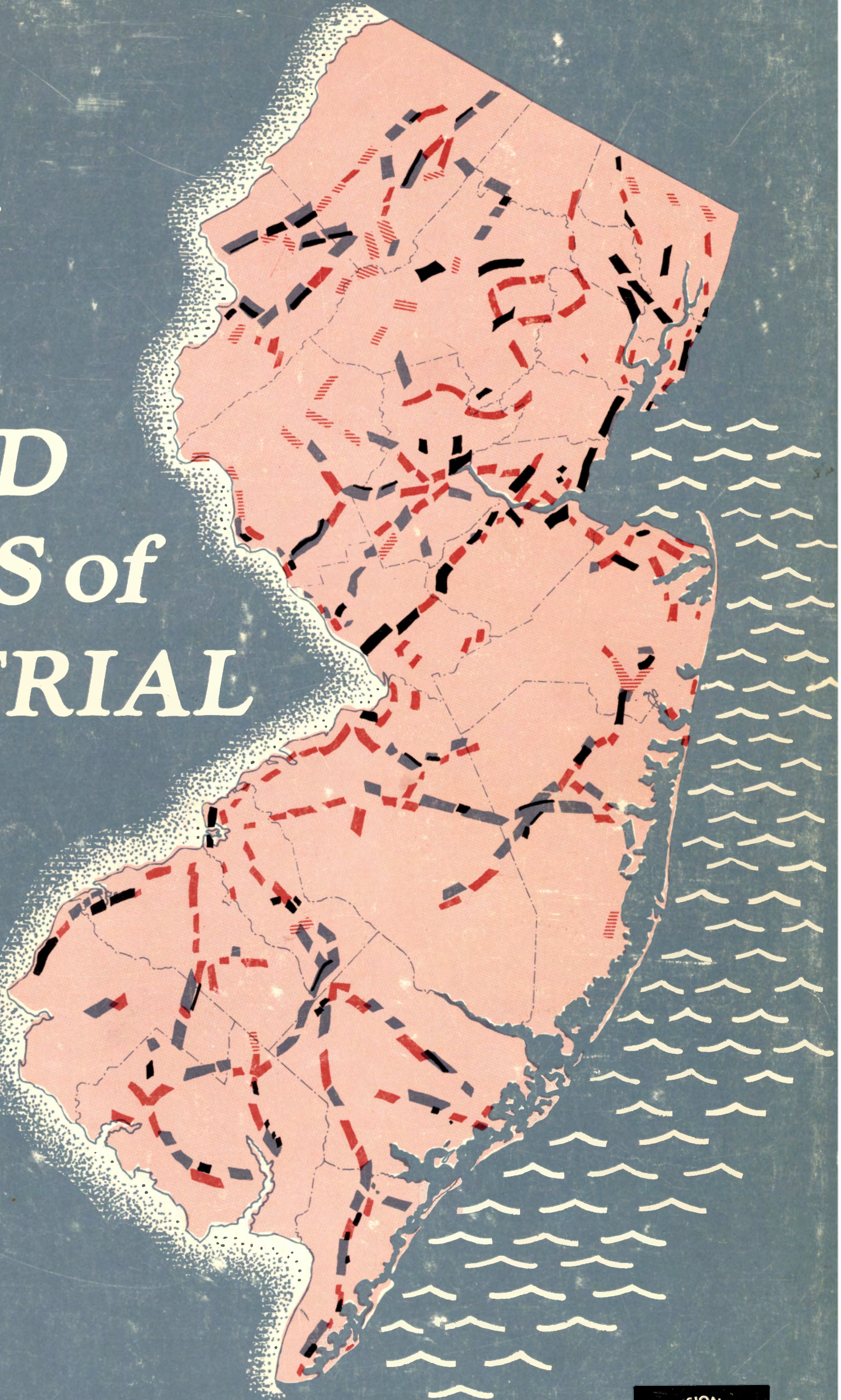
# SUPPLY and DEMAND FACTORS of INDUSTRIAL LAND USE



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STATE OF NEW JERSEY DEPARTMENT OF CONSERVATION AND ECONOMIC DEVELOPMENT

DIVISION OF STATE AND REGIONAL PLANNING
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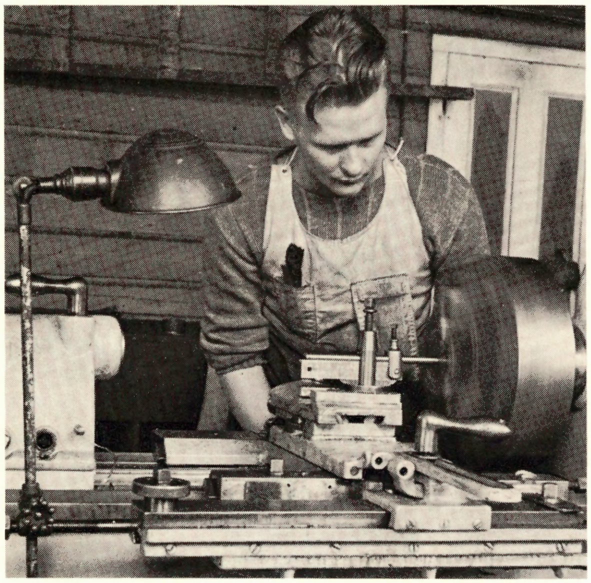

STATE OF NEW JERSEY
DEPARTMENT OF CONSERVATION
AND ECONOMIC DEVELOPMENT
OFFICE OF THE COMMISSIONER
TRENTON 25

October , 1963

It is with a great deal of pleasure that we present this study as a part of the expanded Statewide Planning Program. The primary purposes of this report are to inventory the existing and emerging patterns of industrial land use in New Jersey and to set forth certain preliminary recommendations designed to strengthen the State's favorable industrial climate. Since industrial activities form the foundation of New Jersey's economy, they merit extensive study and analysis as a part of the State's program to effect a comprehensive plan for future growth and development.

Proper use of land is vital to the development of our State's economic potential. Increased demands for suitable sites for industrial development and expansion will undoubtedly emerge as New Jersey's population continues to grow over the next several decades. Increased industrial activity is vital not only to enhance employment opportunities, but also to provide for a greater tax base at the local and State level.

New Jersey occupies a unique position in the attractions which it can offer as an industrial situs. Two of the world's largest markets, New York and Philadelphia, are at its doorstep. The State's large cities are also major consumers of the products of its industries. New Jersey's climate is pleasant and its labor abundant and productive. However, competition with other parts of the country makes it essential that properly located industrial sites be made available if New Jersey is to continue to grow and prosper.

Further studies, using the findings of this report as a point of departure, and including additional research on other forms of land utilization and transportation patterns, will constitute the basis for more comprehensive conclusions concerning the supply and demand for industrial land.

This report is offered primarily in the hope of stimulating further discussion and clarification. Therefore, your comments and appraisal of the ideas put forward are especially invited and encouraged.

Sincerely yours,

Robert A. Roe
Commissioner

# SUPPLY and DEMAND FACTORS of INDUSTRIAL LAND USE


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Governor

DEPARTMENT OF CONSERVATION
and ECONOMIC DEVELOPMENT

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This study is a part of the expanded Statewide Planning Program. It has been prepared for submission to the Governor's Interdepartmental Committee for State Planning. This Committee, representing the Governor and Chief administrative officers of each of the fourteen Departments of State Government, convenes regularly in order to study and analyze problems related to the physical development of the State. The objective of the Committee is to develop a farsighted unified approach towards these problems on the part of all State agencies.

*". . . a balanced distribution of people, jobs and industries between our urban and suburban communities is essential for the revitalization of urban life and the orderly growth of suburban areas."*

GOVERNOR RICHARD J. HUGHES
Inaugural Address

## ABOUT THIS REPORT . . . . . .

During the past 300 years, New Jersey has grown from an agricultural State with less than 25 persons per square mile to a highly industrialized one with over 800 persons per square mile, making it the most urbanized State in the nation. With this growth has come many changes in the State's economy and in its physical environment, and as the State continues to grow, further changes are likely to occur. It is the task of planning to assist in guiding this growth along those lines deemed most desirable. Planning in New Jersey has become more than merely one of many desirable governmental functions, for there is an increasing awareness that it is an inescapable necessity if New Jersey is to continue to have an economy which is sufficiently vigorous to enhance the welfare of every individual and family.

The New Jersey Division of State and Regional Planning operates under a mandate to promote the orderly development of the State's physical assets by:

(1) assembling and analyzing pertinent facts regarding existing development conditions and trends;

(2) preparing and maintaining a comprehensive guide plan and long term development program for the future improvement and development of the State;

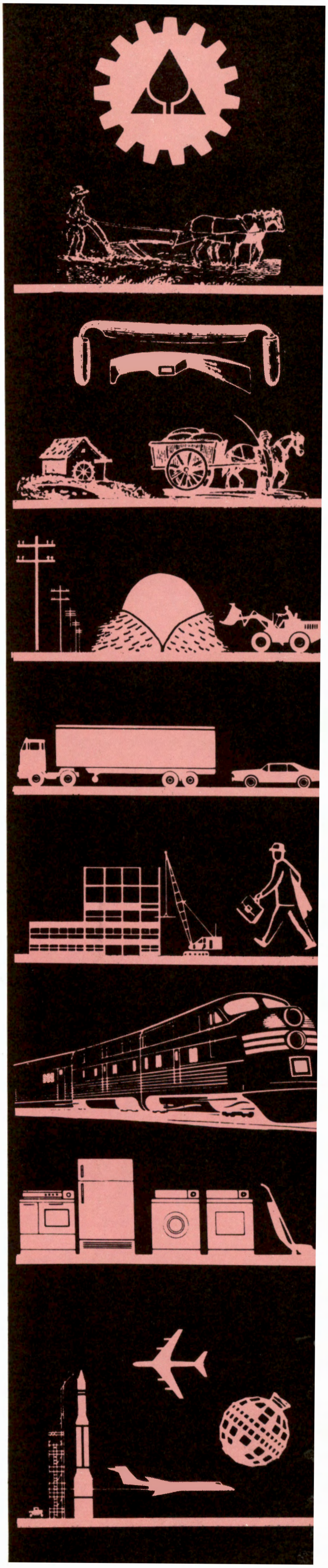
(3) undertaking the task of achieving fuller coordination of the development activities of the several State departments; and

(4) stimulating, assisting, and coordinating local, county and regional planning activities.

The objective of state planning is to bring to the consideration of day-to-day State operations a sound evaluation of their effect on the development of good living and working conditions now and in the foreseeable future. This, of course, presupposes the establishment of development goals and the integration of State policies and programs affecting development and redevelopment. While state planning cannot be the preparation of a detailed blueprint for the future development of the State, it can provide a framework within which detailed planning for specific functions of operating State agencies and local governmental planning can be accomplished in order to secure an effective and orderly development of the State.

The future growth and development of New Jersey must attempt to strike a balance among a variety of social and economic considerations. As a part of the inventory stage of the Statewide Planning Program, a number of basic studies concerned with the quality, extent, and distribution of existing and proposed development have been undertaken. Land use is an important aspect in the analysis of development trends. While each phase of land use must be isolated and studied separately, ultimately these individual analyses will be brought together with other studies, so as to enable the Division to make projections of future needs, trends, and possibilities with regard to the physical development of the State.

Industry is a key element in the State's economic growth, and New Jersey's future well-being, in large measure, will depend upon an effective pattern of industrial development. The factors influencing the location of industrial activities must be of major concern in the promotion of the orderly development of the State. This report, therefore, is primarily concerned with a discussion of what is meant by balanced growth and with an analysis of the factors of supply and demand in industrial land use.



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*The remainder has been financed by an appropriation of the State of New Jersey as part of the expanded State and Regional Planning Program.*

# CHAPTER 1

## THE CHALLENGE OF PROVIDING BALANCED ECONOMIC GROWTH

Land is one of New Jersey's most important physical assets. The growing population of the State has had to seek the orderly development of its homes, factories, commercial facilities, institutions, and places of leisure and recreation within a static, fixed land space. The challenge that now confronts the State is the provision of a program of balanced growth and development to accommodate the increases in population that are likely to occur as New Jersey continues to prosper.

Past patterns of land use can tell us much about what may happen in the future. These patterns, however, are modified by the changing environment in which they emerge. An analysis of land use patterns, therefore, must include both aspects of the situation — the historic trends and the projection of these trends into the future.

Industry forms the economic foundation of virtually every city. Since the activity of manufacturing is a prime generator of economic growth in most cities and metropolitan areas, greater attention must be directed toward meeting the land use needs of industry. It is for this reason that one of the initial inventory studies of the Statewide Planning Program has as its focus the factors of supply and demand in relation to industrial land use.

Since land is a fixed resource, it is one of the most important physical assets of the State. New Jersey has a land area of 7,504 square miles. Ignoring the loss of land through beach erosion, the creation of artificial lakes, and the like, this land area has remained unchanged since the days when Washington led his troops of ragged rebels across the colony against the British Army.

In the course of its 300-year history, New Jersey has grown from primarily an agricultural area with less than 25 persons per square mile to a highly industrialized State with over 800 persons per square mile. While the population of New Jersey has grown to the point where our State is the most highly urbanized in the nation, this population has had to develop its homes, factories, commercial facilities, institutions and educational facilities, and places for leisure and recreation within a fixed parcel of land space.

In the future, an even greater growth of population is anticipated. In order to insure the future well-being of this population, this growth must be a balanced growth. But just what is meant by balanced growth? Dr. Joseph L. Fisher of Resources for the Future, Inc. has pointed out that there are a number of concepts of balanced growth.

The first, and probably the most common concept of balanced growth has inherent in it the notion that a state should move toward a national average. This is particularly appropriate when many of the indices of growth are below the national average. In order to secure a stable economy, we strive for a diversity of industrial and commercial activities that approaches the national trends of economic activities.

Closely allied to this concept of balance is the notion that certain elements in the economic development of a state lag behind others and a "catching-up" process is necessary. In an agricultural state, for instance, it is thought that a balanced statewide economy requires additional industry. The "Balance Agriculture with Industry" program in Mississippi is an example of this approach.

A third kind of balance is to be achieved by a continual adjustment to changes in a state's competitive relations with other states. This may require the adaptation of a state's existing agricultural and manufacturing processes to changing technologies and new products and diverting its resources into newer and expanding products in order to achieve a greater economic return.

Finally, a fourth kind of balance is that to be achieved between economic growth and economic stability. In essence, this is what each of these other concepts is ultimately striving for. Rapid growth at the expense of the long-run economic stability of the state is potential economic suicide. If, for example, soil and water conservation are sacrificed in favor of rapidly expanding suburban development, even in the short run there is a great danger to the survival of the area. The ultimate objective of any program which has as its goal the promotion of orderly development should, therefore, seek a harmonious balance between the two concepts of growth and stability.

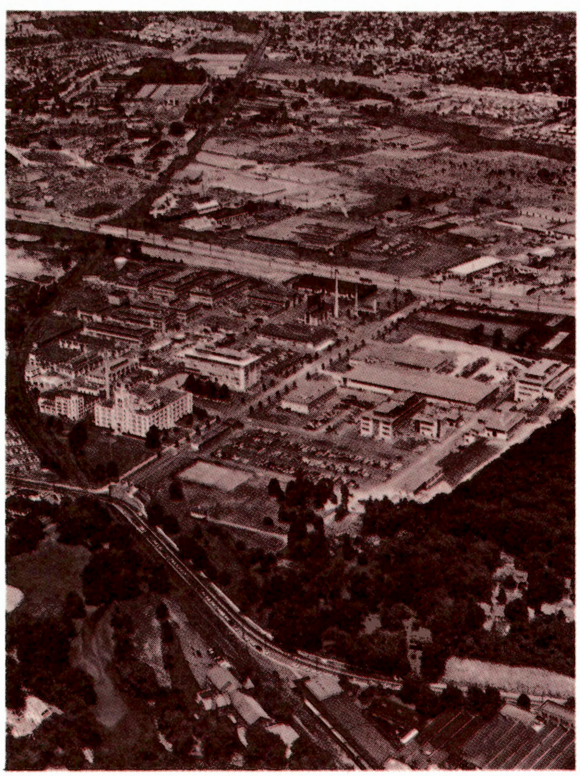
It is evident from this discussion that future patterns of land development will play an important role in any program which has as its objective the securing of a harmonious balance of economic growth and stability. It has been predicted that New Jersey's population will reach the seven million mark by 1968. Further projections of this growth trend foresee a population in the State of eight million by the year 1975, and of nine million by 1981. Unfortunately, the task of matching long-range population projections to the years in which such levels will be reached is, at best, a speculative operation. However, in order to plan for the sound and orderly development of the State, including the provision of a realistic program of capital expenditures, it is possible to first establish appropriate levels of population to be served. Then, as the programming of these services is undertaken, adjustments in the timing of such facilities can be achieved by a constant appraisal of the merging population trends. It is for this reason that the goals and objectives of the State-wide Planning Program have been designed to accommodate specific population levels, rather than being tied to a specific time sequence.

In order to insure the most effective utilization of the land area of the State in view of the future growth and development that will accompany the further expansion of the population to seven, eight, and nine million people, a greater cognizance of the current trends in land use is necessary. Those factors which have contributed to the emergence of these trends in land use must also be carefully investigated.

Industrial payrolls form the economic foundation for virtually every city. As Professor Gunnar Alexandersson has pointed out in his book **The Industrial Structure of American Cities,** urban industries employ over four-fifths of the gainfully employed population in the United States. Some estimates indicate that an industry employing 150 men provides direct support for 600 persons and indirect support for 1,000 to 1,650 people. As Victor Roterus of the Area Development Division of the United States Department of Commerce has pointed out: "If each family unit on earth were economically self-sufficient, we would have no cities or metropolitan areas. Urban areas are essentially a phenomenon of economic inbalance when viewed from a local area sense. That is, urban growth results from a production of certain types of goods and services that are in excess of what the population of the urban area consumes and yet are in demand outside the area." Urban growth, therefore is both a product of and a contributor to patterns of industrial land use.

Since the economic well-being of the State depends, in large measure, upon an efficient pattern of industrial development, the patterns of supply and demand for industrial land use are particularly important. Zoning is one of the legal tools used to give practical effect to certain features of a comprehensive planning program. Through the division of the community into districts where specific uses of land are permitted or prohibited, zoning serves as a guide for future development. Zoning may prohibit the introduction of an industrial use into a residential area or it may prohibit the building of residences in an industrial area. The purpose of zoning is to provide protection for existing development and some control of future growth. Zoning, therefore, dictates which areas are available for various forms of development.

In this study the factor of supply consists of the land that is available (through zoning) and/or desirable for industrial development, while the factor of demand will relate to the criteria by which industry determines its land use needs. By analyzing each of these factors separately, certain trends can be determined. A comparison then will be made in the hope of revealing considerations which may have an important bearing on the future development of the State.



## The Emphasis in Planning is Changing

Planning—once concerned almost exclusively with aesthetic objectives and providing protection to better-class residential areas—must now concern itself more and more with providing for the needs of the growth-generating activities in the general land use plan. Since the activity of manufacturing is a prime generator of urban growth in most cities and metropolitan areas, its site and service requirements, as well as the factors of supply and demand, are receiving more attention in urban planning, in regional planning, and in statewide planning.

It is for this reason that we propose to examine in some detail the factors of supply and demand as they relate to industrial land use, so as to provide a substantial foundation for further analyses and projections, not only on a statewide basis, but at the local, county, and regional levels as well. This report will attempt to provide some answers to questions such as: How much land is zoned for industrial use?; How much of this land is actually occupied by industry?; How much land does industry need?; How is the industrial character of the State changing?; What effects will these changes have on the land use patterns of the State?; Which areas of the State seem to be potentially suitable for future development?; What does an industry look for in local zoning?; What is the role of government in the promotion of effective industrial land use?

# PART I.

## THE FACTORS OF SUPPLY AND DEMAND

*In the market place, supply and demand determine the level of economic activity. These factors also must be considered with regard to industrial land use and development. In this instance, land is the commodity, with supply being the amount of land which is available for industrial use through local zoning. Demand emerges from the criteria by which industry determines its land needs.*

*Analysis of the factors influencing plant location provides a basis for determining land development potentials. Industry requires a wide range of services, including adequate sewer and water facilities, as well as reasonable access to lines of transportation. These elements greatly influence where future industrial development will occur.*

*Land zoned for industrial use can be accurately measured. An analysis of how much of these lands is occupied can also be made. On the basis of such analyses, it is possible to determine how closely the trends of supply parallel current demands for industrial land.*

*Trends in the demand for industrial lands also can be subjected to statistical measurement and analysis. From such analyses, it is possible to ascertain changes in the industrial character of the State and their potential effects upon Statewide land use patterns.*

# CHAPTER 2

## THE FACTORS INFLUENCING PLANT LOCATION

The importance of manufacturing activities to the development of a balanced economy has motivated planners to seek a clearer picture of the factors influencing plant location. Industries, when seeking sites for the construction of new facilities, have a number of criteria by which they must evaluate the range of possibilities open to them. While the relative importance of various factors may vary from industry to industry and from firm to firm, it is possible to develop a list of criteria which, in general, is followed by all manufacturing operations. In order to establish a basis for later discussions concerning specific site requirements of industry in New Jersey, this chapter provides a description of some of the more generally recognized factors, such as space for expansion, accessibility, labor supply, taxes, site potential, and land costs, which relate to the selection of industrial sites.

When a company goes out in search of a new plant location, it usually approaches the problem with as much care and concern as a family in search of a new home. And frequently there is the same tendency to compromise. No house ever meets all the requirements of a family, nor does any single prospective industrial site meet all the requirements of a company. The real problem for companies usually is that of choosing from among several sites that have the same general advantages and disadvantages.

As a rule, companies seeking new plant locations first select a general area of the country to consider. At first, this area may encompass a group of states, a whole state, or a part of a state. For example, a company may decide on the Ohio River Valley, the Midwest, California, or the northeastern section of New Jersey. The motivating factors at this point usually stem from the general orientation of the industry. For example, a material-oriented industry[1] must seek a location where necessary raw materials are plentiful and readily obtainable, while a market-oriented industry[2] is likely to choose to be close to the market served. When transportation costs are a small part of the delivery cost of the finished product and when wages constitute a large share of production costs, labor can become the determining factor in the general industrial location. A fourth general factor is water. Formerly regarded by economists as an "ubiqutous" factor in plant location, water, as a raw material for industry, is receiving increasing attention. While there are no truly water-oriented industries at present (perhaps the aluminum processing industry is the most nearly "water-oriented"), the movements of many industrial plants are restricted by water resources.

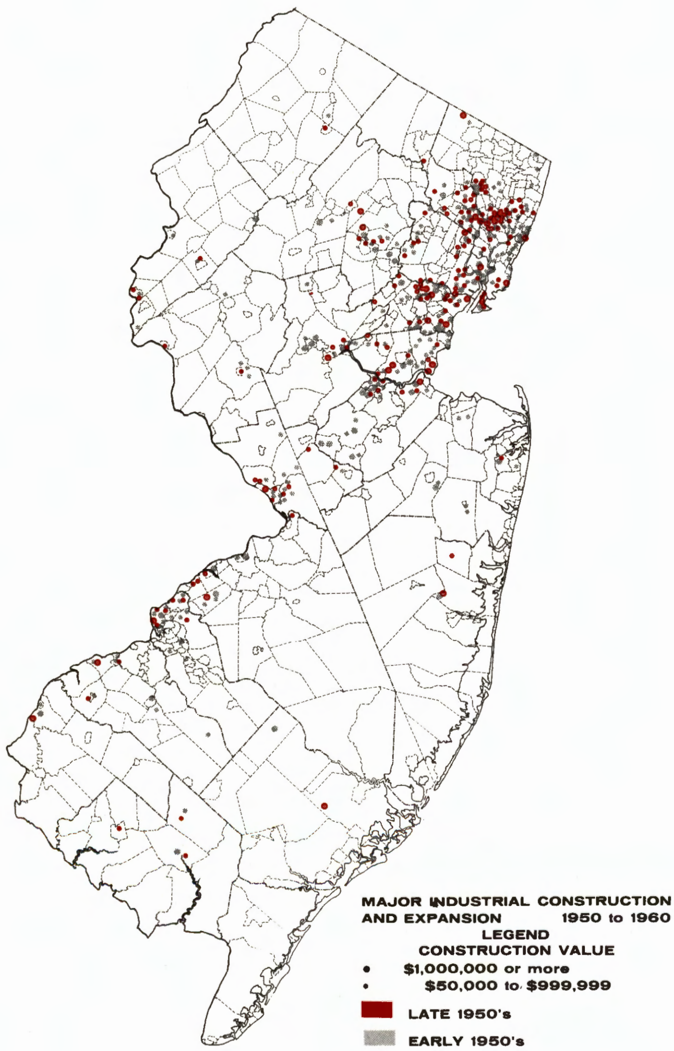
When the general area determination is made, the search is narrowed to the more specific needs and requirements of the particular industry. There seems to be no definite pattern to the order in which these many factors are considered. One study is of interest in this regard, however. The recent development of the Massachusetts circumferential highway, Route 128, outside of Boston has brought with it an extensive industrial development program. A thorough study has been made of the factors influencing the plant location in the Route 128 area. While this area has a particular set of characteristics which prohibits universal generalization, the general response to the question: "Why did your company choose to locate in the Route 128 area?" is of interest in this regard. In general, the factors influencing location were ranked as follows:

1. Space for expansion and improvement of operating efficiency
2. Employee accessibility
3. Labor procurement and retention
4. Business accessibility
5. Advertising
6. Land cost
7. Site potential
8. Aesthetics
9. Rail facilities
10. Lower taxes
11. "Package Deal"

Some variation was evident according to the type of industry. For example, production industries ranked "space for expansion", "employee accessibility", and "labor procurement" in that order, while service industries ranked "aesthetics" second and "employee accessibility" third. Distributive industries, on the other hand, ranked "business accessibility", "space for expansion", and "advertising potential" in that order. The general

[1]Plants are material-oriented when the materials they use are perishable or not freely transportable, or when transportation costs are an important part of total delivered costs, and materials are more expensive to carry than the finished product. Examples include the canning industry, the glass industry, and some of the primary metals industries.

[2]When a company makes finished products which are perishable or which are not freely transportable, or where transportation costs are an important part of the total delivery cost and this finished product is more expensive to carry than are the raw materials involved, the plant will be market-oriented. In certain cases—such as with products involving much customer service—the plants will be market-oriented. Examples include the apparel industry, the printing and publishing industries, and instrument industry.




SOURCE: N. J. DEPT. OF LABOR & INDUSTRY

conclusions of this report were as follows: "This highway opened up large areas of low-valued land where expansion was possible. The high speed, limited access character of the highway extended practical home-to-work distances and enlarged the labor market. The absence of congestion and availability of ample parking space increased accessibility for both business purposes and employees."

The general list of factors influencing plant location presented in the Route 128 study is fairly representative of general factors of demand for industrial lands. It may be of value to review these elements more thoroughly.

## Space for Expansion

The modern trend toward low rambling industrial plants to facilitate the horizontal flow of materials, presents ample evidence of the concern of many industrialists over sufficient space for future expansion. Many companies have chosen to acquire extensive holdings of land on the fringes of urban areas at relatively low prices. These properties are held for long periods of time in order to insure adequate space for future plant additions and expansions. The urban areas are experiencing a disturbing exodus of "established" plants seeking new locations away from the congestion and stagnation of the "gray areas" of the downtown industrial districts. Often abandoned warehouse and plant facilities remain vacant for many years, beckoning the city officials to turn to such remedies as urban renewal and redevelopment. Sometimes these buildings are occupied from time to time by marginal concerns, subdivided into crowded "cells". While the value of such "seed industry" activity should not be overlooked, these operations solve neither the rateable problem nor the congestion problem, but instead often further compound them.

While not all plant locations seek the open spaces of the suburbs, this is an important factor in many of the determinations of new locations of manufacturing activities. The urban area can attract new plants and retain existing rateables by providing a healthier environment for growth and expansion. This includes zoning to protect industry from residential and commercial encroachment as well as providing adequate parking facilities, access and transportation facilities, and adequate space for expansion.

### Accessibility

Accessibility is of vital concern to virtually all companies seeking new plant locations. As was mentioned previously, plants initially may seek accessibility to markets, labor, or raw materials. Beyond this fact, the local accessibility of the plant to its employees and in terms of business activities must be considered. In this regard, transportation facilities play an important role in the ultimate determination of the best plant location. It is interesting to note that material on hundreds of cities seeking new business usually included at the top of the list railroads serving the area. Even if the company involved is not primarily a rail user, the continued value and marketability of the property is enhanced by the ready access to rail facilities. It is for this reason that such companies seek rail sidings or rail access even though they may not regularly utilize these facilities.

The local transit system invariably comes in for close scrutiny, as well as distances from the plant to center city, airports, bus facilities, and parking. In fact, some companies have been known to reject a site which met all other basic requirements except adequate parking facilities for shopping in the adjacent community.

Adequate highways and local access roads also are of prime concern. Access to expressways, freeways, and other types of high-speed, limited access highways constitute another important factor in plant location, for reasons of prestige as well as convenience.

### Labor Supply

The factor of labor procurement and retention plays a vital role in the determination of new plant locations. A stable employment situation eliminates many of the problems of recruiting, training, and re-training which many companies in less desirable employment environments must face. Initially, a company will seek to locate in an area where there is sufficient skilled labor to undertake its preliminary operations. Often the nucleus of this labor force must be secured prior to the location and/or may accompany the plant from its previous or home plant site.

Some industries, as was mentioned previously, are labor-oriented. However, for an industry to be labor-oriented, there is also a necessity for geographic differentials in labor costs or for the particular kinds of labor to be available only in certain places. State and local labor laws also are a matter for consideration in this regard.

In judging the potential labor supply, such factors as productivity and work standards must be considered in addition to wage rates. While labor supply is an important factor influencing plant locations, only a few industries concern themselves with seeking "cheap labor". Such industries often do not contribute proportionately to the economic base of the community. They may often be highly unstable and mobile, and may further compound the community's problems by bringing unskilled laborers into the community. Such industries should not be actively sought without a realistic evaluation of their effect upon the community.

### Service Facilities

A company, of course, will carefully study the availability of power and fuel, examining the relative cost factors of shipping coal, steel, lumber, and other materials into the area under consideration. Some companies are interested in the immediate availability of these basic materials. In nearly all cases, an adequate water supply is a paramount requirement. Adequate disposal facilities also provide an important factor in location activities.

### Advertising and Prestige

The prestige and advertising value of a prime location are becoming more and more important as considerations in new industrial development programs. Many companies have located along major limited access highways even at some distance from the access point in order to capitalize upon the "free advertising" that can accrue from an attractive building with well-kept grounds, and an evident but unobstructive billboard identifying the concern.

Other firms may choose to seek locations in "name areas" or in industrial parks which are readily identifiable throughout the country. A "good address" can be an important asset for advertising purposes.

### Land Costs

A recent article in **Dun's Review and Modern Industry**, reported on a survey of 107 companies, made to determine how the problems of plant location are handled. It pointed out that one of the major plant location pitfalls was the devoting of too much attention to the cost of the land. [Other major "pitfalls" listed were: (1) hasty acceptance of the information supplied in local community "handouts"; (2) underestimating the cost of moving; (3) judging the potential labor supply in terms of wage rates alone, neglecting productivity and work standards; (4) moving to take advantage of short-term benefits].

Many companies are re-evaluating this facet of plant location. Its relatively low position on the Route 128 survey is an indication of the more recent trends in this respect. Industries have discovered that cheap land is often undesirable because of its relative location, the "neighbors" which they must "live with", construction difficulties which may arise, a lack of adequate service facilities on the site, and a host of other drawbacks which are not initially evident.

Land acquisition costs, however, will continue to be an important factor in plant location activities, and companies must continue to balance land costs against other location factors.

### Site Potential and Aesthetics

The factors of site potential and aesthetics are often deemed to be intangible items which cannot be readily evaluated or analyzed. They are, however, integral parts of other aspects, and in recent years, they have come to the fore as at least secondary considerations in plant location decisions. They are reflected in considerations of advertising potential, space for expansion, and of course, land costs. An aesthetically desirable site has a certain advertising potential which cannot be measured in dollars and cents. Undoubtedly, if a company president is faced with a choice between two sites which are otherwise equally desirable, he will choose the site which is aesthetically more pleasing to him, or the one which he may feel has the greater site potential for the future growth of his firm.

Many plant location specialists relate the story of the manufacturing concern which hired a well-known industrial consultant to evaluate several potential sites for the firm's new home office. After much scientific analysis (at a high retainer) the consulting firm recommended a site to the company's president. He gave it due consideration, then decided on another site. His reason—the fishing was better in the vicinity of the second site and he and many of his executives were avid fishermen.

While this story is the exception rather than the rule, the "subjective" considerations often play an important part in over-all decisions concerning plant location.

### Taxes

Of natural concern in the selection of a new plant site is the matter of taxes. The tax situation, however, is not as grave a concern as is generally believed. Depending upon which side of the controversy one hears, the picture is bleak or rosy. A recent study prepared by a special taxpayer's committee in a midwestern state listed the state's corporate income tax and the local property tax as the leading "factors disadvantageous to industrial expansion". However, in survey-ing the reasons for plant movement or relocation, this same study found that lower taxes were listed far down the scale as a motivating factor in plant location. It would appear that while the tax structure of a given area plays a role in location decisions, those areas with higher business and property taxes can off-set this disadvantage by offering a variety of other positive factors. Once a firm has determined its location, however, it will make every effort to maintain the **status quo** with regard to taxes and will further campaign actively for lower taxes.

The outward movement of industry from the highly congested urban areas into the suburbs is often pointed to as evidence of the flight from high property taxes. However, the tax situation in such cases is often secondary to more vital issues—the lack of sufficient expansion space and the inaccessibility which has resulted from the urban congestion.

In some parts of the country, tax concessions to induce industrial development are commonplace. Such practices, often coupled with rent-free land and low cost buildings, are often referred to as **"package deals".** This kind of situation, in addition to economic issues, raises the question of how predatory a growth-hungry community should be. As Roy D. Chapin, Jr., General Manager of the Automotive Division of American Motors, has pointed out, such situations are psychologically bad for the new industry. "Once you are 'bought', you relinquish some of your freedom of decision in return for the chains of 'quid pro quo'."

It is also bad for the community, and for the new plant's long-term relations with its industrial neighbors. It removes or dissipates some of the benefits that are advanced as arguments favoring the solicitation of new industry in the first place—absorption of part of the community tax burden, and sharing the expense of community development and improvement—and it may breed resentment among established firms which have not been granted such concessions.

No legitimate businessman will refuse to pay his company's way in the form of equitable and just taxes. However, the community which unjustly encumbers its industrial residents with more than their share of the local property tax burden, expecting them to pay for all of the necessary civic facilities and improvements, is headed for a rude awakening when the manufacturer decides to locate his firm elsewhere. Such tax concessions and "package deals" are, of course, unconstitutional in New Jersey.

The factors outlined above influence plant location and provide a basis for the evaluation of the specific considerations or elements which go to make up the general factors of demand. Based upon those demand factors, the question that must be answered is: "What lands in New Jersey would seem most suited for future industrial development?" Some of these factors vary so greatly from area to area that there is no way of measuring them. However, other factors **can be measured and analyzed** with a high degree of accuracy. Such an analysis provides a solid foundation for the determination of the more desirable industrial sites of the State in terms of these more localized factors by narrowing the field of study. The following section of this report, therefore, will devote its attention to this form of analysis.

# CHAPTER 3

## BASED ON PLANT LOCATION FACTORS, WHICH LAND WOULD SEEM POTENTIALLY SUITABLE FOR FUTURE DEVELOPMENT?

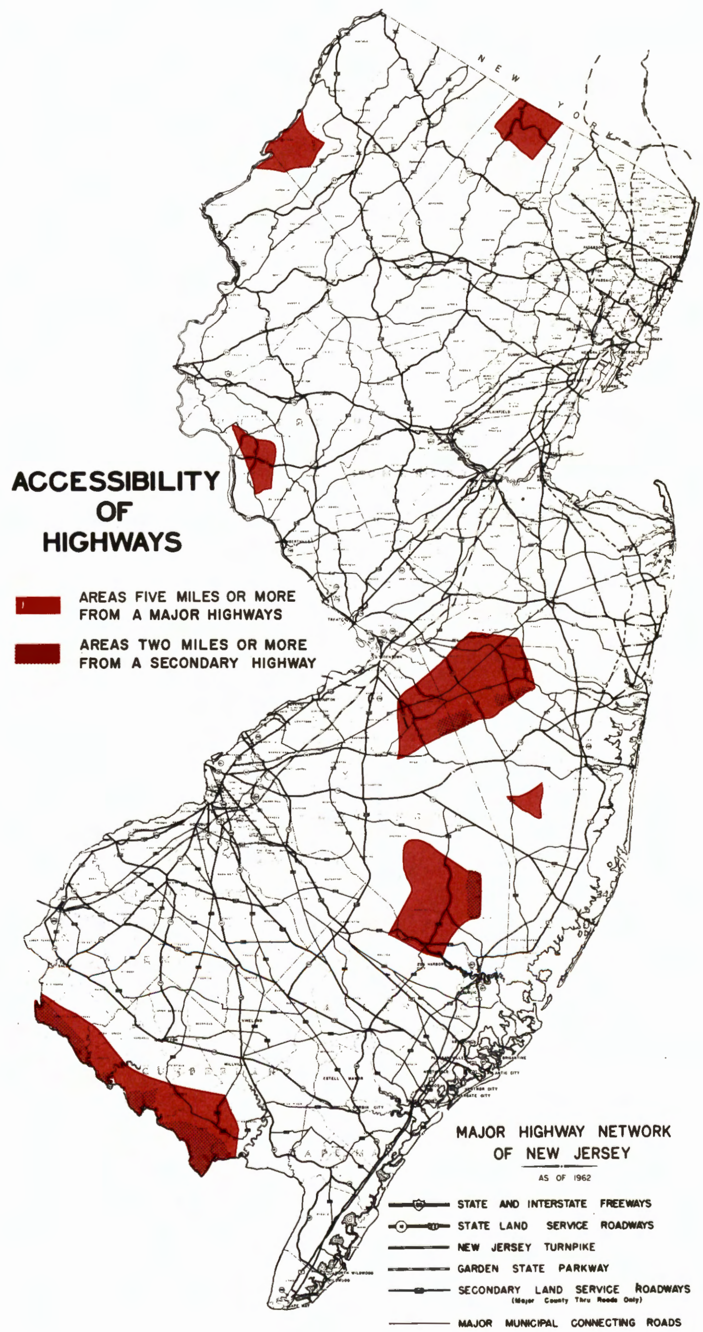
In the previous discussion of the factors influencing plant location (Chapter 2), it was pointed out that some of these can be measured and analyzed with a high degree of accuracy. Since the factor of transportation is one of the most important elements influencing plant location, it will provide the first step in the analysis of the existing inventory of potential sites in New Jersey for future industrial development. A major portion of this chapter is concerned with this analysis.

Through a process of elimination, it is possible to arrive at a series of vacant land areas suitable for industrial development from the standpoint of transportation facilities. A second series of measurable factors concerning the extent of utility service has also been examined to provide further insight into the potential supply areas for future industrial development.

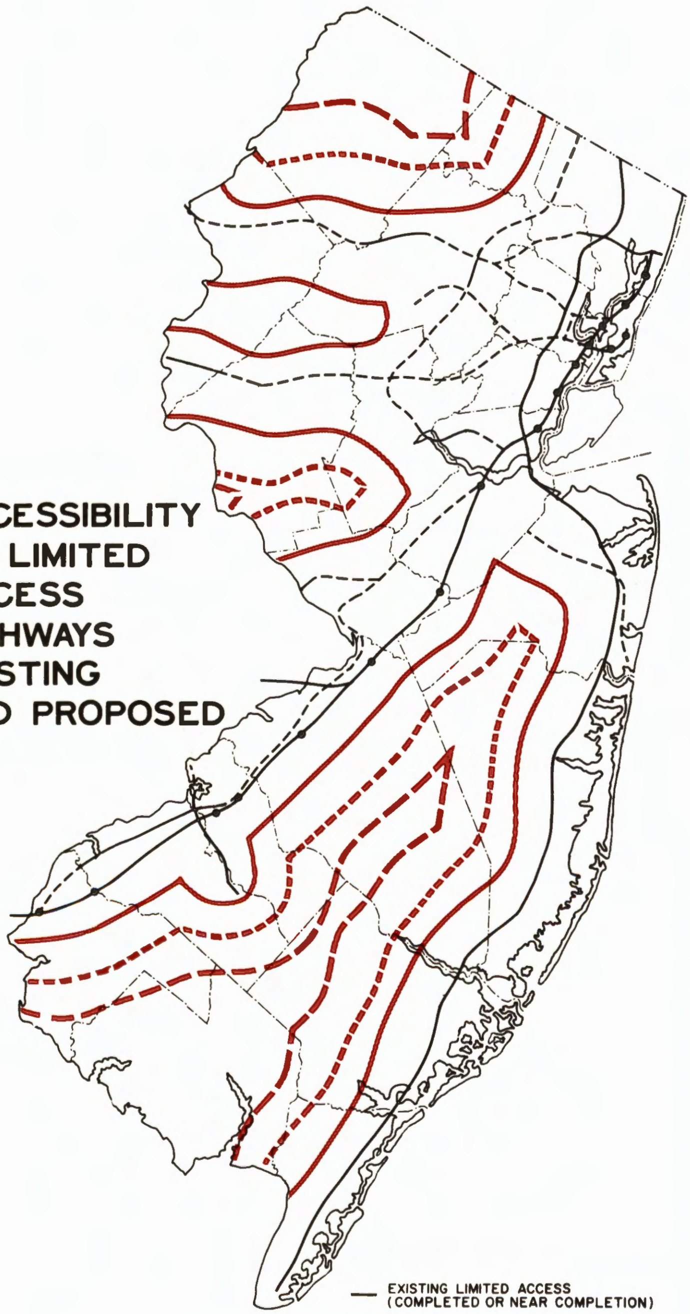
One of the most effective factors of demand which can be readily measured and analyzed is that of transportation facilities. From the previous discussion of the factors influencing plant location, it is evident that the factor of transportation, while it is an important element in itself, also plays a vital role in several other major demand factors. The factor of accessibility, for example, hinges upon a well developed network of highways, access roads, railroads, and airport facilities. The advertising and prestige value of a prime industrial site is often determined by its location in relation to major limited access highways or similar transportation facilities. Site potential and aesthetics also may be determined by the relationship of the site to various transportation facilities. Because of this integral linkage between transportation facilities and the general factors of plant location, this element will provide the first step in the analysis of the existing inventory of potential sites in New Jersey for future industrial development.

## Highways

New Jersey is fortunate in having a highly developed system of both primary and secondary roads. The map on this page shows the general accessibility to highways from the various parts of the State. Only a few isolated areas are more than five miles from a major highway route. These areas are in the sparsely inhabited sections of the State and often have secondary road facilities which could be readily developed, should the demand for a more extensive highway system arise. With very few exceptions, as the map indicates, the entire State is within two miles of secondary road facilities.



# ACCESSIBILITY TO LIMITED ACCESS HIGHWAYS EXISTING AND PROPOSED




Current proposals for limited access highways, when joined with the existing network of such highway facilities, will provide high-speed access to almost every part of the State. The map on this page shows the general accessibility to existing and proposed limited access highways from the various sections of the State. When the proposed limited access highways are completed (the map shows only those highways which are fairly certain of construction) over 50% of the land area of the State and nearly 95% of the State's population will be within five miles of limited access highway facilities. Further, only a small percentage of the State will be more than fifteen miles from limited access highway facilities; again, these areas are generally rural in character and do not evidence a demand for such facilities.

It may be concluded, therefore, that in terms of highway facilities, New Jersey is in a very desirable position. This is not to say that New Jersey is without problems of highway congestion and highway needs. New Jersey has long been a corridor between New York and New England, and Philadelphia, Baltimore, and the South. With the recent completion of the link between the New Jersey Turnpike and the Pennsylvania Turnpike, and the proposed development of the F.A.I. Routes across northwestern New Jersey, an east-west corridor also may be expected to develop across the State. This, coupled with the rapid growth of internal highway movements in the State, makes it evident that New Jersey is far from having reached the ultimate solution to its highway problems. However, the cost factors of time and distance still place New Jersey in a favorable position in terms of highway access facilities.

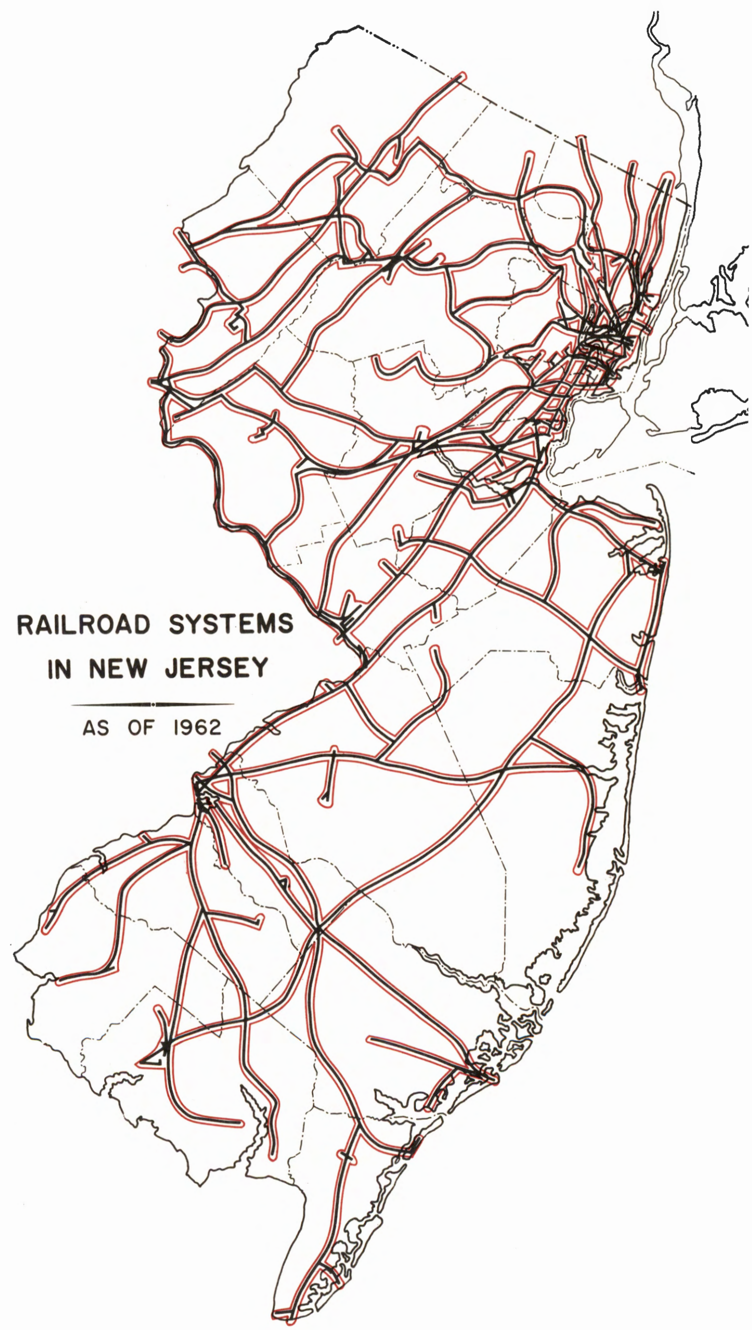
## Railroads

Railroad facilities provide the primary area of concern in terms of transportation facilities as they relate to the problems of plant location. As has been pointed out, even those industries which do not regularly utilize rail facilities usually seek to locate on or near such facilities because of increased potential re-sale value due to railroad access.

In order to obtain a picture of the railroad facilities of the State, a map was prepared showing the major rail lines which criss-cross the State. A line was drawn on each side of all existing railroad rights-of-way at a distance of one-half mile. This map, shown on the right,then provided a base for further analysis by outlining all of the potentially suitable lands for industrial development with regard to railroad facilities. Not all of this land, however, is available, nor is it all desirable for future development. From the areas enclosed between the lines it was necessary to eliminate all lands with the following characteristics:

1. Lands Already Developed for Industrial Purposes
2. Areas of Urban Development
3. Federally Owned Lands
4. State Owned Lands
5. Other Public Open Space Uses
6. Marginal Wetlands or Areas Subject to Seasonal Flooding
7. Lands of Over Five Percent Slope
8. Lands with a High Agricultural Value

The maps on pages 18 through 24 show the extent of each of these categories within the one-half mile boundaries, and in some instances provide the source data for the

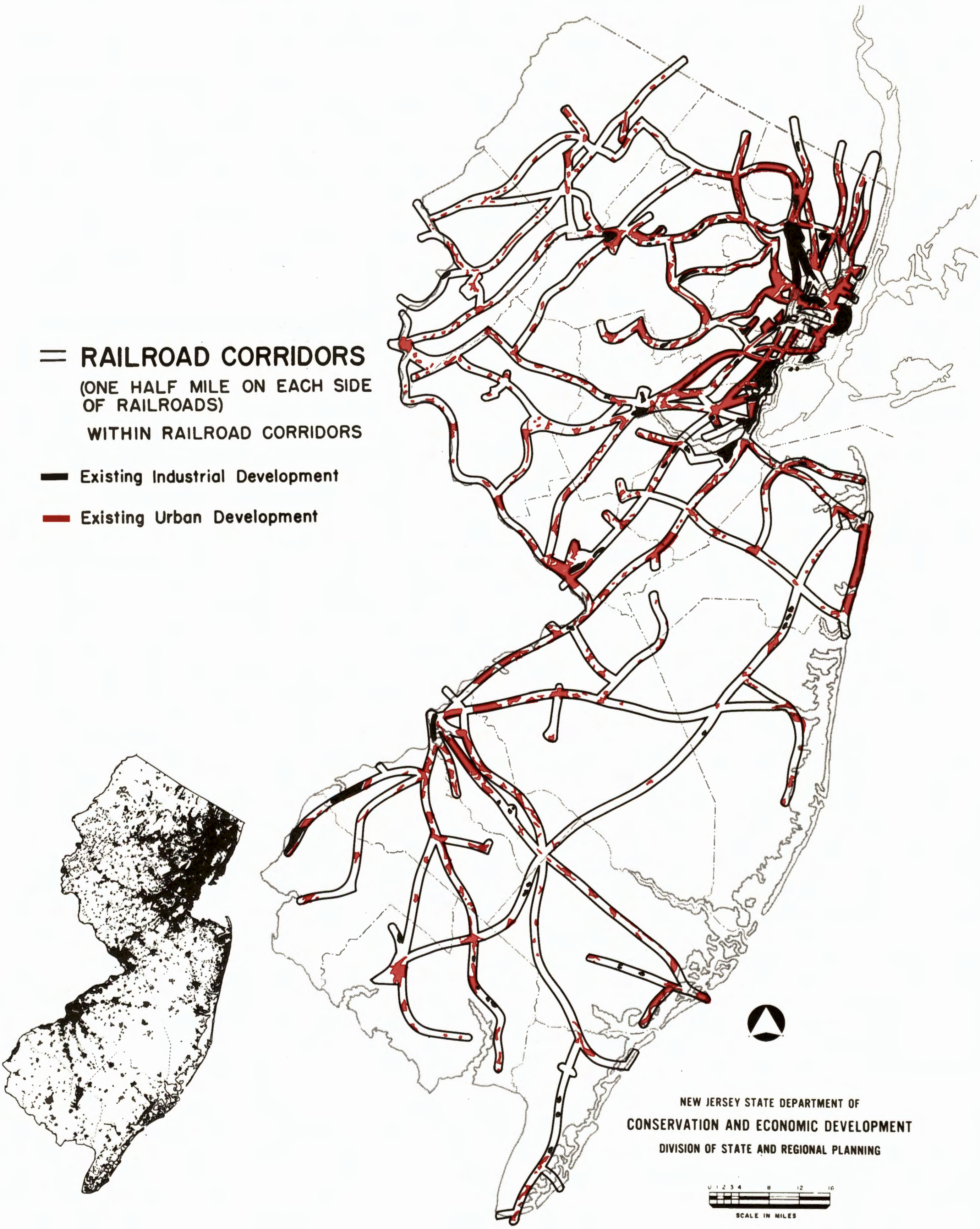


entire State. The logic for the exclusion of these categories is, in most cases, self-evident. Areas which are already extensively developed have relatively little space for further expansion. While it is true that at a map scale of one inch equals four miles it is not possible to show all of the many small potential sites which may exist in urbanized areas, the overall planning, development, and promotion of such small parcels must fall in most cases to the local and county planning and development agencies. For this reason, areas of high urban concentration have been generalized and excluded from consideration. Areas under public ownership also must be removed from consideration.

Open space and recreational areas are important to the future growth and development of the State, and must be preserved if we are to have a healthy environment for future generations. Marginal wetlands, areas subject to flooding, and lands with a slope of over five percent are undesirable for the development of industry, as the cost of reclaiming these marginal areas usually negates other site advantages. Finally, as our State continues to become more and more urbanized, the demand for perishable agricultural products will undoubtedly increase. Many of the most suitable agricultural lands lie in the present path of urban development. If we are to avoid the high costs of importing perishable foodstuffs from less highly urbanized areas, steps must be taken now to conserve areas of prime agricultural value. For this reason, such areas also have been set aside for consideration in this analysis.

= RAILROAD CORRIDORS
(ONE HALF MILE ON EACH SIDE OF RAILROADS)
WITHIN RAILROAD CORRIDORS

Existing Industrial Development

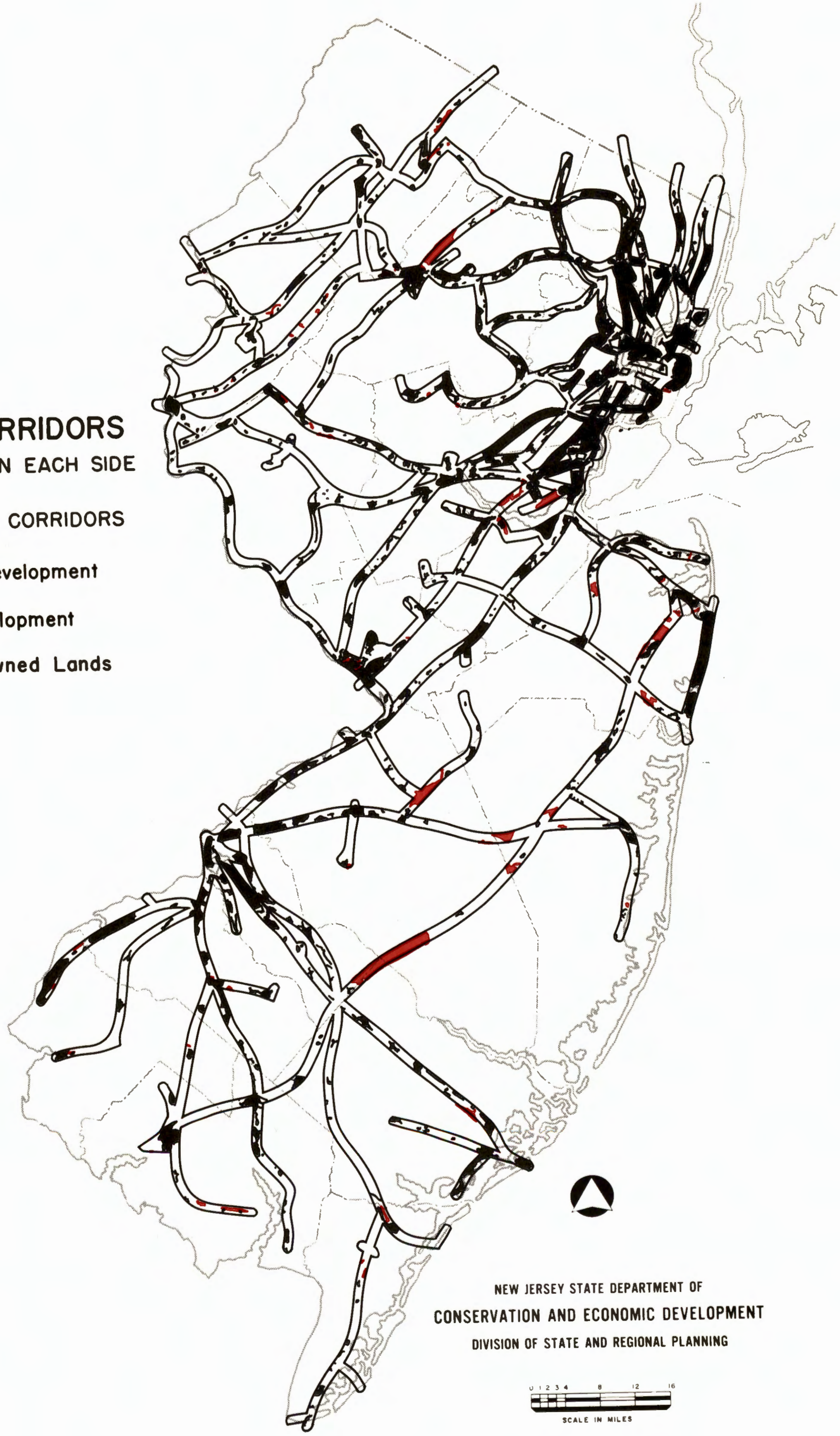

RAILROAD CORRIDORS
(ONE HALF MILE ON EACH SIDE OF RAILROADS)
WITHIN RAILROAD CORRIDORS
Existing Industrial Development
Existing Urban Development
NEW JERSEY STATE DEPARTMENT OF
CONSERVATION AND ECONOMIC DEVELOPMENT
DIVISION OF STATE AND REGIONAL PLANNING
0 1 2 3 4 8 12 16
SCALE IN MILES

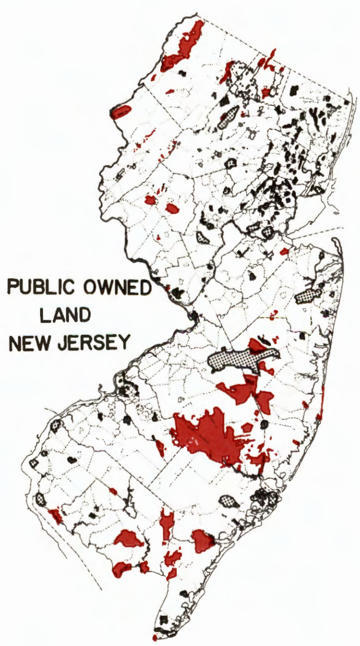
## = RAILROAD CORRIDORS

(ONE HALF MILE ON EACH SIDE OF RAILROADS)

WITHIN RAILROAD CORRIDORS

- Existing Industrial Development
- Existing Urban Development
- Federal and State Owned Lands



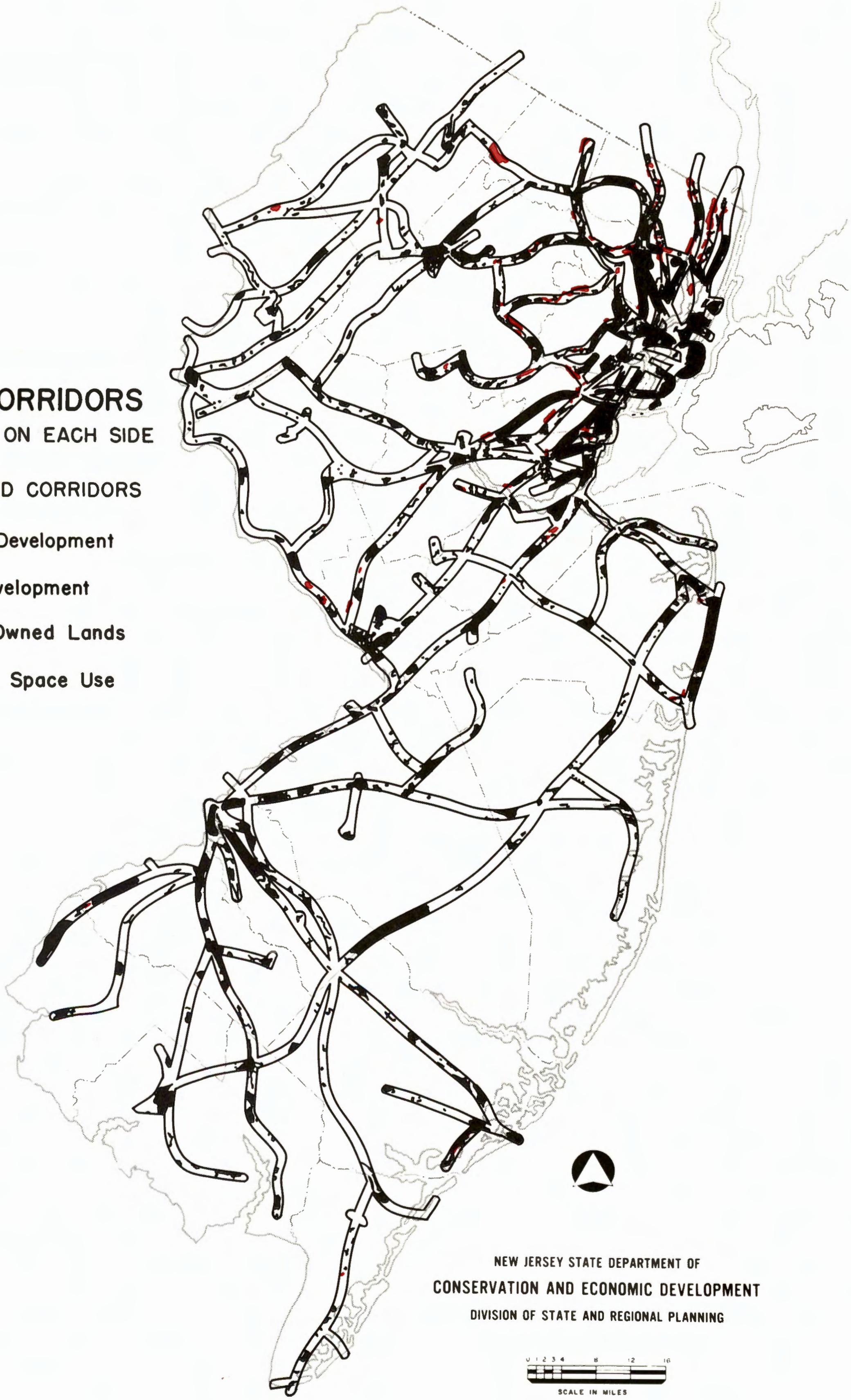



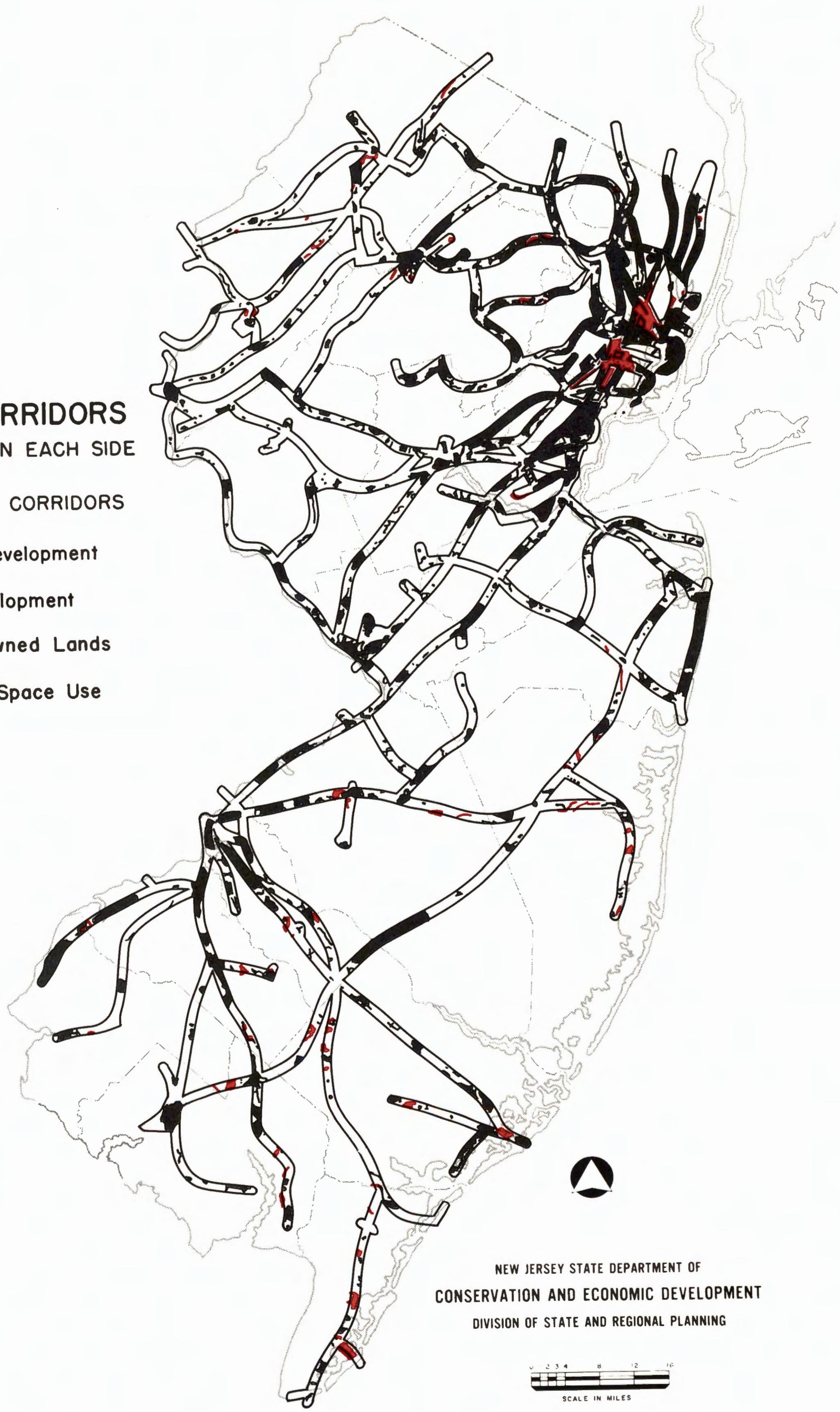
## = RAILROAD CORRIDORS

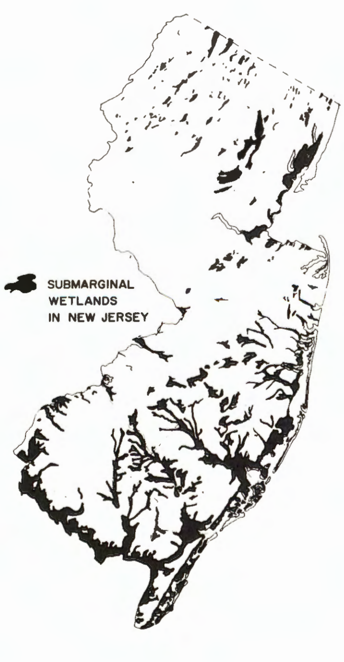
(ONE HALF MILE ON EACH SIDE OF RAILROADS)

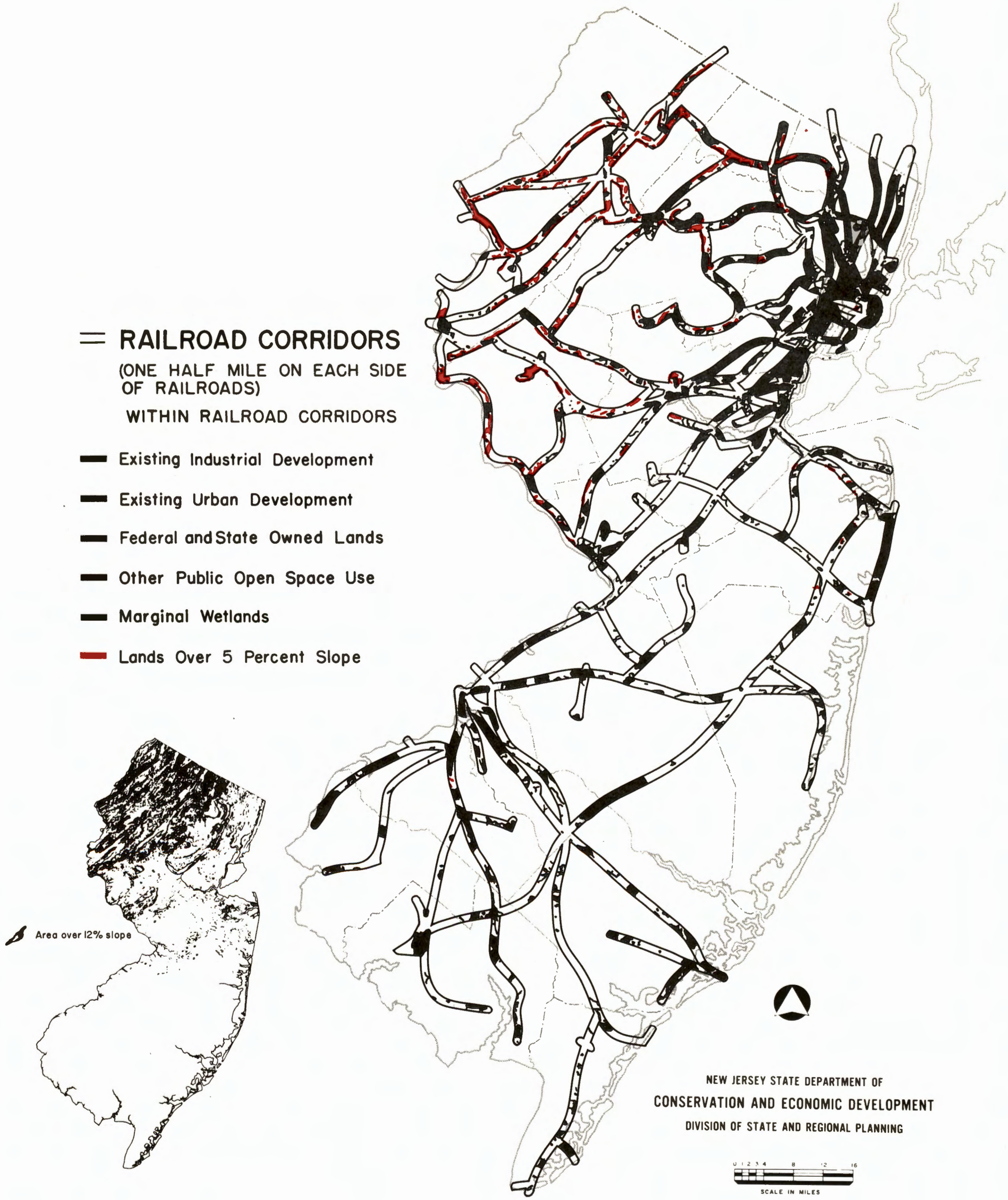
WITHIN RAILROAD CORRIDORS

- Existing Industrial Development
- Existing Urban Development
- Federal and State Owned Lands
- Other Public Open Space Use

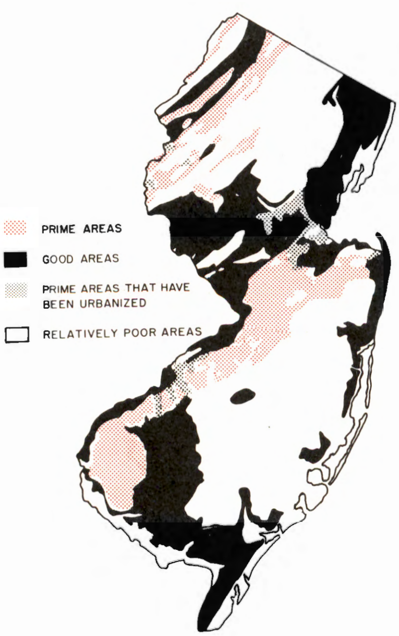



= RAILROAD CORRIDORS
(ONE HALF MILE ON EACH SIDE OF RAILROADS)
WITHIN RAILROAD CORRIDORS
Existing Industrial Development
Existing Urban Development
Federal and State Owned Lands
Other Public Open Space Use
Marginal Wetlands
NEW JERSEY STATE DEPARTMENT OF
CONSERVATION AND ECONOMIC DEVELOPMENT
DIVISION OF STATE AND REGIONAL PLANNING
SCALE IN MILES


SUBMARGINAL
WETLANDS
IN NEW JERSEY


RAILROAD CORRIDORS
(ONE HALF MILE ON EACH SIDE OF RAILROADS)
WITHIN RAILROAD CORRIDORS
Existing Industrial Development
Existing Urban Development
Federal and State Owned Lands
Other Public Open Space Use
Marginal Wetlands
Lands Over 5 Percent Slope
Area over 12% slope
NEW JERSEY STATE DEPARTMENT OF
CONSERVATION AND ECONOMIC DEVELOPMENT
DIVISION OF STATE AND REGIONAL PLANNING
SCALE IN MILES


RAILROAD CORRIDORS
(ONE HALF MILE ON EACH SIDE OF RAILROADS)
WITHIN RAILROAD CORRIDORS
Existing Industrial Development
Existing Urban Development
Federal and State Owned Lands
Other Public Open Space Use
Marginal Wetlands
Lands Over 5 Percent Slope
Areas of High Agricultural Value
NEW JERSEY STATE DEPARTMENT OF
CONSERVATION AND ECONOMIC DEVELOPMENT
DIVISION OF STATE AND REGIONAL PLANNING
0 1 2 3 4 8 12 16
SCALE IN MILES


PRIME AREAS
GOOD AREAS
PRIME AREAS THAT HAVE BEEN URBANIZED
RELATIVELY POOR AREAS

## Other Factors Must Be Considered

Having arrived, through a process of elimination, at a series of vacant land areas in proximity to existing rail facilities, certain other factors must be considered in order to complete the inventory of potentially desirable sites for future development. As was pointed out earlier, sites which are served by public water, sewers, gas, and electricity are in a greater demand than those in areas where the expense of providing such facilities must be shared in part by the prospective developer. In order to further classify the existing vacant areas which may have a potential for future development, a four category system was devised. These categories are as follows:

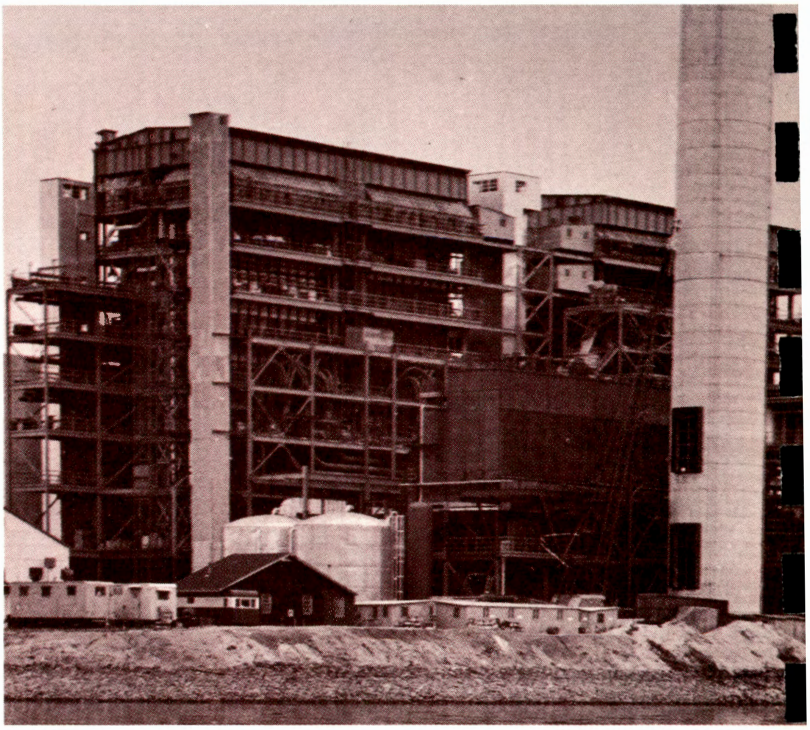
1. Areas served by public water and sewers
2. Areas within two miles of expandable public water and sewers
3. Areas served by or within two miles of public water only
4. Areas with neither accessible public water or sewers

All of New Jersey is within the franchise of service of one or another of the electric companies of the State. While the extent of coverage and service may vary from area to area, electric service would not appear to be an obstacle to industrial development in any part of the State. Gas service, on the other hand, varies considerably throughout the State. The map on page 26 shows the current areas of service of the various gas companies of the State. The **red** areas represent areas currently served by gas companies.

In addition, areas which are **white** show where gas service has been authorized but where it is not yet available, and the gray areas represent locations where no service has been authorized or franchised. The pipe lines of gas transmission companies are also shown on this map. These lines are important in those areas without service, because they provide a source for gas service to sites within proximity to these transmission lines. For a fee to cover metering operations and the connection of facilities, a private company can tap on to these lines to secure gas service for their operations in the more remote areas of the State.

By combining this mapped data on the availability of utilities, the map on page 27 provides a general indication of the existing inventory of vacant lands which may be used for further industrial development. Table I provides a more detailed breakdown of these various categories by counties.

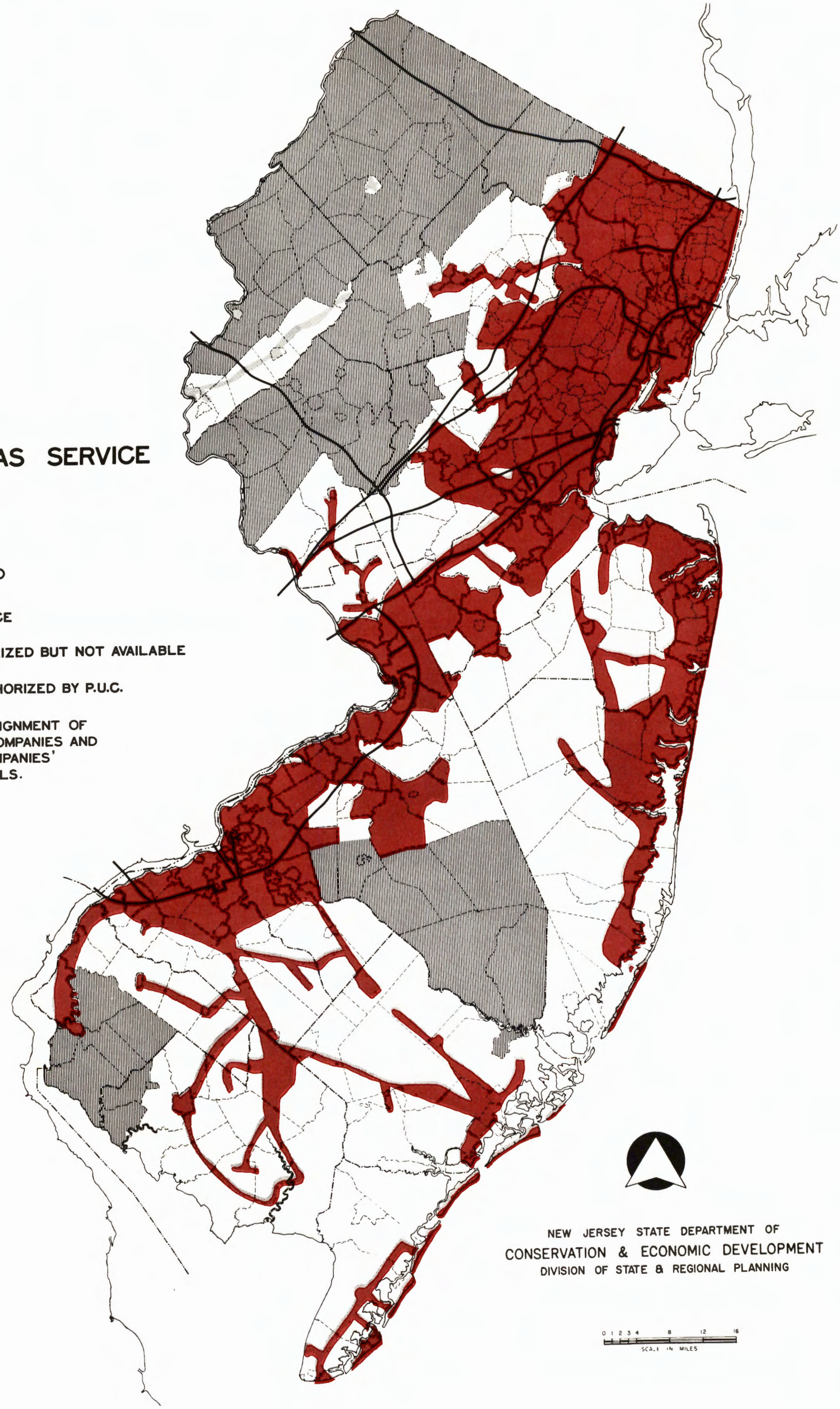
It must be pointed out that this study was not designed to recommend specific areas for industrial development, merely to provide an inventory of possible major industrial areas. Before a program or plan for industrial development can be proposed, these areas will have to be studied in relation to other types of urban and rural development, and in relation to estimated demands for industrial land. It is hoped, however, that this report will provide a framework within which such studies can be undertaken by local and county officials in cooperation with the State in order to insure a balanced program of future land use.



# AREAS WITH GAS SERVICE

LEGEND

- AREAS OF GAS SERVICE
- GAS SERVICE AUTHORIZED BUT NOT AVAILABLE
- NO GAS SERVICE AUTHORIZED BY P.U.C.
- APPROXIMATE PIPE ALIGNMENT OF GAS TRANSMISSION COMPANIES AND NEW JERSEY GAS COMPANIES' CONNECTION LATERALS.



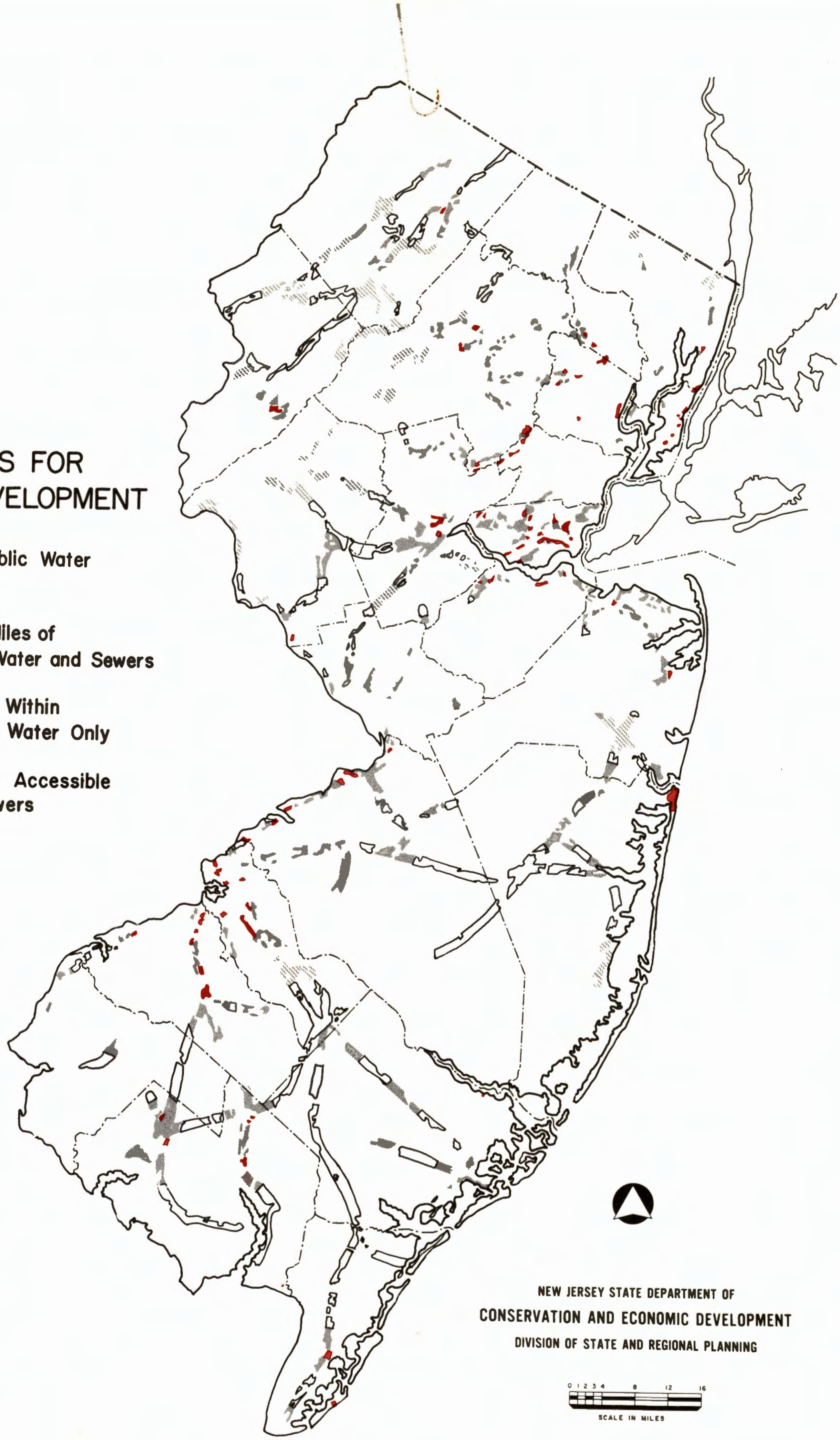
# POTENTIAL SITES FOR INDUSTRIAL DEVELOPMENT

Areas Served by Public Water and Sewers

Areas Within Two Miles of Expandable Public Water and Sewers

Areas Served by or Within Two Miles of Public Water Only

Areas With Neither Accessible Public Water or Sewers



## Table I — Possible Supply Areas - By Counties

| | COUNTY | FIRST PRIORITY Acres | SECOND PRIORITY Acres | THIRD PRIORITY Acres | FOURTH PRIORITY Acres |
|---|---|---|---|---|---|
| 1 | ATLANTIC | — | 10,405 | — | 62,400 |
| 2 | BERGEN | 1,025 | 1,230 | 1,945 | — |
| 3 | BURLINGTON | 3,070 | 17,715 | 1,430 | 23,960 |
| 4 | CAMDEN | 3,380 | 5,325 | 4,300 | 10,750 |
| 5 | CAPE MAY | 970 | 3,070 | — | 14,340 |
| 6 | CUMBERLAND | 1,230 | 17,380 | 330 | 14,950 |
| 7 | ESSEX | 1,430 | 760 | — | — |
| 8 | GLOUCESTER | 1,945 | 7,160 | 256 | 1,640 |
| 9 | HUDSON | 920 | 930 | — | — |
| 10 | HUNTERDON | 208 | 4,710 | 9,980 | 10,250 |
| 11 | MERCER | — | 5,015 | — | 3,070 |
| 12 | MIDDLESEX | 5,635 | 12,595 | — | 485 |
| 13 | MONMOUTH | 706 | 11,980 | 5,425 | 2,355 |
| 14 | MORRIS | 1,075 | 8,550 | 4,100 | 2,510 |
| 15 | OCEAN | 1,460 | 7,985 | 3,480 | 15,565 |
| 16 | PASSAIC | 420 | 2,500 | — | 1,025 |
| 17 | SALEM | — | 2,560 | — | 8,755 |
| 18 | SOMERSET | 972 | 12,285 | 3,380 | 5,785 |
| 19 | SUSSEX | 180 | 8,500 | 12,185 | 11,775 |
| 20 | UNION | 3,075 | 522 | — | — |
| 21 | WARREN | 717 | 2,250 | 6,760 | 10,650 |
| | Total | 28,418 | 143,727 | 53,571 | 200,265 |
| | | | | | TOTAL 425,981 |

1. These figures are approximate due to local variations in terrain, development, etc.
2. Acreage over 1,000 rounded to nearest 5 acres.
   Others rounded to nearest acre.

# CHAPTER 4

## WHAT ARE THE FACTORS OF AVAILABLE SUPPLY?

In New Jersey, it has become the accepted practice for each municipality to indicate the most desirable direction for its future development to take. Without a comprehensive program to guide this development, however, chaos can result. The lure of "economic salvation through local industrial development" may create an extremely undesirable situation with regard to the factors of supply.

By actually measuring the amount of land zoned for industry in each of the 568 municipalities of the State, it is possible to establish a foundation for the analysis of the scope and adequacy of the supply of land set aside for future industrial development activities. Such measurement and analysis, therefore, comprise the second major portion of this chapter. In order to ascertain some emerging trends with regard to industrial zoning, the analysis has been undertaken using 1950 and 1960 data.

A second major step in the analysis of the factors of supply involves the determination of how effectively the areas set aside for industrial development are actually being utilized. This phase of the over-all analysis is very important, as it provides an indication of the relative deficiency or surplus of lands currently zoned for industry.

On the basis of these preliminary analyses of the factors of supply and the current degree of effective utilization, it would appear that in many areas of the State there is an excess of land zoned for industry. More definitive conclusions as to the impact of this situation on the future patterns of growth in the State, however, must wait upon a more detailed study of the factors of demand which will, in large measure, dictate the future directions which the additional anticipated industrial growth will take. This study becomes the task of Chapter 6.

The preceding analysis of existing vacant lands which have a potential for future industrial development permits the designation of the most feasible and desirable areas for such development, without regard to the present zoning status of these areas. For want of a better term, these areas have been labeled as "possible supply areas". A second element of supply is provided by an analysis of present industrial zoning. Some of the lands which have been designated as "possible supply areas" are also zoned for industrial development. Much of the land zoned for industry, however, is not as desirable as other vacant areas which either have no zoning or which are zoned for other uses. For the purpose of future reference, lands presently zoned for industry will be labeled as "available supply areas", since industry could presently locate in such areas should the need arise. By combining the "possible supply areas" and the "available supply areas", and eliminating the overlap of these two categories, an estimate of the present and future supply of lands available and/or desirable for industrial development may be obtained.

## Lands Zoned for Industry

Lands zoned for industrial uses may be divided into three general categories: 1) lands zoned specifically for industry; 2) lands zoned by inference for industry (including such things as Research and Development Zones, Business Zones where industrial-type activities are permitted, Economic Development Zones, etc.); and, 3) lands open to industry by virtue of the fact that no zoning ordinance exists in the area. These groupings may be further divided into subcategories according to the common distinction between "light" and "heavy" industry, and/or according to the degree of "exclusiveness" of the zoning, (i.e. whether other forms of land uses are permitted in the industrial zone). For the purposes of this analysis, the discussion shall be limited to these three basic categories.

Middlesex County heads the list with over 48,600 acres specifically zoned for industry and 3,130 additional acres proposed for such zoning. The existing 76 square miles of land set aside for industrial development represents nearly 25% of the total land area of the county. Burlington County ranks second in total acreage with 41,579 acres set aside for industry, and 3,390 additional acres under consideration. While this figure represents only 8 percent of the total land area of the county, over 37 percent of the land area of Burlington County is without zoning. Cape May County (22,885 acres), Mercer County (19,256 acres), Bergen County (18,316 acres), Hudson County (16,590 acres), Salem County (15,902 acres), Monmouth County (15,529 acres), Morris County (14,681 acres), and Camden County (12,128 acres) round out the top ten counties in terms of total acres of land zoned specifically for industrial use. By way of contrast, Table III on page 32 shows the ranking of the counties by the percentage of the total land area set aside for industry.

In the early fifties, the State Planning agency undertook to document statistically and graphically the extent of zoning for industry in the State. This data made possible an analysis of trends over a ten year period of time. As an early step in this present study, the earlier work of the State Planning agency was brought up to date in charts and maps showing lands set aside for industrial development according to the three general categories cited above.

This analysis disclosed that nearly 314,000 acres of land are presently zoned specifically for industrial use; nearly 70,000 acres are zoned for industry by inference; and over 1,860,000 acres of land are open to all forms of development by virtue of the fact that there is no zoning for these areas. The latter figure represents 38.4 percent of all the lands in the State. In addition, in 1960 there were over 20,000 acres proposed to be set aside for industrial use either specifically or by inference. The specific findings of this analysis are presented by counties in Table II.

## TABLE II — Available Supply Areas By Counties — 1960

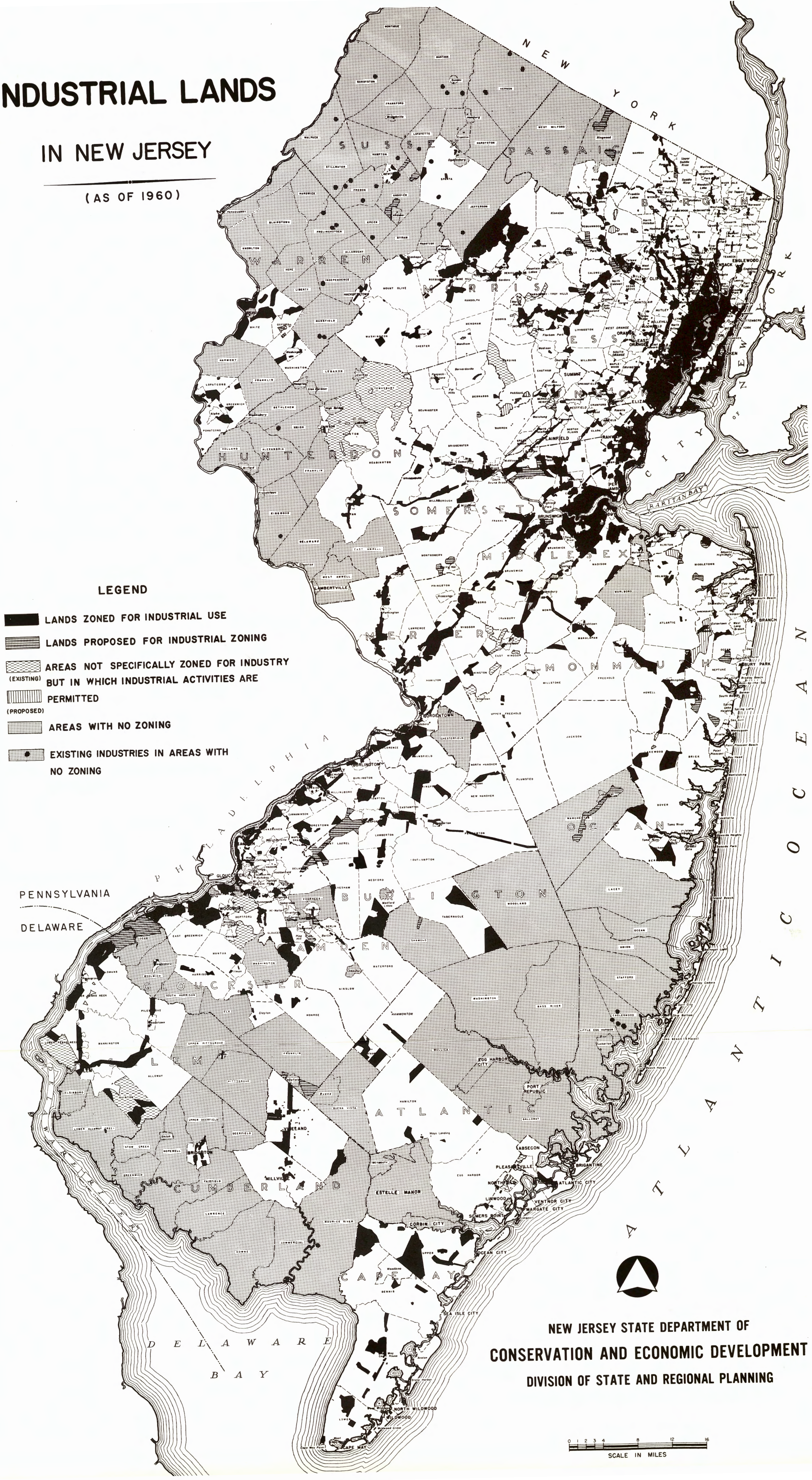
| COUNTY | County Land Area Sq. Mi. | Areas Specifically Zoned For Industry in Acres | Areas Zoned For Industry By Inference in Acres | Areas With No Zoning in Acres | Total in Acres |
|---|---|---|---|---|---|
| 1 Atlantic | 565.6 | 7,222 | 610 | 185,017.6 | 192.849.6 |
| 2 Bergen | 235.1 | 18,316 | | | 18,316.0 |
| 3 Burlington | 819.3 | 41,579 | | 215,546.0 | 267,115.0 |
| 4 Camden | 222.2 | 12,128 | | 49,356.8 | 61,484.8 |
| 5 Cape May | 265.3 | 22,885 | | 6,208.0 | 29,093.0 |
| 6 Cumberland | 502.4 | 9,015 | | 244,544.0 | 253,559.0 |
| 7 Essex | 127.4 | 9,239 | | | 9,239.0 |
| 8 Gloucester | 328.6 | 11,828 | 6,050 | 104,275.2 | 122,153.2 |
| 9 Hudson | 44.1 | 16,590 | | 192.0 | 16,782.0 |
| 10 Hunterdon | 437.0 | 1,576 | 35,700 | 180,774.4 | 218,050.4 |
| 11 Mercer | 226.0 | 19,256 | 3,350 | | 22,606.0 |
| 12 Middlesex | 308.8 | 48,639 | | 3,392.0 | 52,031.0 |
| 13 Monmouth | 477.0 | 15,529 | | 22,873.6 | 38,402.6 |
| 14 Morris | 477.7 | 14,681 | 5,903 | 28,352.0 | 48,936.0 |
| 15 Ocean | 641.0 | 8,757 | 80 | 101,828.8 | 160,337.8 |
| 16 Passaic | 192.2 | 6,927 | | 67,712.0 | 74,639.0 |
| 17 Salem | 343.0 | 15,902 | 17,250 | 90,752.0 | 123,904.0 |
| 18 Somerset | 305.1 | 10,906 | 177 | | 11,083.0 |
| 19 Sussex | 526.3 | 1,283 | | 323,136.0 | 324,419.0 |
| 20 Union | 103.4 | 11,739 | 100 | 108.8 | 11,947.8 |
| 21 Warren | 362.0 | 9,739 | | 176,576.0 | 186,315.0 |
| Total | 7,509.5 | 313,736 | 69,220 | 1,860,307.2 | 2,243,263.2 |

By comparing the 1950 data with the data for 1960, some indication of the increased activity in industrial zoning can be obtained. In 1950 there were nearly 169,000 acres set aside for industrial purposes. By 1960 this figure had increased by nearly 85 percent to 313,736 acres. The most noteworthy increases (in terms of actual increase and in terms of the 1950 base figure) were in such counties as Burlington, which rose from 4,980 acres in 1950 to 41,579 acres in 1960; Middlesex County, which increased in industrial zones from 28,214 acres in 1950 to 48,639 acres in 1960; Salem County, from 5,022 acres in 1950 to 15,902 acres in 1960; and Camden County, which showed an increase from 4,418 acres in 1950 to 12,128 acres in 1960. The Table on page 32 shows the overall numerical and percentage change in lands zoned for industry between 1950 and 1960 for the twenty-one counties.

# INDUSTRIAL LANDS

## IN NEW JERSEY

(AS OF 1960)

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DIVISION OF STATE AND REGIONAL PLANNING

It is interesting to note that, with the exception of Middlesex and Camden Counties, those counties which experienced the greatest numerical growth in acres zoned for industry (those with an increase of over 7,000 acres) are areas which are still relatively undeveloped in terms of industrial land use. Further, again with the exception of Camden County, those areas which had a relatively high percentage increase (over the State average of 85%) were such counties as Burlington, Monmouth, Salem, Warren, Ocean, Cumberland, Hunterdon, and Sussex which are at present outside of the path of current industrial expansion. Those counties with relatively low increases such as Mercer, Bergen, Passaic, Gloucester, Union, Hudson, and Essex may be viewed as having reached a saturation point where the majority of the more desirable sites for industry already have been protected through zoning, and where further large scale zoning for industry would seem difficult.

**TABLE III**

**Percentage of Total Land Area Specifically Zoned for Industry**

| Rank | County | Percentage of Total Land |
|---|---|---|
| 1. | Hudson | 58.8 |
| 2. | Middlesex | 24.6 |
| 3. | Union | 17.7 |
| 4. | Cape May | 13.5 |
| 5. | Mercer | 13.3 |
| 6. | Bergen | 12.2 |
| 7. | Essex | 11.3 |
| 8. | Camden | 8.5 |
| 9. | Burlington | 7.9 |
| 10. | Salem | 7.2 |
| 11. | Passaic | 5.6 |
| 12. | Gloucester | 5.6 |
| 13. | Somerset | 5.6 |
| 14. | Monmouth | 5.1 |
| 15. | Morris | 4.8 |
| 16. | Warren | 4.2 |
| 17. | Cumberland | 2.8 |
| 18. | Ocean | 2.1 |
| 19. | Atlantic | 2.0 |
| 20. | Hunterdon | 0.6 |
| 21. | Sussex | 0.4 |

**TABLE IV**

**Change in Lands Zoned for Industry, 1950-1960**

| Rank | County | Numerical Change | Percentage Change |
|---|---|---|---|
| 1. | Burlington | 36,599 | 734.9 % |
| 2. | Middlesex | 20,425 | 72.4 % |
| 3. | Monmouth | 11,133 | 253.3 % |
| 4. | Salem | 10,880 | 216.6 % |
| 5. | Warren | 9,140 | 1,525.9 % |
| 6. | Ocean | 8,020 | 1,088.2 % |
| 7. | Camden | 7,710 | 174.5 % |
| 8. | Cape May | 7,545 | 49.2 % |
| 9. | Cumberland | 7,094 | 369.3 % |
| 10. | Morris | 6,051 | 70.1 % |
| 11. | Mercer | 4,404 | 29.7 % |
| 12. | Somerset | 3,874 | 55.1 % |
| 13. | Bergen | 3,189 | 21.1 % |
| 14. | Atlantic | 2,029 | 39.1 % |
| 15. | Gloucester | 1,908 | 19.2 % |
| 16. | Passaic | 1,674 | 31.9 % |
| 17. | Hunterdon | 1,375 | 684.1 % |
| 18. | Union | 1,284 | 12.3 % |
| 19. | Sussex | 1,156 | 910.2 % |
| 20. | Hudson | –132 | –0.8 % |
| 21. | Essex | –529 | –5.4 % |

## TABLE V — Percent Change of Effective Utilization of Industrially Zoned Lands, 1950-1960

| | | 1950 INDUSTRIAL SURVEY | | | 1960 INDUSTRIAL SURVEY ESTIMATES | | | |
|---|---|---|---|---|---|---|---|---|
| County | County Land Area Sq. Mi. | Acres Zoned for Industry | Acres Occupied by Industry | Percentage | Acres Zoned for Industry | Acres Occupied by Industry | Percentage | Change in Percentage |
| 1 Atlantic | 565.6 | 5,193 | 272 | 5.2 | 7,222 | 363 | 5.0 | –0.2 |
| 2 Bergen | 235.1 | 15,127 | 2,827 | 18.7 | 18,316 | 3,589 | 19.6 | 0.9 |
| 3 Burlington | 819.3 | 4,980 | 1,091 | 21.9 | 41,579 | 1,429 | 3.4 | –18.5 |
| 4 Camden | 222.2 | 4,418 | 1,705 | 38.6 | 12,128 | 2,710 | 22.3 | –16.3 |
| 5 Cape May | 265.3 | 15,340 | 126 | 0.8 | 22,885 | 196 | 0.9 | 0.1 |
| 6 Cumberland | 502.4 | 1,921 | 737 | 38.4 | 9,015 | 1,197 | 13.3 | –25.1 |
| 7 Essex | 127.4 | 9,768 | 5,013 | 51.3 | 9,239 | 5,348 | 57.9 | 6.6 |
| 8 Gloucester | 328.6 | 9,920 | 4,264 | 43.0 | 11,828 | 4,258 | 36.0 | –7.0 |
| 9 Hudson | 44.1 | 16,722 | 8,297 | 49.6 | 16,590 | 8,555 | 51.6 | 2.0 |
| 10 Hunterdon | 437.0 | 201 | 69 | 34.3 | 1,576 | 389 | 24.7 | –9.6 |
| 11 Mercer | 226.0 | 14,852 | 1,833 | 12.3 | 19,256 | 3,216 | 16.7 | 4.4 |
| 12 Middlesex | 308.8 | 28,214 | 10,043 | 35.6 | 48,639 | 13,553 | 28.3 | –7.7 |
| 13 Monmouth | 477.0 | 4,396 | 1,006 | 22.9 | 15,529 | 1,190 | 7.7 | –15.2 |
| 14 Morris | 477.7 | 8,630 | 2,088 | 24.2 | 14,681 | 3,641 | 24.8 | 0.6 |
| 15 Ocean | 641.0 | 737 | 7 | 0.9 | 8,757 | 103 | 1.2 | 0.3 |
| 16 Passaic | 192.2 | 5,253 | 2,014 | 38.3 | 6,927 | 2,380 | 34.4 | –3.9 |
| 17 Salem | 343.0 | 5,022 | 1,758 | 35.0 | 15,902 | 1,797 | 11.3 | –23.7 |
| 18 Somerset | 305.1 | 7,032 | 2,294 | 32.6 | 10,906 | 3,531 | 32.4 | –0.2 |
| 19 Sussex | 526.3 | 127 | 29 | 22.8 | 1,283 | 47 | 3.7 | –19.1 |
| 20 Union | 103.4 | 10,455 | 5,957 | 57.0 | 11,739 | 6,643 | 56.6 | –0.4 |
| 21 Warren | 362.0 | 599 | 284 | 47.4 | 9,739 | 736 | 7.6 | –39.8 |
| Total | 7,509.5 | 168,907 | 51,714 | 30.6 | 313,736 | 64,871 | 20.7 | –9.9 |

### How Effectively Are These Lands Utilized?

As a second step in the analysis of the factors of supply, it was necessary to ascertain how effectively these areas zoned for industry were being used. The term "effective utilization" as it is used in this report refers to the amount of land zoned for industry which is actually occupied. It includes not only those areas on which industrial plants are presently in operation, but also those vacant parcels which are owned by industry for future expansion purposes. Such a definition, therefore, takes into account the present trend toward the acquisition by industry of larger sites for present and future uses. As with the previous information on industrial zoning, it was possible to make a comparison of 1950 and 1960 figures in charts and maps. This phase of the overall analysis is very important, as it provides an indication of the deficiency or surplus of lands currently zoned for industry. Further, by studying the extent to which the current supply of land is being utilized, it is possible to obtain some insight into the future land demands that may be experienced in the field of industrial development.

### Overall Effective Utilization Has Declined

The analysis of the data discloses that while the total acreage occupied by industrial concerns in the State has increased between 1950 and 1960 from about 52,000 acres to slightly less than 65,000 acres (an increase of over 25%), the overall percentage of effective utilization has declined from 30.6% to 20.7%. This means that while New Jersey has experienced an increase in industrial land use during the past ten years which has kept pace with its population growth, the extensive zoning activity that took place in the fifties resulted in an overall increase in the surplus of lands zoned for industry. Therefore, a decline in the effective utilization of these lands has taken place. As was pointed out previously, nearly 140,000 acres of land were set aside for industrial use during the past ten years. This figure represents an increase of nearly 85% and accounts for the 10% decline in the effective utilization of these lands.

An examination of Table V will show that the greatest declines in effective utilization occurred in those areas where the most extensive zoning for industry occurred. Burlington County, which experienced an increase of nearly 750% in the total area zoned for industry, showed a relative decline of 18.5% in utilization. Cumberland County, with a 370% increase in industrial zoning, experienced a 25% decline; while Salem County, which increased its industrial zones by 216%, showed a 23.7% decline in effective utilization. Warren County, which had the highest percent of increase at 1525%, also showed the greatest relative decline, nearly 40%. Other counties which experienced large increases in areas zoned for industry and relatively high declines in effective utilization include Sussex (–19.1%), Monmouth (–15.2%), Camden (–16.3%), and Hunterdon (–9.6%).

It should be made clear that this does not mean that these areas lost industry during this ten-year period. It indicates, however, that these areas, often on the outer fringe of the present "industrial belt" of the State, have undertaken a zealous program of zoning which has been largely in excess of the demand for land for industrial development in these counties. According to the data gathered for this analysis, no county has shown a major decline in the total acreage used by industry during the past decade. While some sites in certain areas may have been abandoned, other areas have been developed to compensate for this loss. The following table shows the relative increase in occupied industrial lands for the twenty-one counties.

**TABLE VI**

| Rank | County | Percentage of Increase |
|---|---|---|
| 1. | Ocean | 1371.4 % |
| 2. | Hunterdon | 463.8 % |
| 3. | Warren | 159.2 % |
| 4. | Mercer | 75.5 % |
| 5. | Morris | 74.4 % |
| 6. | Cumberland | 62.4 % |
| 7. | Sussex | 62.1 % |
| 8. | Camden | 58.9 % |
| 9. | Cape May | 55.6 % |
| 10. | Somerset | 53.9 % |
| 11. | Middlesex | 34.9 % |
| 12. | Atlantic | 33.5 % |
| 13. | Burlington | 31.0 % |
| 14. | Bergen | 27.0 % |
| | The State Average | 25.4 % |
| 15. | Monmouth | 18.3 % |
| 16. | Passaic | 18.2 % |
| 17. | Union | 11.5 % |
| 18. | Essex | 6.7 % |
| 19. | Hudson | 3.1 % |
| 20. | Salem | 2.2 % |
| 21. | Gloucester | 0.0 % |

These figures may be somewhat deceptive, because in the outlying counties some of the increase occurred by virtue of the zoning of previously unzoned existing industrial sites. The overall picture which this data reflects, however, is one of general increase in industrial land use. Although fourteen of the twenty-one counties ranked above the State average of 25.4%, the four major industrial counties of Passaic, Essex, Hudson, and Union scored below the average for the State. This data would further support the concept that much of the major industrial expansion of our State is occurring in "suburban" areas, such as Morris and Somerset Counties, which are also experiencing relatively high increases in their population.

By way of contrast, Table VII shows the absolute growth of zoned lands occupied by industry.

**TABLE VII**

| Rank | County | Absolute Growth in Acres |
|---|---|---|
| 1. | Middlesex | 3,510 |
| 2. | Morris | 1,552 |
| 3. | Mercer | 1,383 |
| 4. | Somerset | 1,237 |
| 5. | Camden | 1,005 |
| 6. | Bergen | 762 |
| 7. | Union | 686 |
| 8. | Cumberland | 460 |
| 9. | Warren | 452 |
| 10. | Passaic | 366 |
| 11. | Burlington | 338 |
| 12. | Essex | 335 |
| 13. | Hunterdon | 320 |
| 14. | Hudson | 258 |
| 15. | Monmouth | 184 |
| 16. | Ocean | 96 |
| 17. | Atlantic | 91 |
| 18. | Cape May | 70 |
| 19. | Salem | 39 |
| 20. | Sussex | 18 |
| 21. | Gloucester | –6 |

From this data it can be seen that, if the consumption of land by industry had been uniformly distributed throughout the twenty-one counties, each county would have increased its industrial lands by about 625 acres (the State total of 13,157 acres divided by 21). On this basis, it may be concluded that only seven counties managed to secure this average or more. These seven counties —Middlesex, Morris, Mercer, Somerset, Camden, Bergen, and Union—also represent major "growth" areas in terms of population, residential and commercial development, etc. during the past ten years. On the other hand, the outlying rural counties, while experiencing a relatively high percentage increase, fail to show a high absolute growth due to the relatively low base figure of occupied industrial land. In the highly urbanized counties, such as Hudson, Essex, and Passaic, there would appear to be insufficient space for any extensive industrial development; therefore, absolute growth figures in these areas were below the theoretical State "average".

The maps on pages 37 and 38 show the extent of the effective utilization of lands zoned for industry in the various municipalities for 1950 and 1960. One of the significant conclusions that may be drawn from these two maps is the increase in zoning which has occurred during this ten-year period. While there has been no measurable significant change in a large proportion of the municipalities of the State, the relative increases or declines in the 20% of the municipalities which did show a change account for the aforementioned data on county industrial land.

The resultant effects of the extensive increases in lands zoned for industry and the parallel change in the effective utilization of these areas are shown for the municipalities in the map on page 41 This map was arrived at by computing the difference between zoned and occupied areas for 1950-1960, and the difference between the area zoned for industry and the total area of the municipality. By subtracting the latter figure from the former, it is possible to show the effects of zoning on occupancy. For example, if a community zoned a large portion of its land area for industry but only a small portion was used, the net effect would be a relatively high negative number. If, however, the zoning and occupancy just kept pace with one another, the result would show little change. Finally, if the community experienced extensive industrial development of the lands previously zoned and did not zone any further large quantities of land for industrial use, the net effect would show as a relative high positive number. From the mapped data certain conclusions may be drawn.

It would appear that the "positive" areas (areas in which the occupancy exceeded the zoning) are concentrated in the major "industrial belt", particularly in the New Brunswick area of Middlesex County, in the rapidly developing Route 130 and Cherry Hill section of Camden County, in the Route 22 area of Somerset and Hunterdon Counties, and in the major industrial centers of Newark, Elizabeth, Bayonne, Jersey City, Fair Lawn, and Clifton. There is also some evidence of the effects of the Garden State Parkway on the development of the northeastern section of Monmouth County.

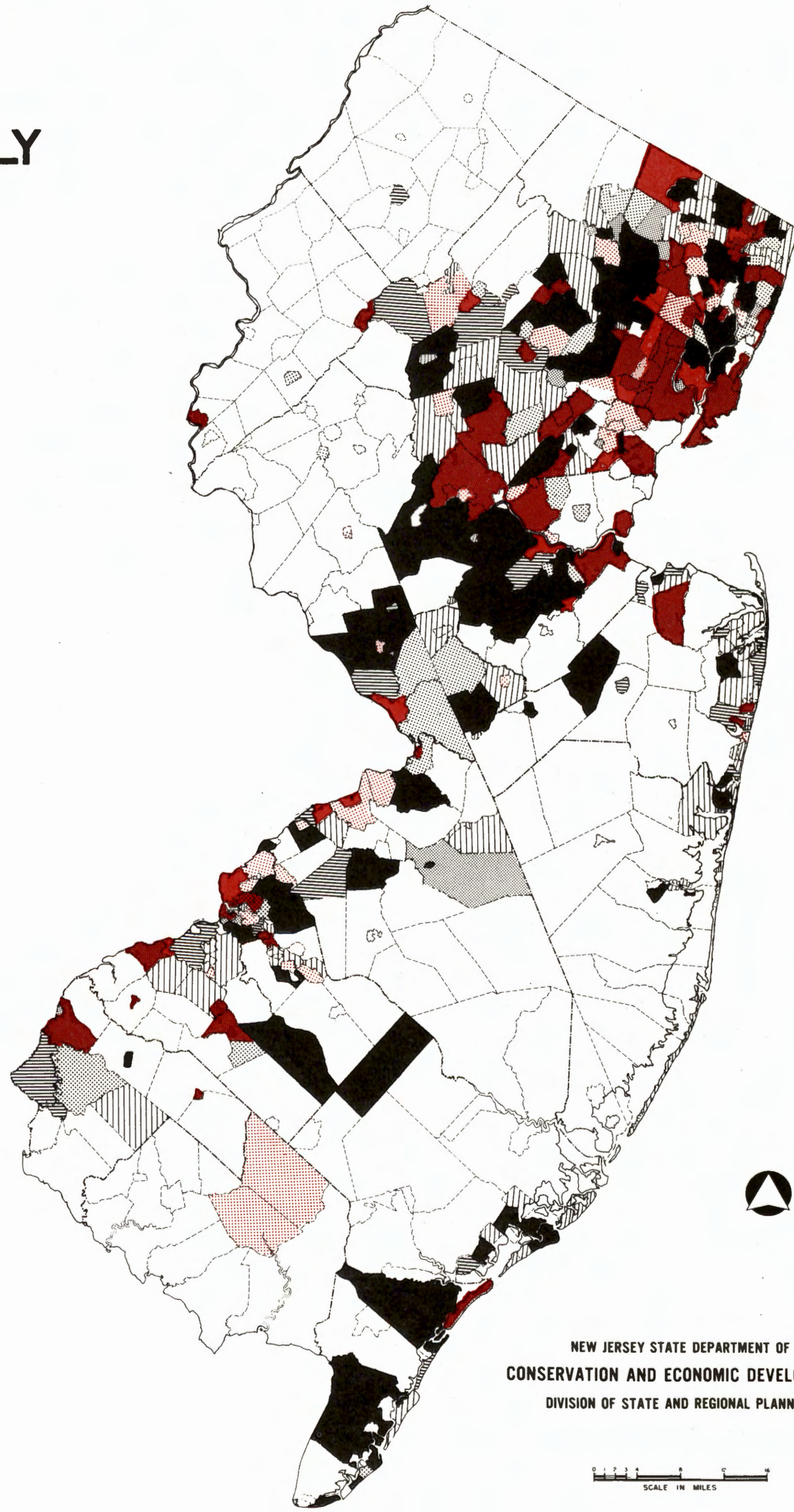
At the other extreme, the "negative" areas (areas in which the extent of zoning exceeded that of occupancy during this ten-year period) would appear to be located in the outlying, more recently developed sections of the State. This is particularly evident in Burlington County, in parts of Salem and Cumberland Counties where zoning activities have only recently taken place, in Cape May County, and in the western sections of Morris and Mercer Counties. The one striking exception is the area to the south of Plainfield in Middlesex County where the anticipation of future growth has provoked an enthusiastic industrial zoning program in several communities.

### There Appears to be an Excess of Lands Zoned for Industry

On the basis of this preliminary analysis of the factors of supply and the current degree of effective utilization, it would appear that in many areas of the State the current supply of land zoned for industrial purposes greatly exceeds the present demands by industry for such lands. In order to determine whether or not this is a healthy situation in terms of future land use development, it is necessary to ascertain the potential factors of demand and supply which may be expected as the population of the State grows to seven, eight, and nine million. Before such an analysis can be undertaken, however, the factors of demand must be studied more thoroughly. These, in large measure, will dictate the future directions which this additional anticipated industrial growth will take.

# EFFECTIVE UTILIZATION OF INDUSTRIALLY ZONED LANDS 1950

- 0–4.9 %
- 5.0–14.9 %
- 15 0–29.9 %
- 30.0–44.9 %
- 45.0–59.9 %
- 60.0 and over
- No zoning
- Not available
- No Industrial zoning

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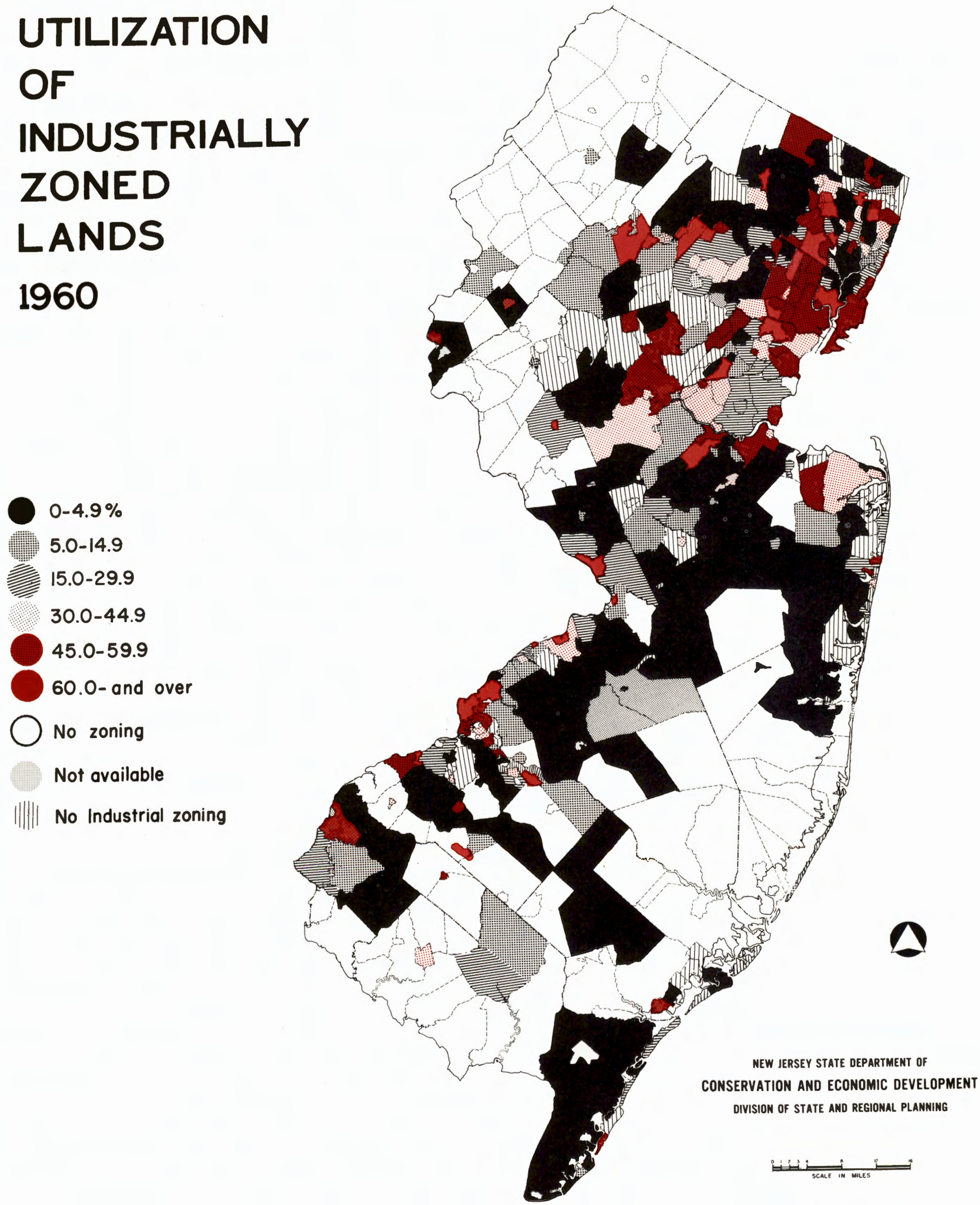
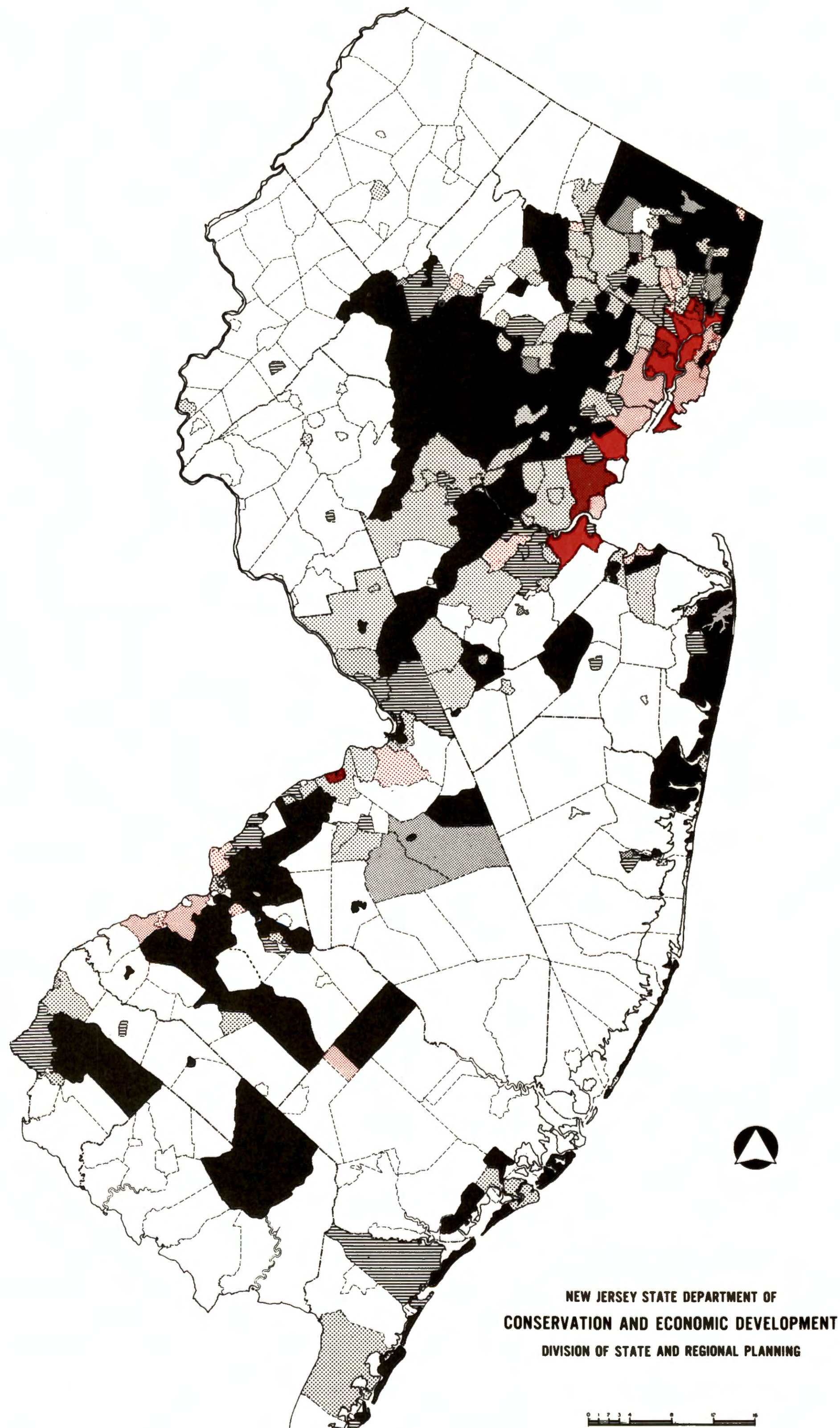
# EFFECTIVE UTILIZATION OF INDUSTRIALLY ZONED LANDS 1960

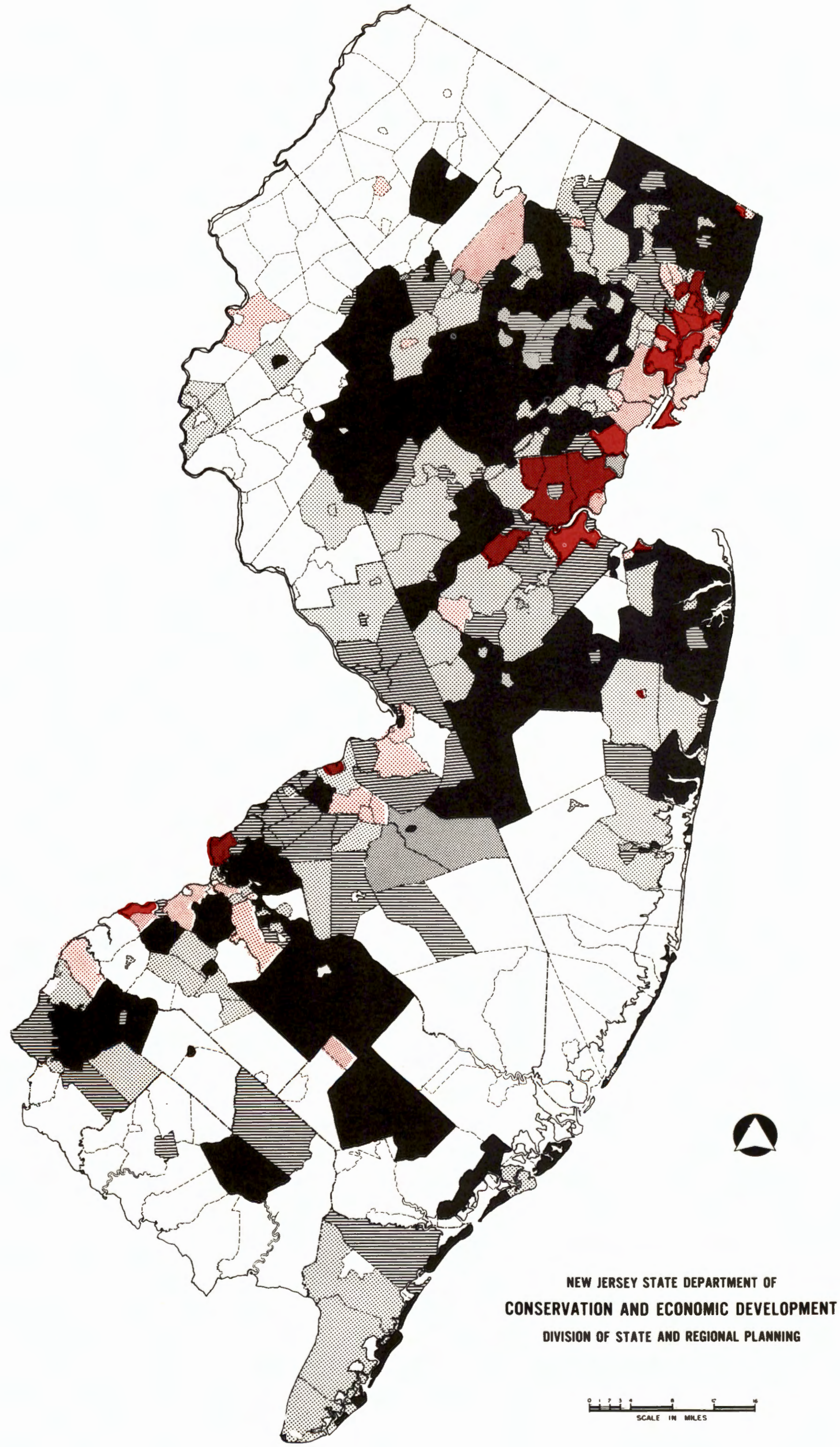


# PERCENT OF TOTAL LAND AREA ZONED FOR INDUSTRY 1950




- 0–5%
- 5.01–15.0%
- 15.01–25.0%
- 25.01–35.0%
- 35.01–45.0%
- 45.01–55.0%
- 55.01 and over
- Not available
- No zoning

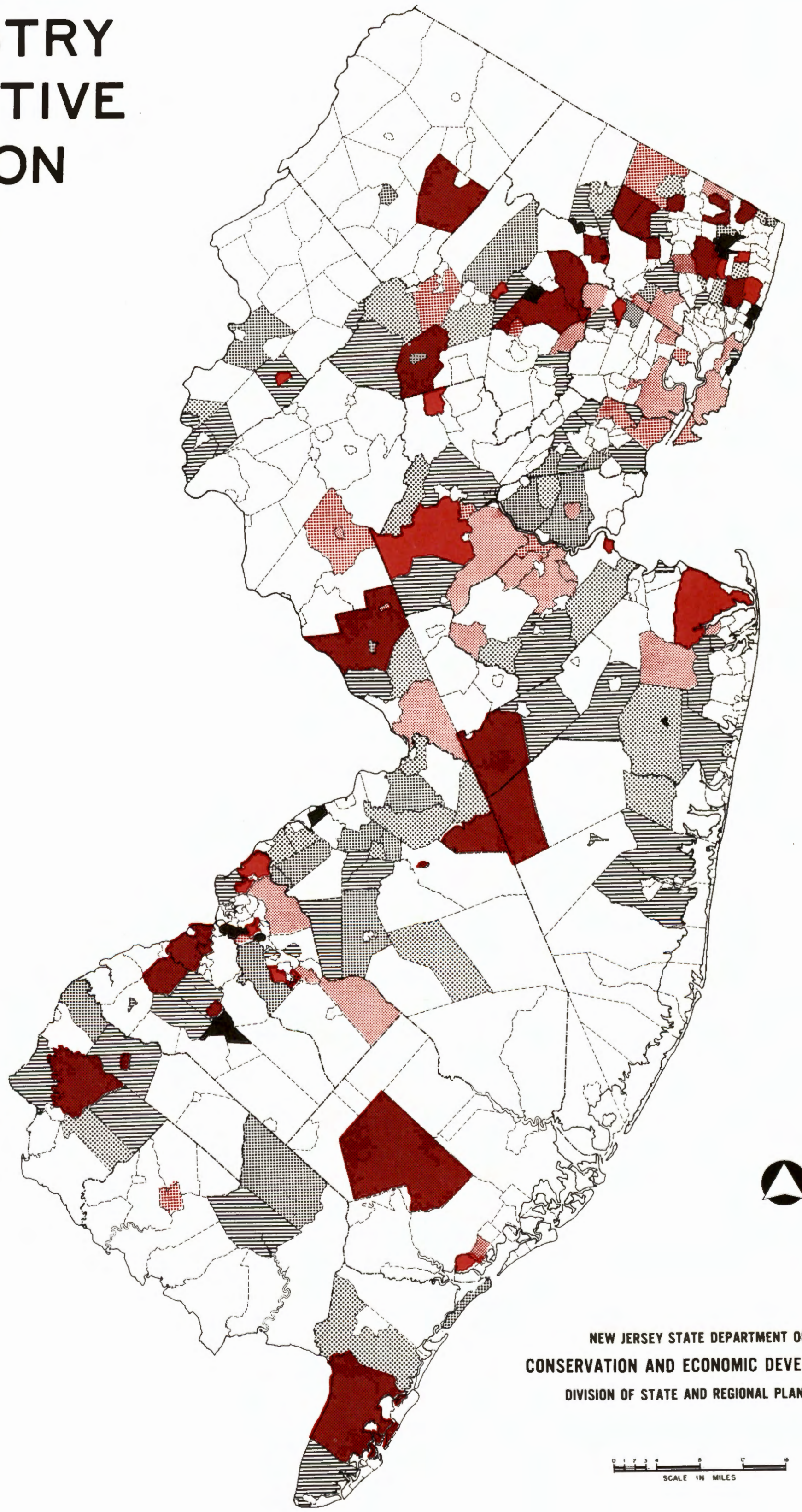
# PERCENT OF TOTAL LAND AREA ZONED FOR INDUSTRY 1960




- 0–5%
- 5.01–15.0%
- 15.01–25.0%
- 25.01–35.0%
- 35.01–45.0%
- 45.01–55.0%
- 55.01 and over
- Not available
- No zoning

# COMPARISON OF AREAS ZONED FOR INDUSTRY TO EFFECTIVE UTILIZATION

## 1950 - 1960



- 48.00 and over
- 24.00 to 47.99
- 12.00 to 23.99
- 3.00 to 11.99
- .01 to 2.99
- No significant change
- .01 to 11.99
- 12.00 to 23.99
- 24.00 and over

X= D2-D1 Where: D2 is the difference between zoned and occupied areas, 1950-60; and D1 is the difference between zoned and total area, 1950-1960

NEW JERSEY STATE DEPARTMENT OF
CONSERVATION AND ECONOMIC DEVELOPMENT
DIVISION OF STATE AND REGIONAL PLANNING

SCALE IN MILES

# CHAPTER 5

## WHAT DEMAND TRENDS APPEAR TO BE EMERGING?

After a careful examination of a variety of sources of information on emerging trends of demand for industrial land use, it was determined that one of the better sources of data was provided by the U. S. Bureau of the Census reports entitled **The Census of Manufactures.** This series of reports not only provides a wealth of detailed information on current manufacturing activities, but also, by the uniformity and consistency of its reporting, it provides the means of comparison over several decades necessary to establish trend analyses. Four basic categories which were consistently maintained in the modern **Census of Manufactures** were extracted for analysis according to types of industries, to counties, and to Standard Metropolitan Areas for the four census periods, 1939, 1947, 1954, and 1958. These four categories included: number of establishments; number of employees; wages; and value added by manufacture.

A second major analytical device employed involved the detailed mapping of each of the twenty Standard Industrial Code classifications by municipalities for the 1947 and 1958 census periods. This approach, which has been referred to as the "geography of manufacturing", provides a graphic means of analyzing the emerging trends in industrial location; therefore, it constitutes a significant element in this report.

Based on these two analytical approaches, some preliminary conclusions as to the changing industrial character of the State are set forth in the latter portion of this chapter. The effect on land use patterns that this change in the industrial profile of the State may create are also discussed.

**The Census of Manufactures,** conducted by the Bureau of the Census of the United States Department of Commerce, provides an excellent source of data on emerging trends in industrial demands. The current data, gathered in 1958, represents the twenty-sixth such census of the United States. The first Census of Manufactures was taken in 1809, and a census was taken at ten-year intervals in connection with the Decennial Census of Population up to and including 1899 (with the exception of 1829). It was then conducted at five-year intervals from 1904 through 1919, and every other year from 1921 through 1939, but was suspended during World War II. After the war, the census was resumed, covering 1947. New legislation has subsequently provided for a Census of Manufactures every five years, with the 1954 census being the first complete one since the census of 1947.

Since this analysis is mainly concerned with more recent trends, it will direct its attention primarily to the past four Censuses for 1939, 1947, 1954, and 1958. However, data of more historic interest will be drawn upon from time to time to supplement this.

## Several Statistical Analyses Are Possible

With each new census, further refinements have been made with regard to the types of information provided and the depth of inquiry undertaken. Four basic categories, however, have been consistently maintained in the modern Censuses of Manufactures — Number of Establishments; Number of Employees; Wages; and Value Added by Manufacture. This data is gathered and presented in the Census reports according to type of industry (the 20 Standard Industrial Code classifications), by counties, and by Standard Metropolitan Areas.

In 1958, as in earlier years, a minimum size limit was set for including establishments in the census. In 1958, 1954, and 1947 Censuses, reports were required from all establishments employing one or more persons at any time during the census year, whereas in prior Censuses, establishments with less than $5,000 value of products were excluded. The change in the minimum size limit in 1947, however, does not appreciably affect the historical comparability of the Census figures except in a few cases. Figures on the number of employees represent averages of reported employment during select pay periods.

In 1954, four payroll periods (March, May, August, and November) were used, except in seasonal industries where the mid-month total employment for each of the 12 months of the year was used, as in prior Censuses. Statistics on wages include the gross earnings paid in the calendar year of the Census to all employees on the payrolls of operating manufacturing establishments. It does not include employers' Social Security contributions, or other non-payroll labor costs such as employees' pension plans, group insurance, premiums, and workmen's compensations.

Value added by manufacture is derived by subtracting the cost of materials, supplies, and containers, fuel, purchased electric energy, and contract work, from the value of shipments of manufacturing establishments. It avoids, therefore, the duplication in the value of shipments figures which result from the use of products of some establishments as materials by others. As such, it is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

Data on these four categories was gathered for the Census years of 1939, 1947, 1954, and 1958 by industries for the State as a whole, for the three principal S.M.A.'s which contain New Jersey communities, and for the seven major manufacturing counties within the State. In addition, general data was gathered for the twenty-one counties in each of these four categories.

Several statistical analyses were then performed on this basic data. The percentage of increase by the number of establishments, number of employees, and value added by manufacturing was computed for each of the 20 Standard Industrial Code categories for the four Census periods. These statistics are presented in Table VIII.

Calculations also were made to determine the relative relationship of the various industries during each of the Censuses by the four selected categories. This data establishes the percentage of the total represented by each industry for each of the four categories and provides a basis for ranking the industries. This data is presented in Table IX. Finally, similar computations were made on a county basis and on the basis of the delineated Standard Metropolitan Areas.

### Summary of the Statistical Analyses

The following summary information derived from the statistical analyses is presented in order to provide the reader with a foundation upon which the general conclusions of this section of the report can be made.

## ANALYSIS OF U.S. CENSUS OF MANUFACTURING DATA — GENERAL STATISTICS

### By Major Industrial Groups

**TABLE VIII — U. S. Census of Manufactures General Statistics Percentage Change Over Time 1939-1958**

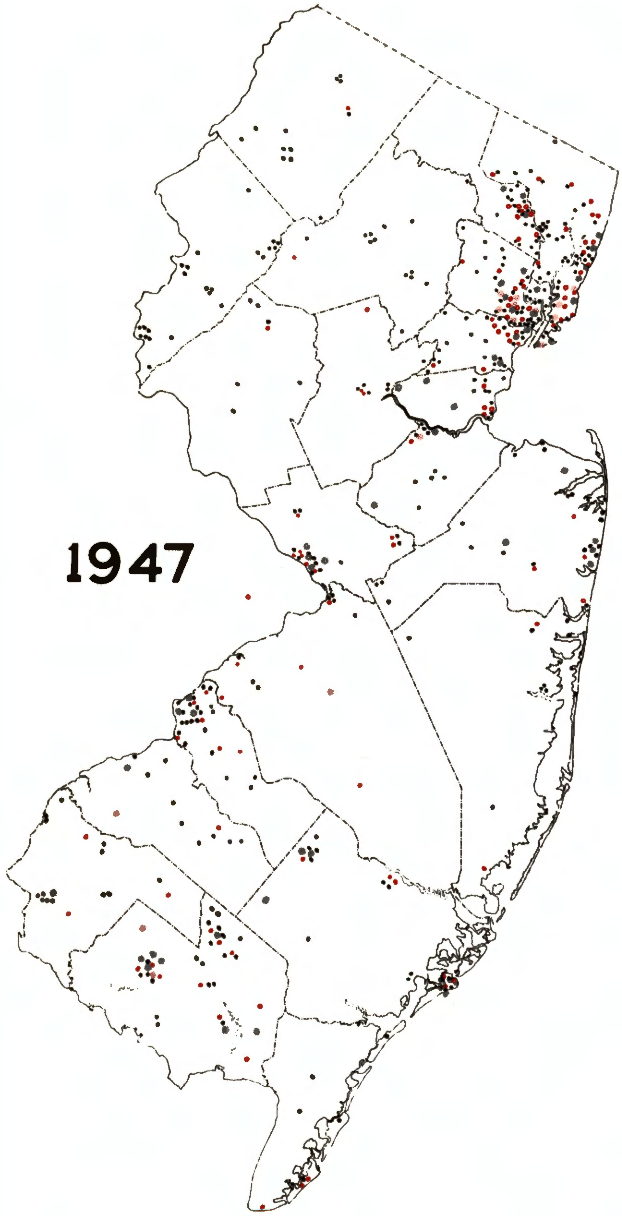
| | Industrial Categories | Number of Establishments 1939-1947 | 1947-1954 | 1954-1958 | Number of Employees 1947-1954 | 1954-1958 | Value Added by Manufacturing 1939-1947 | 1947-1954 | 1954-1958 |
|---|---|---|---|---|---|---|---|---|---|
| 20 | Food and kindred products | –15.3 | 28.5 | –6.3 | 27.5 | 1.8 | 141.2 | 83.2 | 24.3 |
| 21 | Tobacco manufactures | –19.6 | –64.9 | –18.2 | –27.7 | –52.6 | 59.1 | 10.6 | –48.0 |
| 22 | Textile mill products | 32.5 | –5.0 | –12.0 | –26.6 | –24.2 | 152.5 | –14.8 | –9.9 |
| 23 | Apparel and related products | 53.5 | 14.7 | 0.0 | 10.3 | –3.1 | 177.7 | 24.3 | 16.9 |
| 24 | Lumber and wood products | 7.1 | 61.8 | –1.5 | 5.7 | –5.6 | 146.6 | 18.9 | 42.7 |
| 25 | Furniture and fixtures | 72.2 | 43.1 | 4.3 | 7.0 | 2.0 | 208.4 | 57.6 | 14.8 |
| 26 | Pulp, paper and products | 47.3 | 28.4 | 10.3 | 18.7 | 11.5 | 252.4 | 32.5 | 32.8 |
| 27 | Printing and publishing | 18.4 | 23.7 | 13.0 | 22.2 | 25.0 | 136.5 | 61.6 | 60.8 |
| 28 | Chemicals and products | 28.6 | 14.5 | 12.3 | –1.0 | –2.9 | 144.9 | 50.9 | 19.8 |
| 29 | Petroleum and coal products | 9.4 | 22.4 | 7.0 | 6.4 | –30.4 | 148.6 | –29.5 | –25.4 |
| 30 | Rubber products* | 39.3 | 29.5 | 276.2 | –16.6 | 3.2 | 202.5 | 17.6 | 27.6 |
| 31 | Leather and leather goods | 35.1 | –8.4 | –6.7 | 0.0 | 7.2 | 162.3 | 10.7 | 19.7 |
| 32 | Stone, clay and glass products | 59.0 | –1.5 | 17.9 | 10.5 | –2.1 | 125.2 | 55.2 | 25.8 |
| 33 | Primary metal industries | 53.6 | 12.2 | 12.8 | –6.7 | –8.5 | 173.8 | 33.4 | 13.6 |
| 34 | Fabricated metal products | 89.1 | 49.9 | 9.9 | 19.4 | 4.0 | 197.8 | 93.9 | 20.4 |
| 35 | Machinery, exc. electrical | 138.0 | 44.0 | 12.2 | 4.2 | | 280.9 | 58.1 | |
| 36 | Electrical machinery | 118.0 | 54.1 | 28.5 | 9.9 | –2.0 | 200.4 | 96.7 | 10.1 |
| 37 | Transportation equipment | 74.7 | 25.9 | 18.2 | 22.4 | –6.0 | 162.6 | 116.8 | 19.6 |
| 38 | Instruments and related products | 130.6 | 31.5 | 14.9 | 45.8 | 4.0 | 250.1 | 139.9 | 27.8 |
| 39 | Miscellaneous manufactures | 80.7 | 10.5 | 22.8 | –3.2 | –26.4 | 274.5 | 25.1 | –18.3 |

*This category includes plastics in 1958

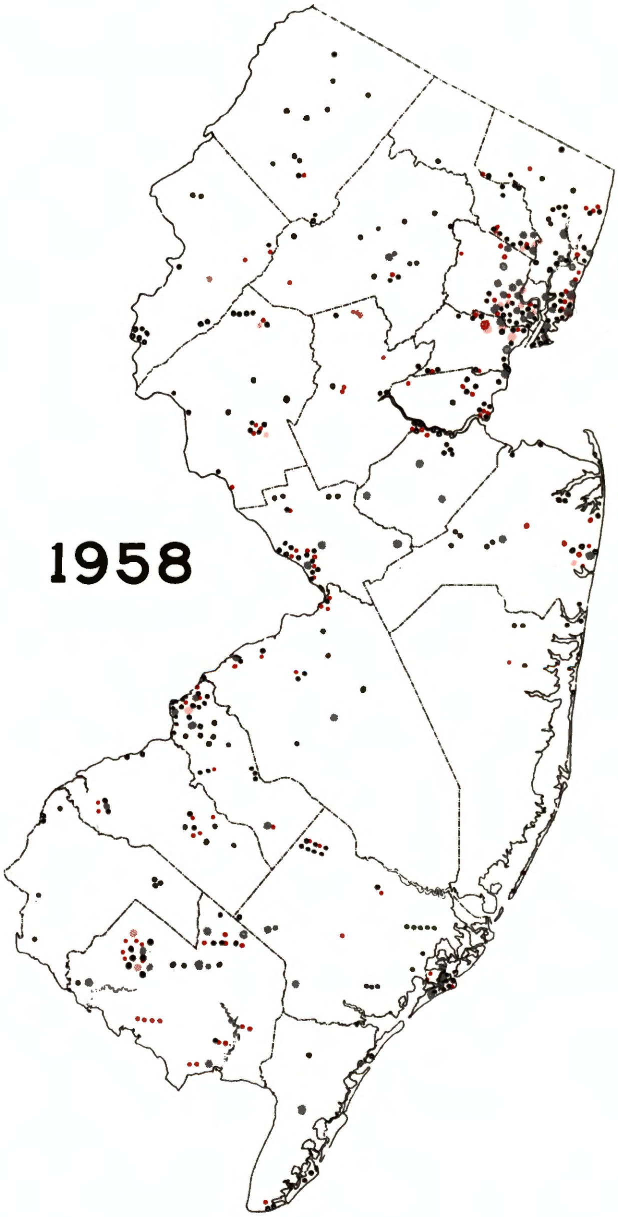
**TABLE IX — U. S. Census of Manufactures    General Statistics    Percentage of Total 1939-1958**

| | Industrial Categories | Number of Establishments 1939 | 1947 | 1954 | 1958 | Number of Employees 1947 | 1954 | 1958 | Value Added by Manufacturing 1939 | 1947 | 1954 | 1958 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 20 | Food and kindred products | 15.5 | 9.0 | 9.5 | 8.4 | 6.4 | 7.6 | 8.0 | 9.7 | 8.5 | 10.2 | 10.7 |
| 21 | Tobacco manufactures | .6 | .3 | .1 | .1 | .7 | .5 | .2 | 1.2 | .7 | .5 | .2 |
| 22 | Textile mill products | 8.4 | 7.7 | 6.0 | 4.9 | 8.6 | 5.9 | 4.4 | 8.5 | 7.8 | 4.4 | 3.1 |
| 23 | Apparel and related products | 18.9 | 20.0 | 18.8 | 17.6 | 9.5 | 9.9 | 9.9 | 6.0 | 6.0 | 5.0 | 5.0 |
| 24 | Lumber and wood products | 2.7 | 2.0 | 2.6 | 2.4 | .7 | .7 | .7 | .6 | .6 | .5 | .5 |
| 25 | Furniture and fixtures | 2.0 | 2.4 | 2.8 | 2.8 | 1.1 | 1.1 | 1.1 | .8 | .9 | .9 | .9 |
| 26 | Pulp, paper and products | 2.2 | 2.3 | 2.4 | 2.5 | 2.9 | 3.2 | 3.7 | 2.9 | 3.7 | 3.3 | 3.7 |
| 27 | Printing and publishing | 9.7 | 7.9 | 8.0 | 8.5 | 2.7 | 3.1 | 4.0 | 3.0 | 2.6 | 2.8 | 3.8 |
| 28 | Chemicals and products | 7.7 | 6.9 | 6.4 | 6.8 | 11.2 | 10.4 | 10.4 | 20.0 | 17.8 | 17.7 | 19.4 |
| 29 | Petroleum and coal products | .7 | .5 | .5 | .5 | 2.2 | 2.2 | 1.5 | 5.6 | 5.1 | 2.4 | 1.5 |
| 30 | Rubber products* | .8 | .7 | .8 | 2.7 | 2.3 | 1.8 | 3.0 | 1.7 | 1.9 | 1.5 | 2.6 |
| 31 | Leather and leather goods | 2.3 | 2.1 | 1.6 | 1.4 | 1.4 | 1.4 | 1.6 | 1.3 | 1.2 | .9 | .9 |
| 32 | Stone, clay and glass products | 4.0 | 4.4 | 3.6 | 4.0 | 3.8 | 4.0 | 4.3 | 3.6 | 3.0 | 3.5 | 4.1 |
| 33 | Primary metal industries | 2.4 | 2.6 | 2.4 | 2.5 | 5.3 | 4.6 | 4.9 | 5.2 | 5.2 | 4.6 | 4.9 |
| 34 | Fabricated metal products | 6.2 | 8.1 | 9.8 | 10.2 | 5.7 | 6.5 | 7.0 | 4.7 | 5.0 | 6.6 | 6.8 |
| 35 | Machinery, exc. electrical | 5.6 | 9.3 | 10.8 | 11.5 | 8.9 | 8.7 | 7.6 | 5.8 | 8.0 | 8.3 | 6.9 |
| 36 | Electrical machinery | 2.2 | 3.3 | 4.1 | 5.0 | 12.8 | 13.1 | 14.1 | 8.6 | 9.4 | 12.2 | 11.7 |
| 37 | Transportation equipment | 1.3 | 1.5 | 1.6 | 1.8 | 6.0 | 6.9 | 6.7 | 5.6 | 5.3 | 7.6 | 7.7 |
| 38 | Instruments and related products | .8 | 1.3 | 1.4 | 1.5 | 2.4 | 3.3 | 3.5 | 1.5 | 1.9 | 3.1 | 3.3 |
| 39 | Miscellaneous manufactures | 6.0 | 7.6 | 6.8 | 4.9 | 5.6 | 5.1 | 3.4 | 3.5 | 4.8 | 4.0 | 2.4 |
| | TOTAL | 100.0 | 99.9 | 100.0 | 100.0 | 100.2 | 100.0 | 100.0 | 99.8 | 99.4 | 100.0 | 100.1 |

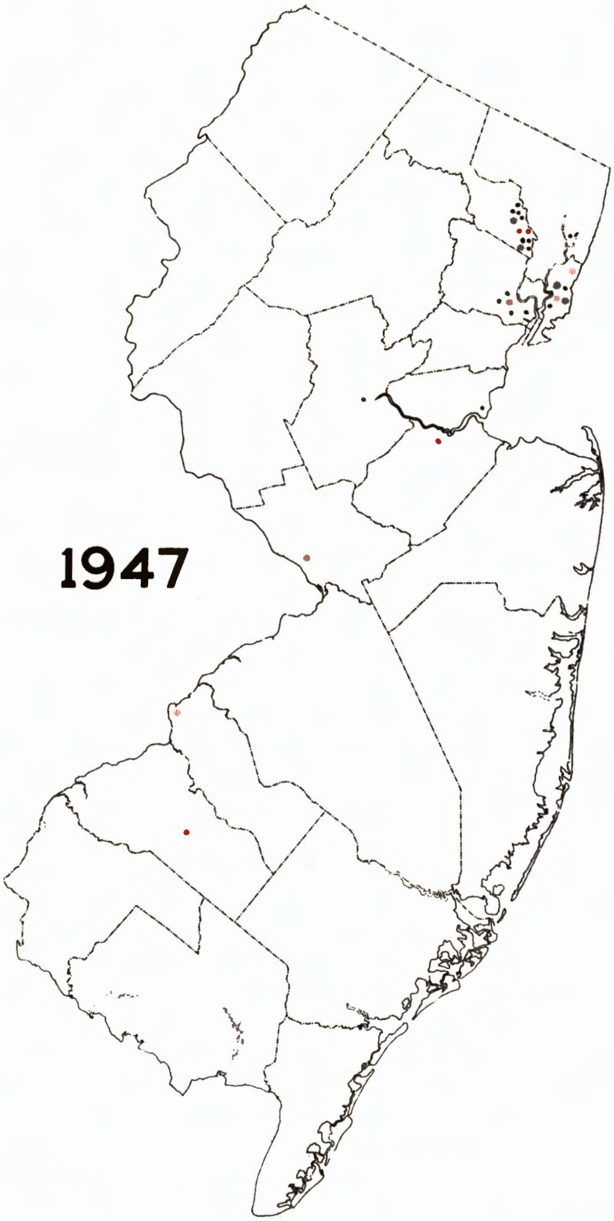
*This category includes plastics in 1958.




# S.I.C. 20 FOOD AND KINDRED PRODUCTS



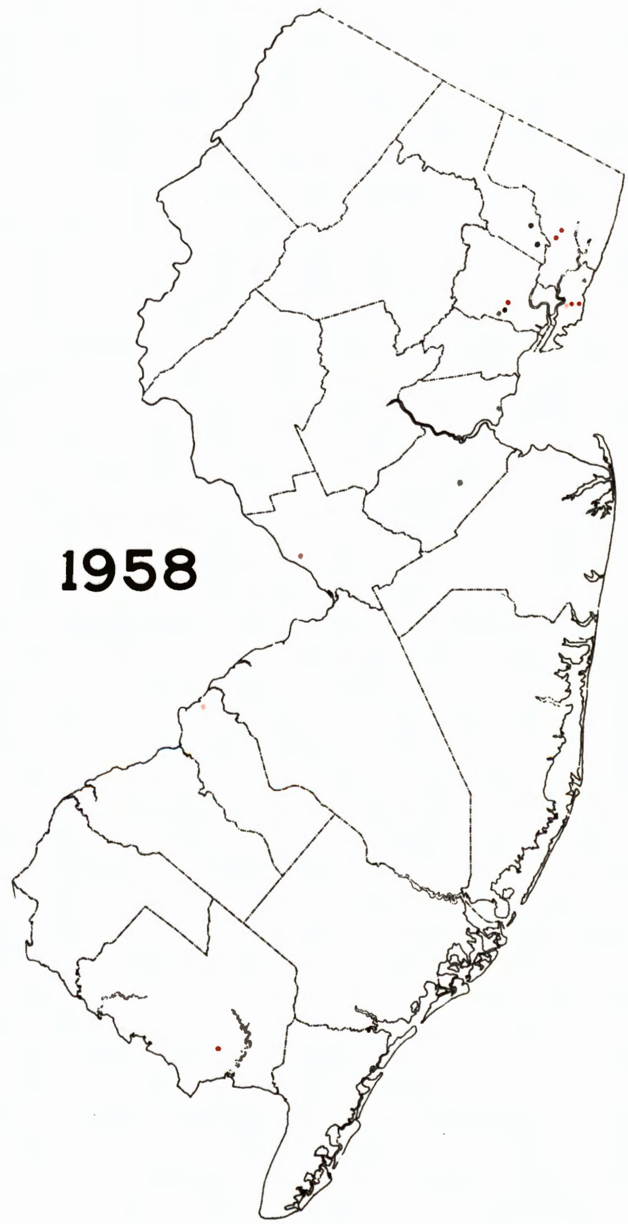

The foodstuffs industry has shown a marked decline since 1939 in the overall number of establishments operating in the State. In 1939, food and kindred products ranked second in total number of establishments, with 15.5% of the State's total. By 1947, its rank had declined to third, with only 9.0% of the total and by 1958 it had further declined to fifth, with only 8.4% of the State's total. While there are fewer establishments operating in this category, the ranking by number of employees has increased over this period from sixth with 6.4% in 1947, to fifth with 7.6% in 1954, to fourth with 8.0% in 1958. In terms of value added by manufacturing, a like increase has occurred. In 1939 S.I.C. 20 accounted for 9.7% of the total value added by manufacturing in the State. By 1958 this figure had increased to 10.7%. The rank of this category, however, declined from second to third over the twenty year period.



1947

## S.I.C. 21 TOBACCO MANUFACTURES

In general the tobacco manufacturing industry in New Jersey has experienced a steady decline during the past twenty years. In 1939 the tobacco industry accounted for 0.6% of the manufacturing firms in the State and 1.2% of the value added by manufacturing. By 1958, these figures had declined to 0.1% of establishments, and 0.2% of value added. Employment ratios declined from 0.7% of the State total in 1947 to 0.2% in 1958.



1958

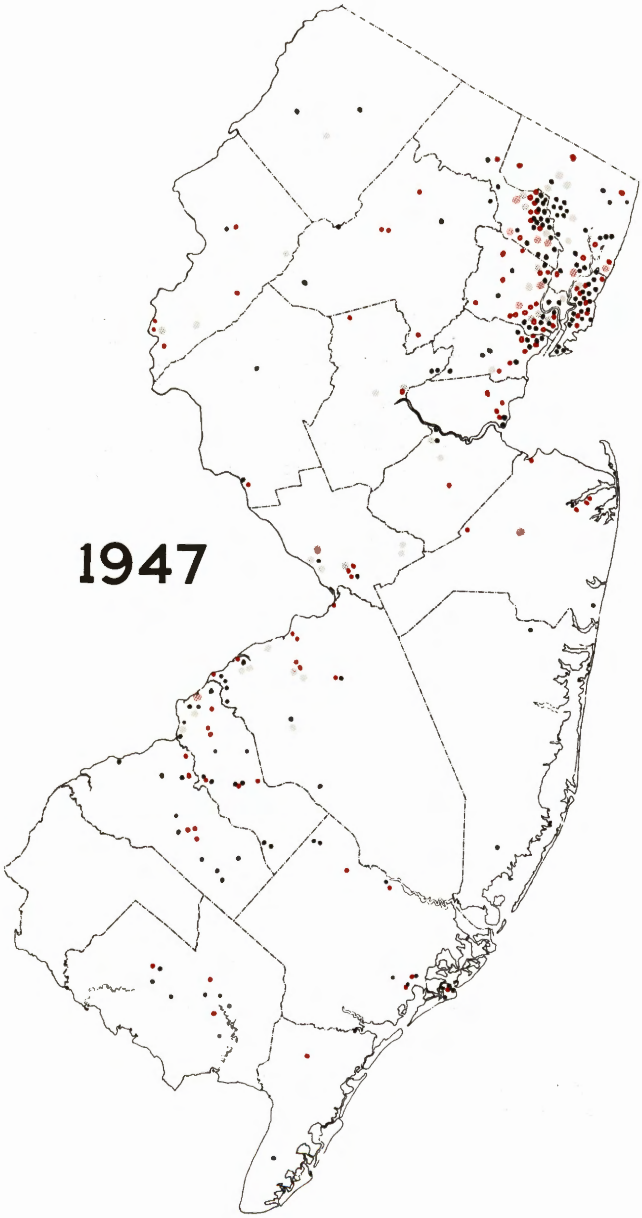
## THE FOLLOWING LEGEND IS APPLICABLE TO ALL MAPS IN THIS SERIES

**SIZE OF EMPLOYMENT**

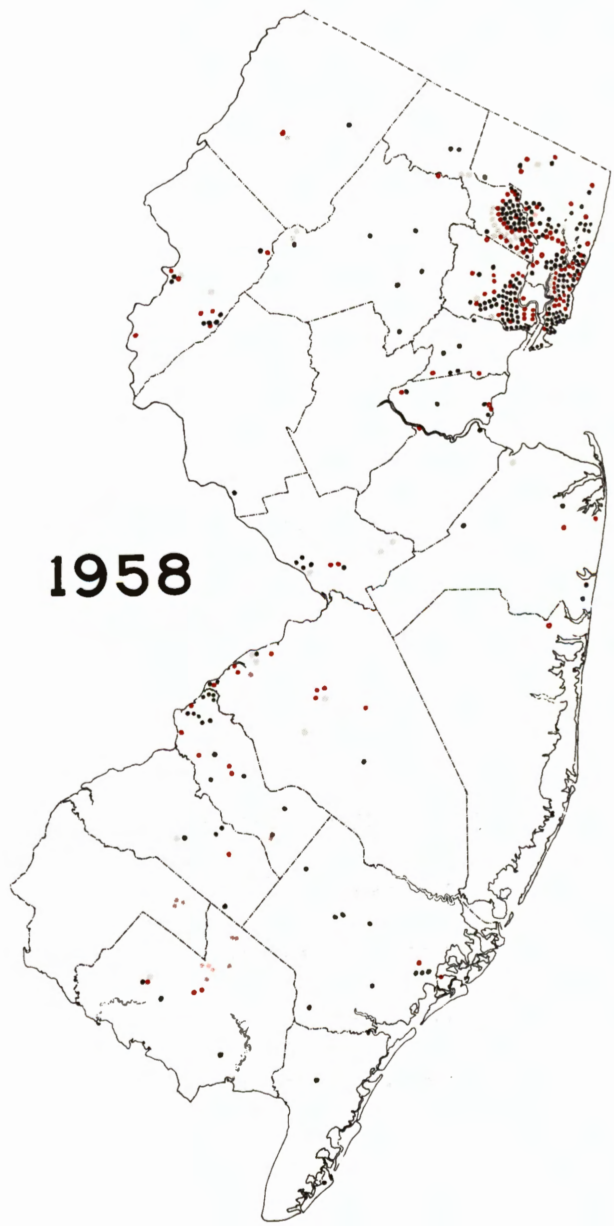
- 25 employees or less
- 26 to 100 employees
- 101 to 500 employees
- Over 500 employees

## S.I.C. 22 TEXTILE MILL PRODUCTS

1947

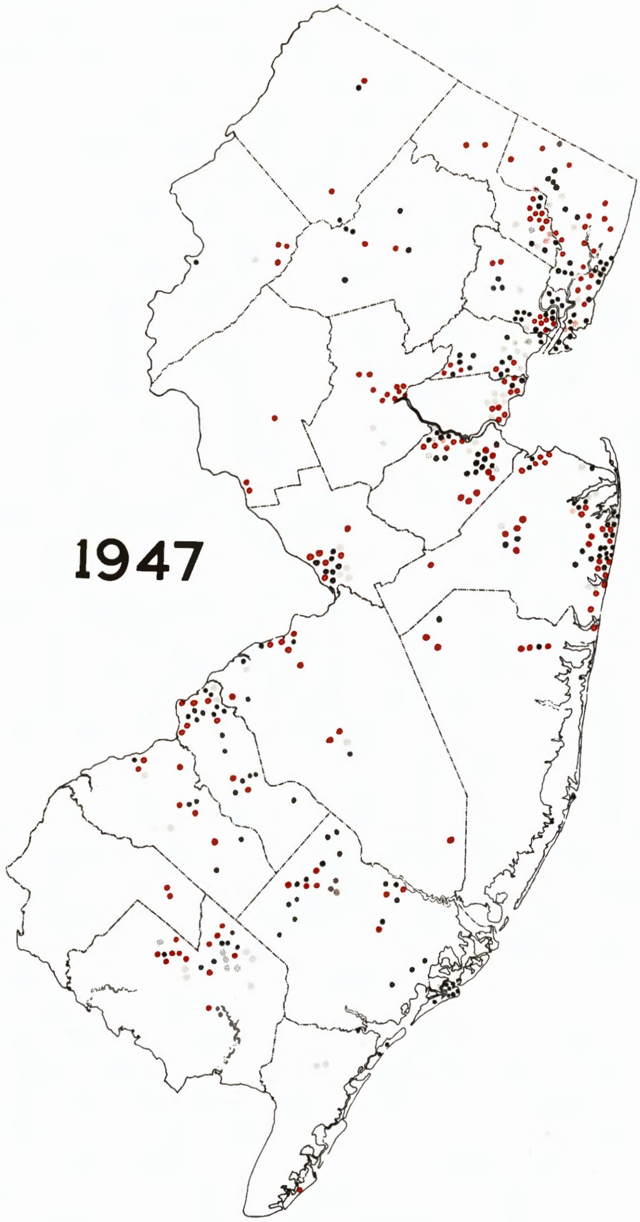


1958

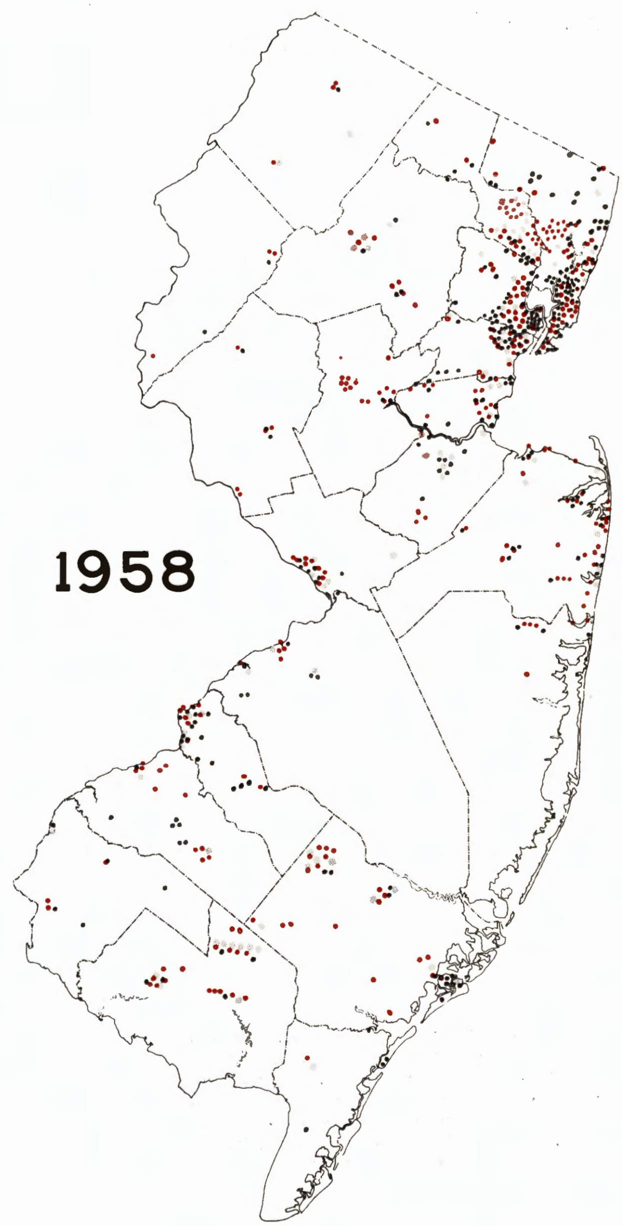


Of all the industrial categories in the State, S.I.C. 22 has shown the most marked decline in the past twenty years. In 1939, textiles ranked fourth in total establishments and value added by manufacturing, with 8.4% and 8.5% of the State total respectively. By 1947 its position in these categories had dropped to sixth and fifth, and by 1954 to eighth and ninth. In 1958, textiles had further declined in number of establishments to ninth, with only 4.9% of the State's total, and to thirteenth in terms of value added with less than 3.1% of the total. Similar declines can be measured in terms of employees, where the industry declined in rank from fifth to ninth, and in terms of payrolls where it declined from fourth to twelfth.

## S.I.C. 23 APPAREL AND RELATED PRODUCTS

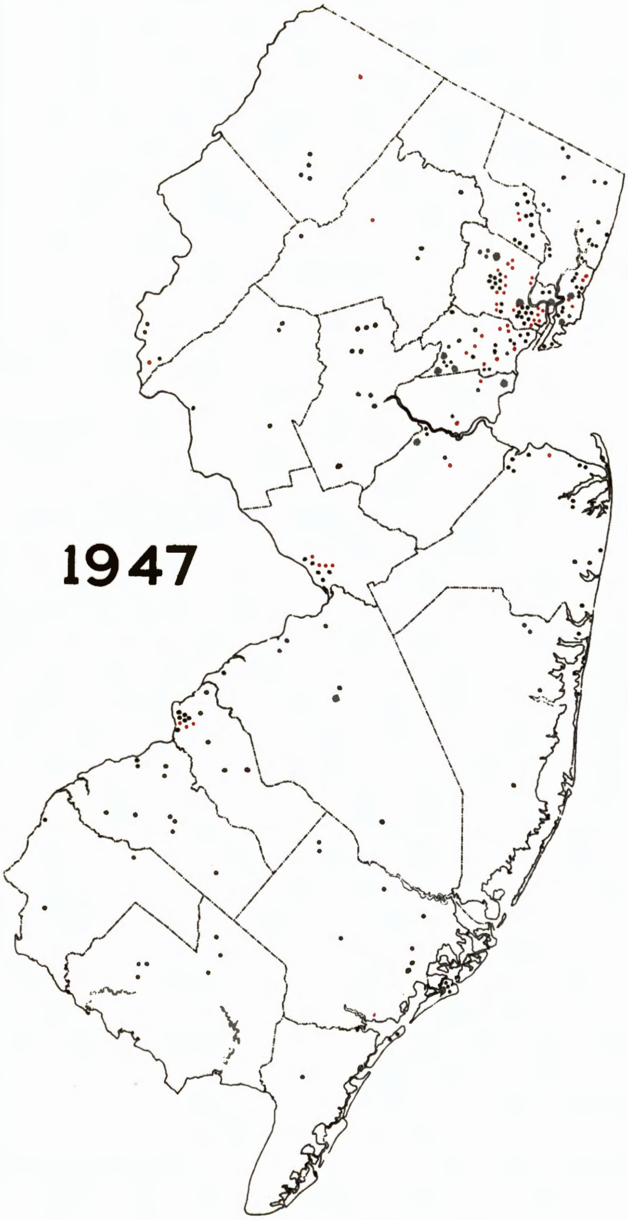


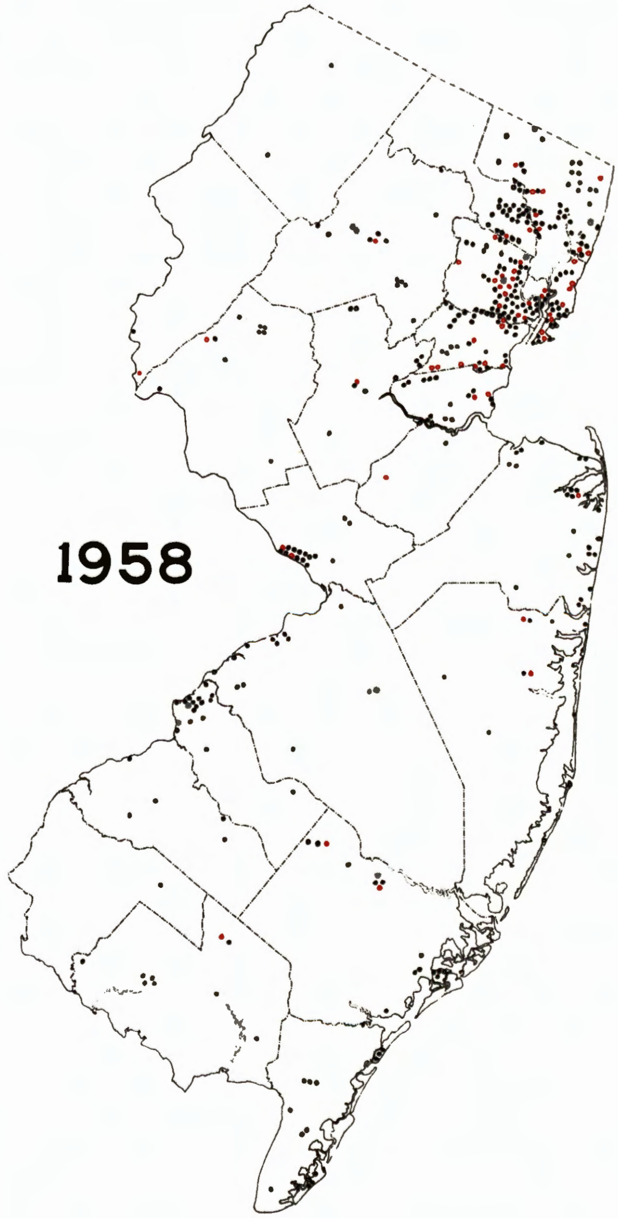
1947



1958

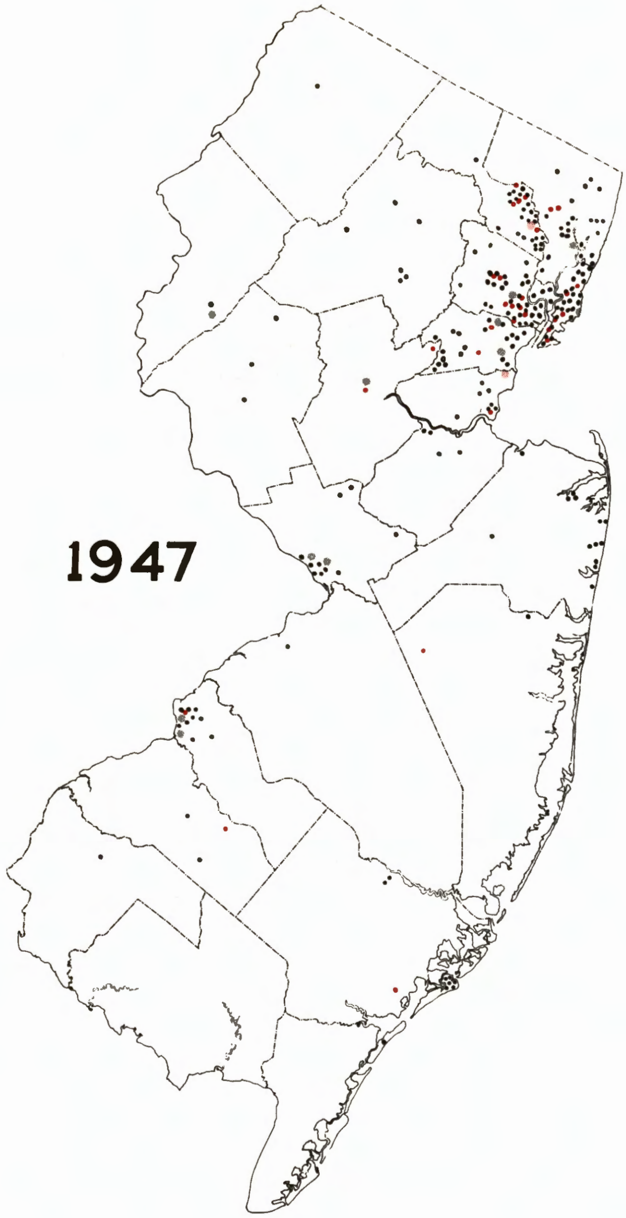
Over the years the apparel industry has maintained its relative position in terms of the number of establishments and number of employees operating in this category. During the past twenty years it has continued to rank first in the State in total number of establishments and third in total employees. While there has been a decline in the relative number of establishments, there has been an increase in the relative number of employees. In terms of value added by manufacturing, however, the industry has declined in rank from fifth in 1939 to seventh in 1958, with a decline from 6.0% to 5.0%.



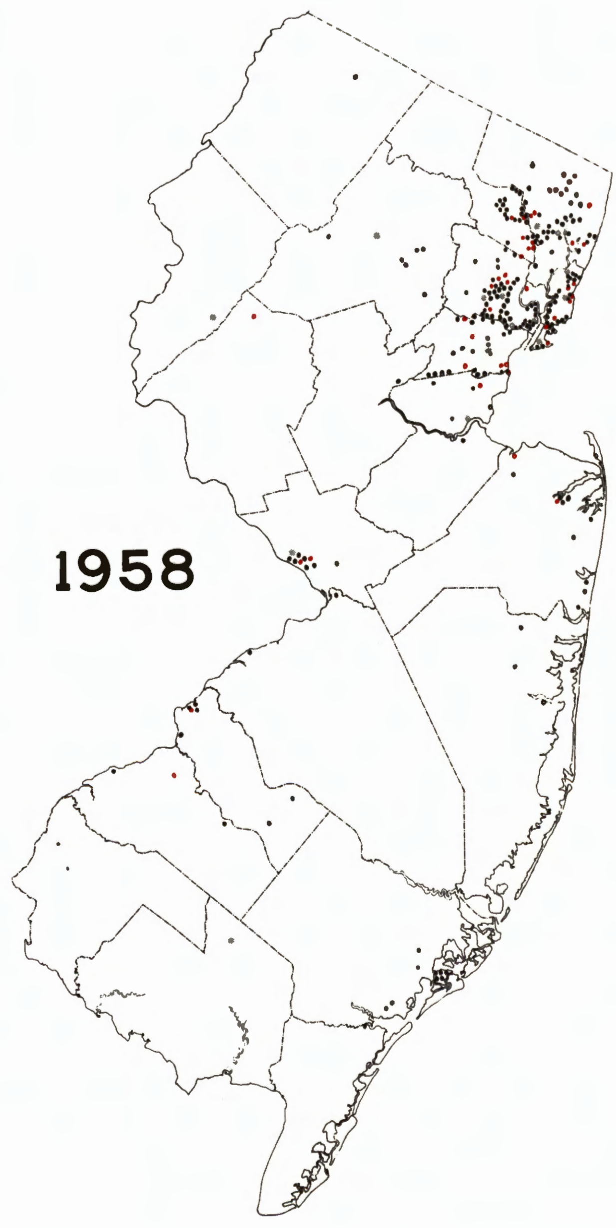

## S.I.C. 24 LUMBER AND WOOD PRODUCTS

The relative position of the lumber industry has not changed significantly in terms of employees, payrolls, or value added. There has been a decline in the number of establishments in this category, however, from a tenth place ranking in 1939 (2.7% of total) to a fifteenth place ranking in 1958 (2.4% of total).



1947

## S.I.C. 25 FURNITURE AND FIXTURES

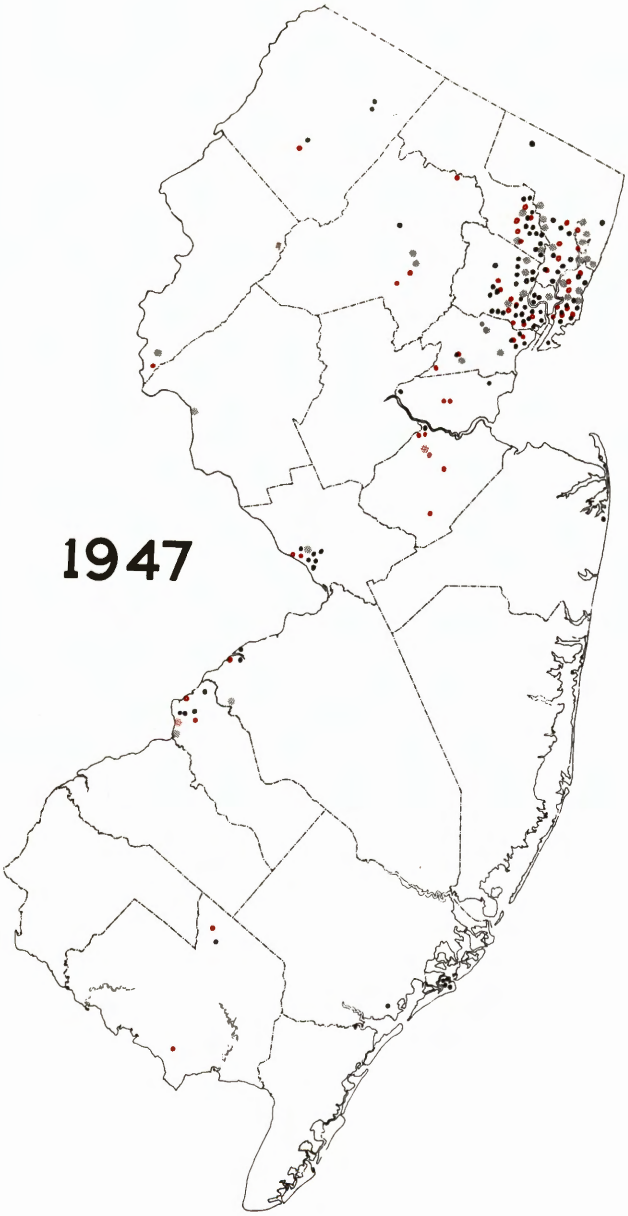


1958

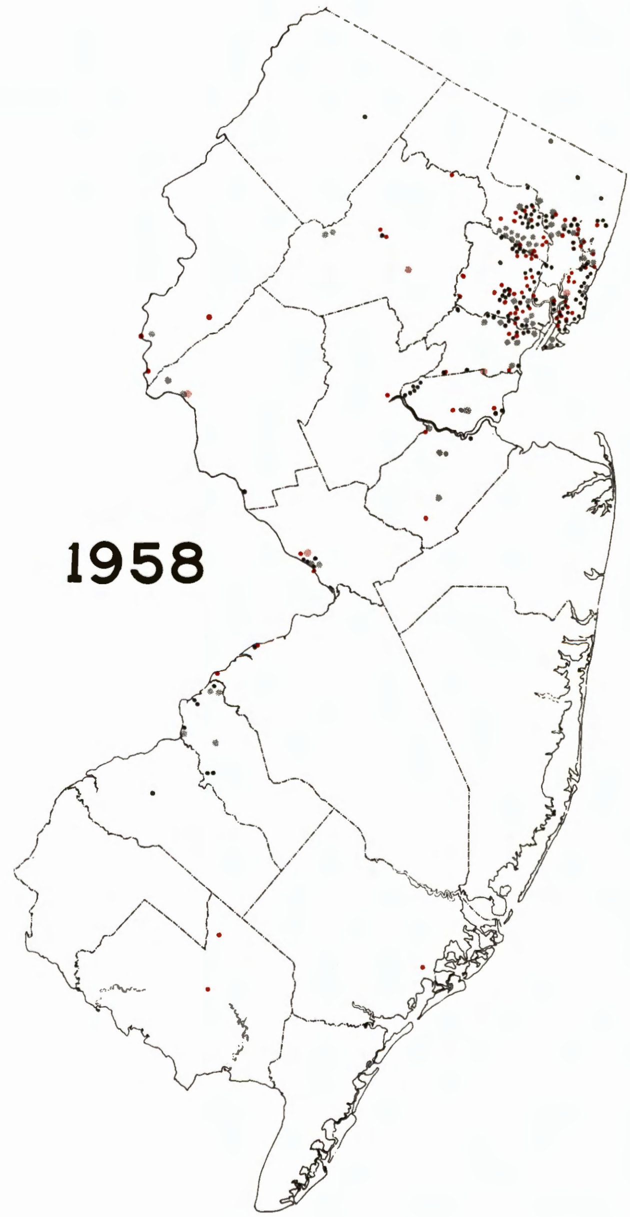
While the relative status of this industrial category has not shown any significant change in terms of the number of employees, the size of payrolls, or the amount by manufacturing, there has been a relative increase in the number of establishments in operation. In 1939 this grouping ranked 15th in total number of establishments, accounting for 2.0% of the total. By 1958 this percentage had increased to 2.8%, which gave it an 11th place ranking in relation to all other industrial categories.

## S.I.C. 26 PULP, PAPER AND PRODUCTS

1947

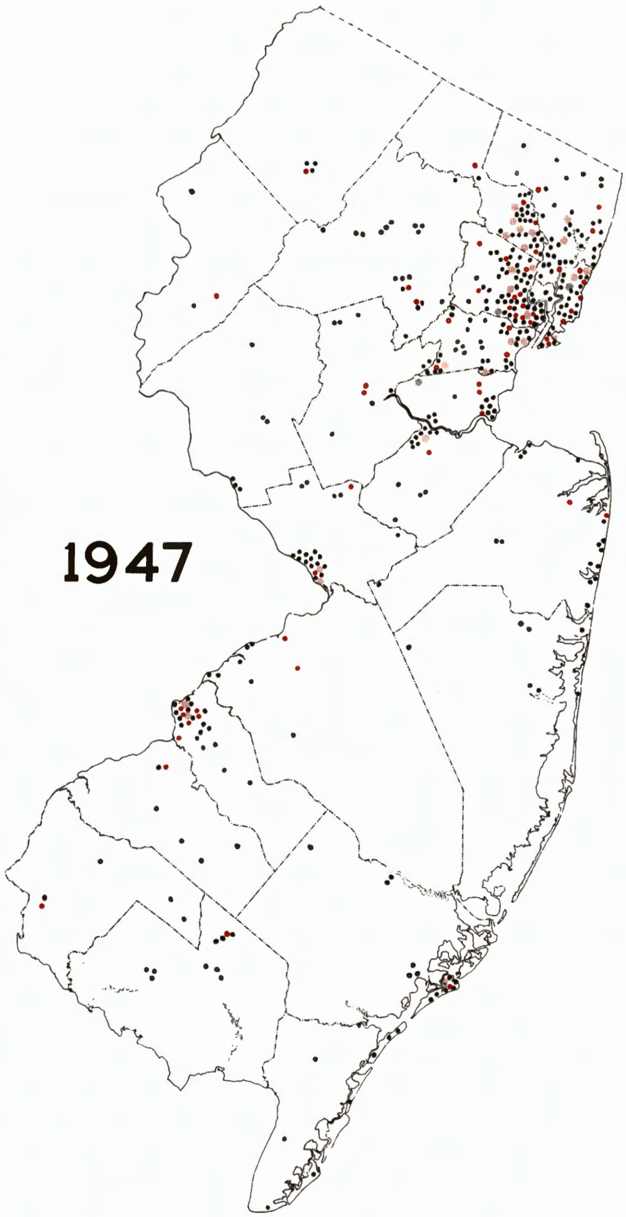


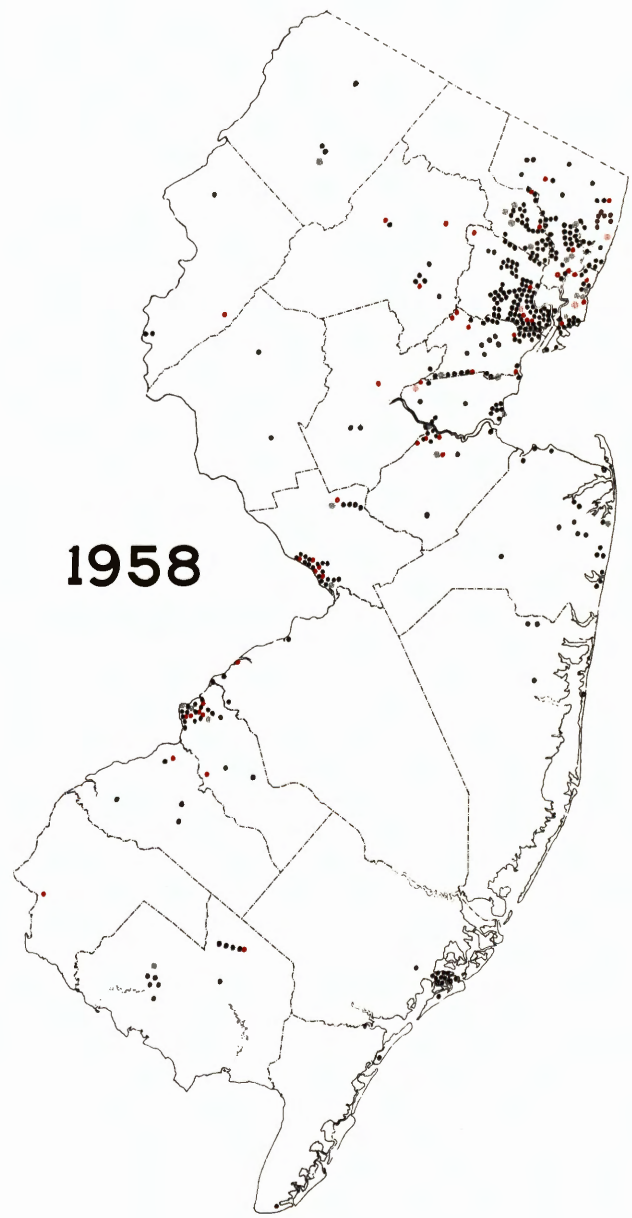
1958



The pulp and paper industry has made its most significant advancement in the area of value added by manufacturing. In 1939 it ranked fourteenth in this respect, with 2.9% of the total. By 1958 it had increased to 11th in rank, with over 3.7% of the total. With respect to the other growth measures, its relative position has not changed significantly, fluctuating in 12th and 13th positions during during this twenty year period.

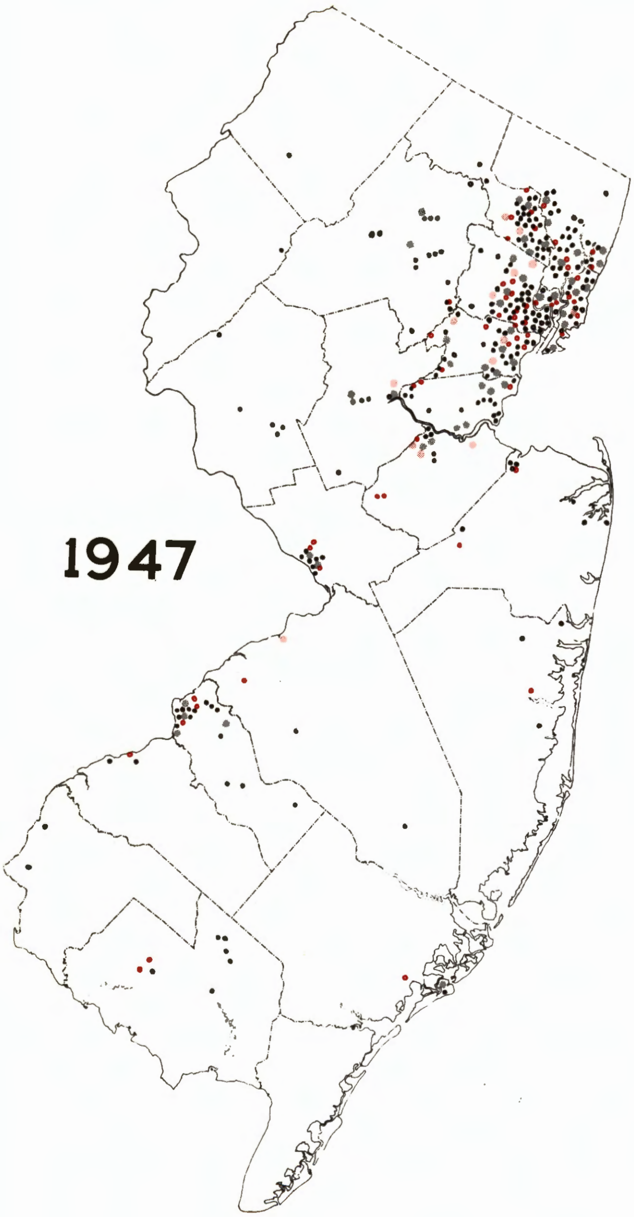
## S.I.C. 27 PRINTING AND PUBLISHING



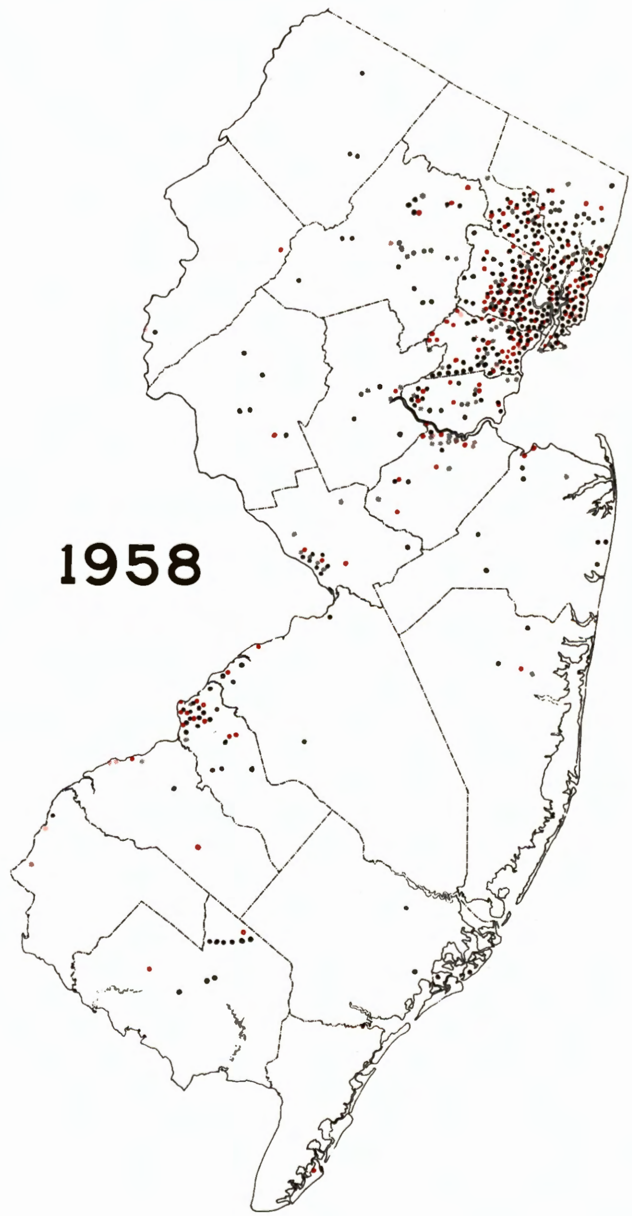




While there was a relative decline in the number of establishments in the State in this category, there has been a substantial increase in employment, payrolls, and value added. In 1947 the printing and publishing industry ranked 13th in total number of employees (2.7%) and 12th in payrolls. Its 3.0% of the State total in terms of value added in that year, earned it a 14th place ranking. By 1958 it had climbed to 11th place in total employment (4.0%), to ninth in payrolls, and to 10th in value added (3.7%).

## S.I.C. 28 CHEMICALS AND PRODUCTS



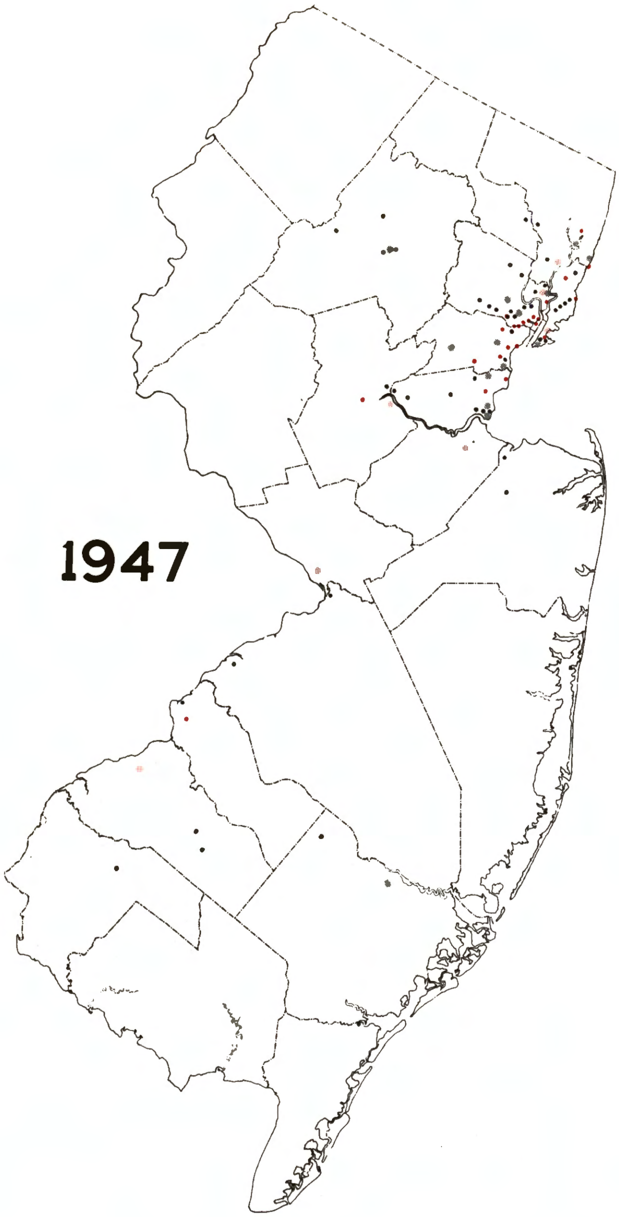
1947

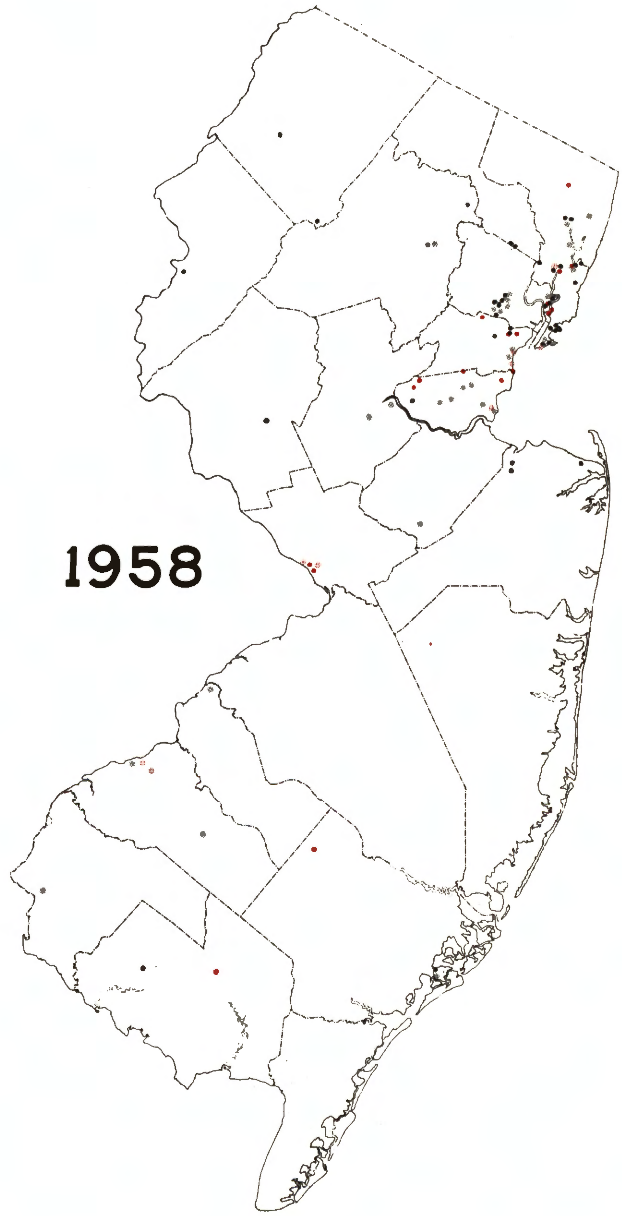


1958

**While the relative number of establishments in this industrial category has varied over the twenty year period, it has managed to maintain its relatively high position in terms of the other measurable growth characteristics. It is presently second in total number of employees (10.4%), second in terms of payrolls, and first in terms of value added by manufacturing (19.4%).**

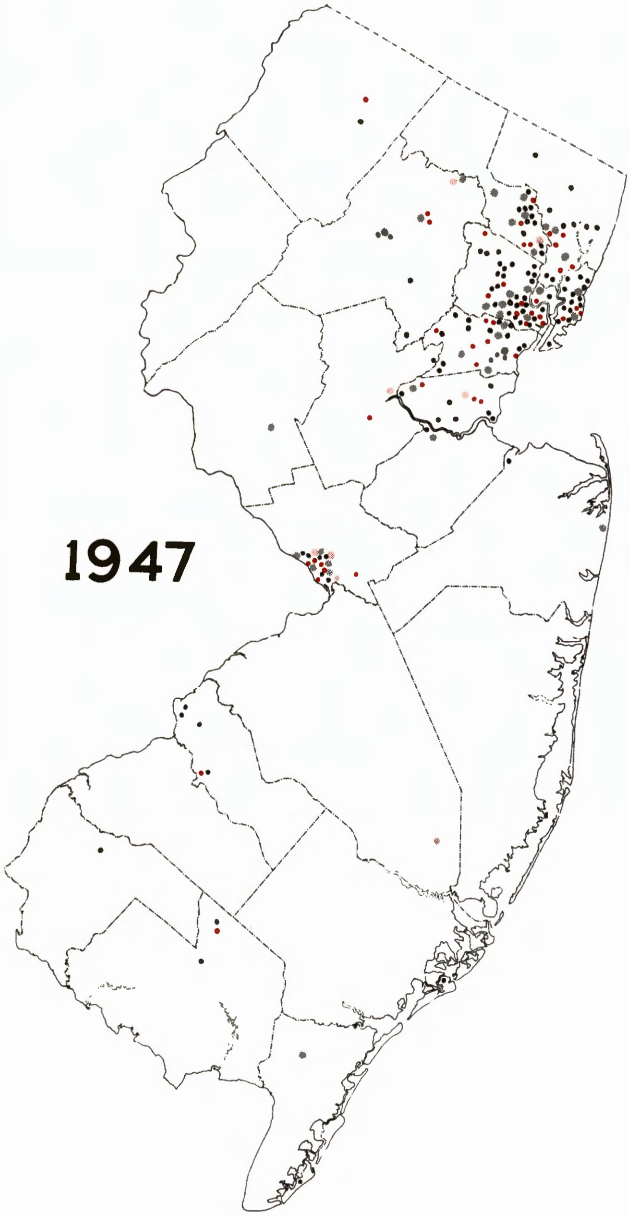
## S.I.C. 29 PETROLEUM AND COAL PRODUCTS

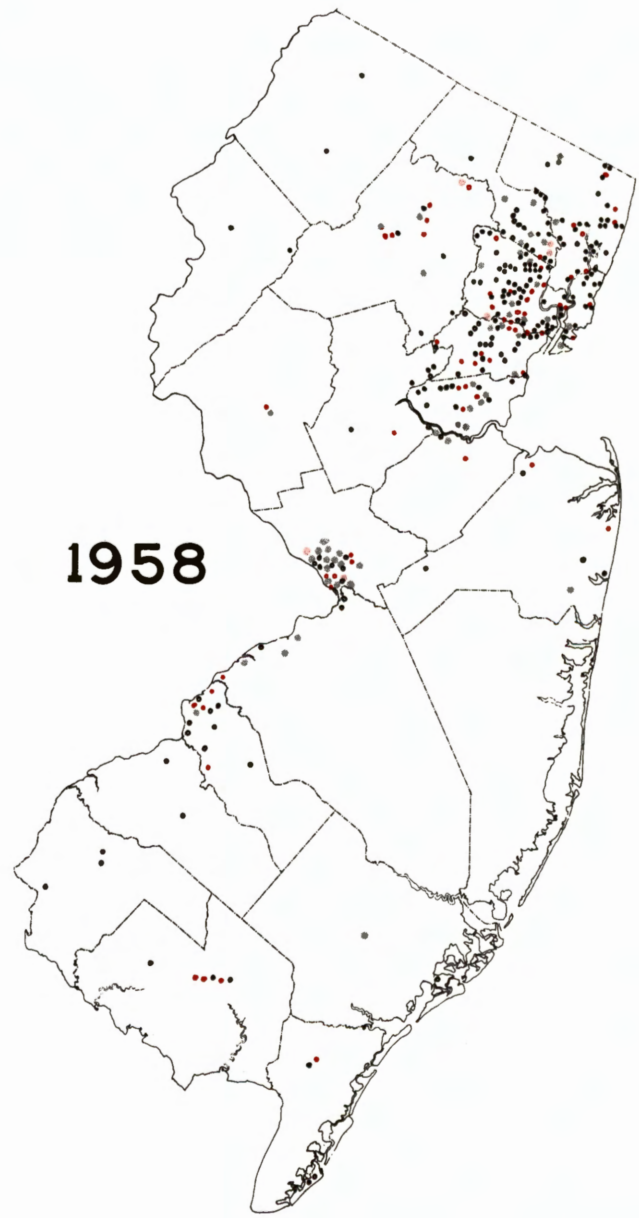



The petroleum and coal industries in New Jersey have shown a marked decline in all measurable areas. The percentage of employees in this grouping dropped from 2.2% in 1947 to 1.5% in 1958. Value added by manufacturing fell from 5.6% in 1939 (a seventh place rank) to 1.5% in 1958 (ranking 16th in the industry).

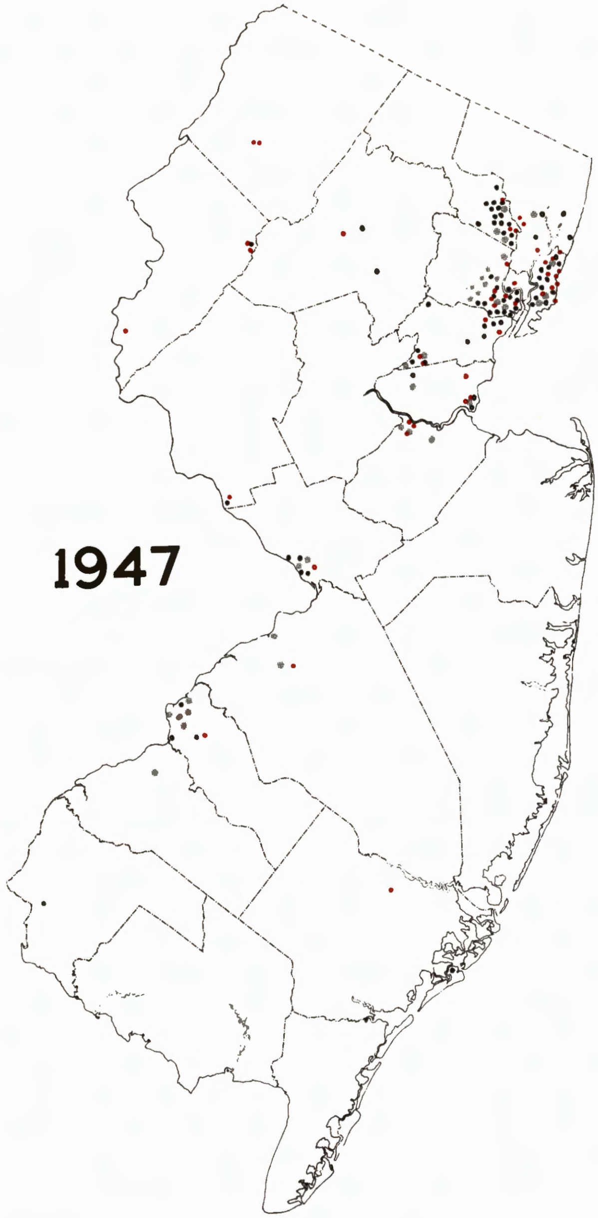
## S.I.C. 30 RUBBER PRODUCTS

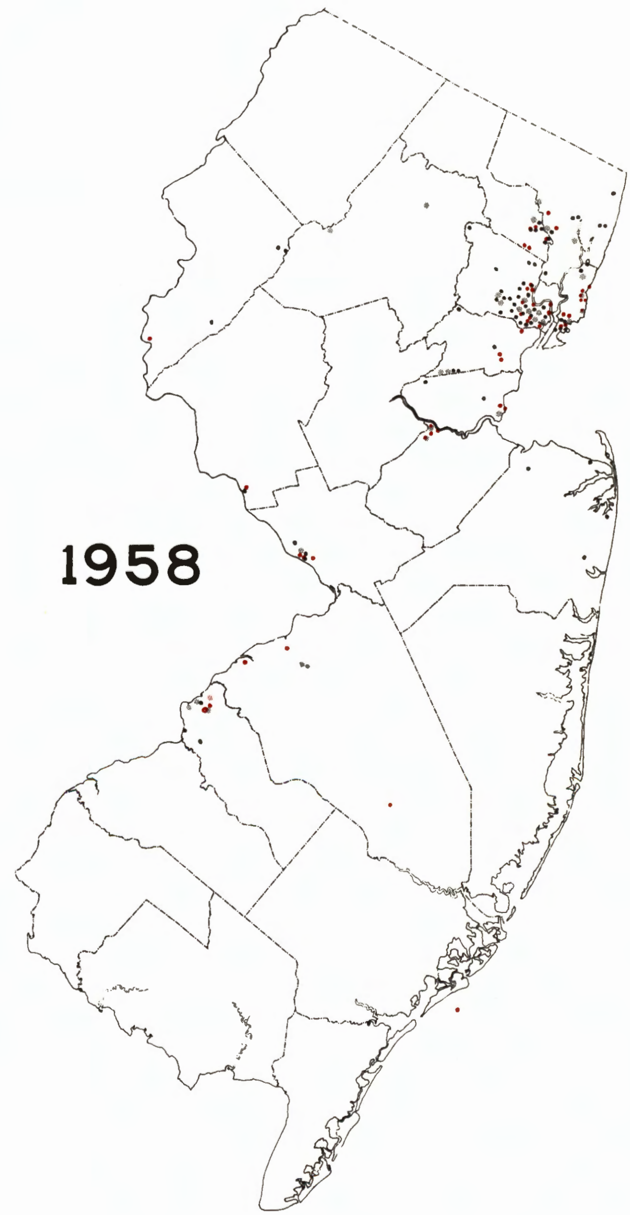


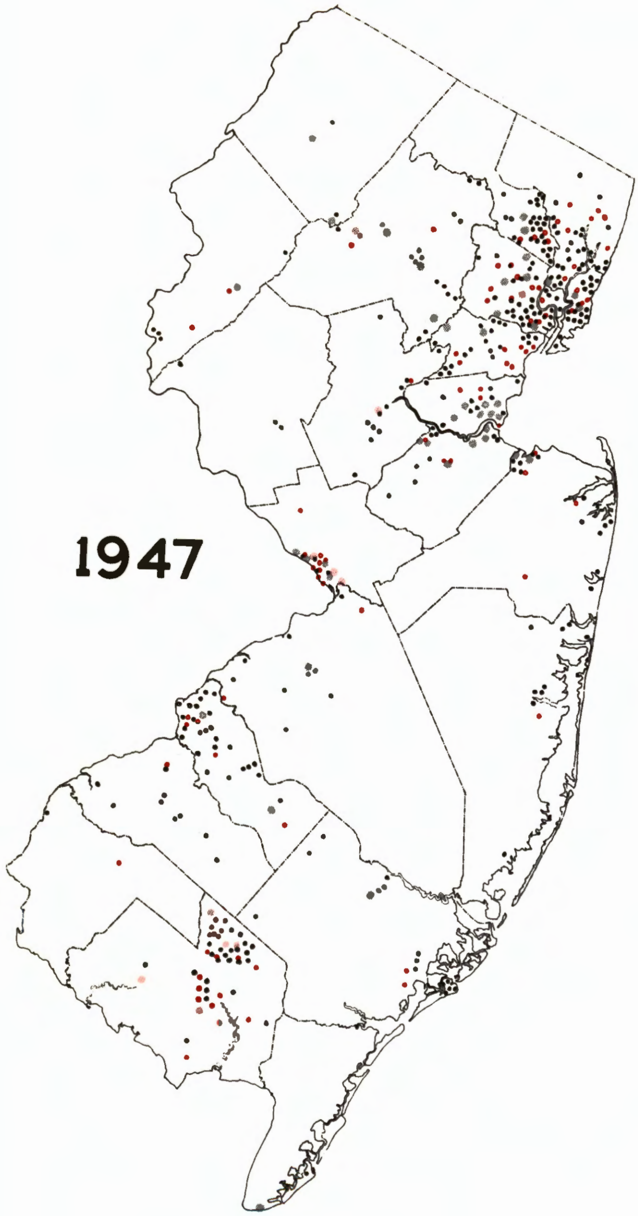

1958 figures for the rubber industry are not comparable to earlier data due to the inclusion of the plastics industry in this category. Figures for the years prior to this reclassification show only minor fluctuations in the various measurable criteria.

S.I.C. 31 LEATHER AND LEATHER GOODS



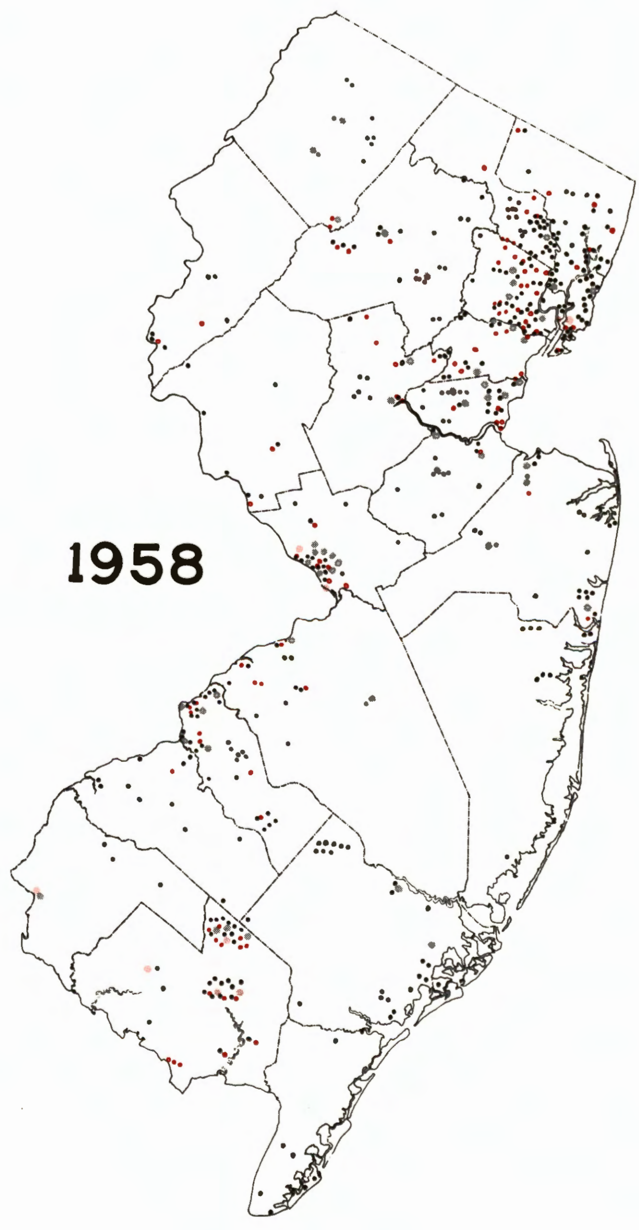




While there are relatively fewer leather goods industries operating in the State (as compared to the overall growth of industries) the relative position of this category has not changed substantially over the past twenty years.



1947

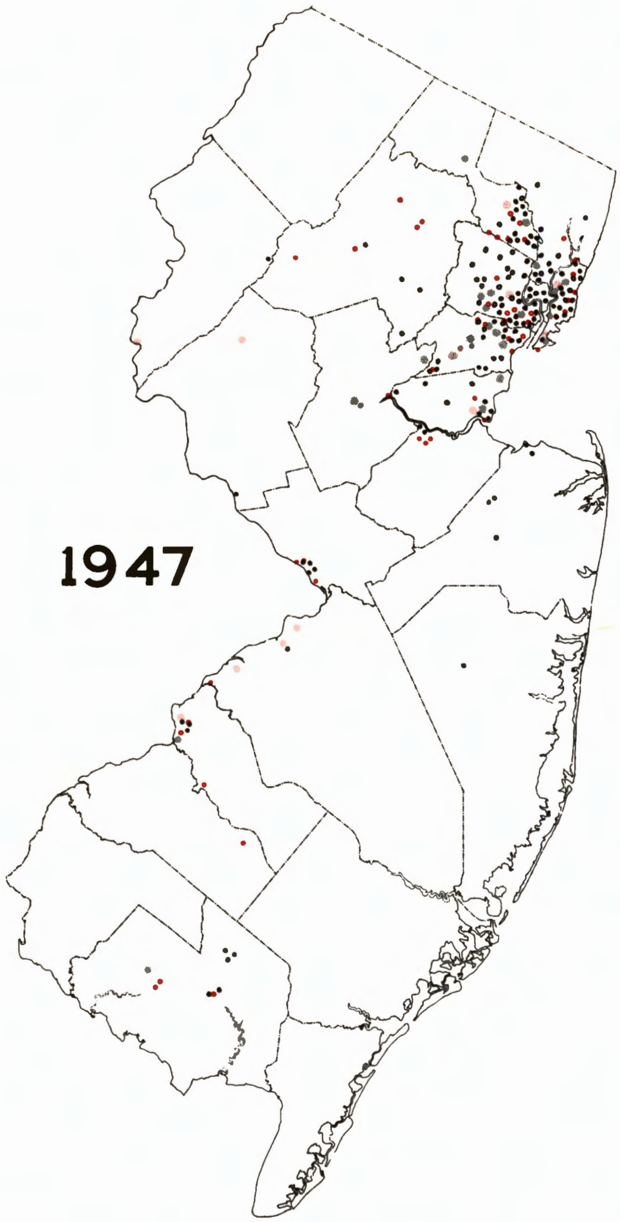
### S.I.C. 32 STONE, CLAY AND GLASS PRODUCTS



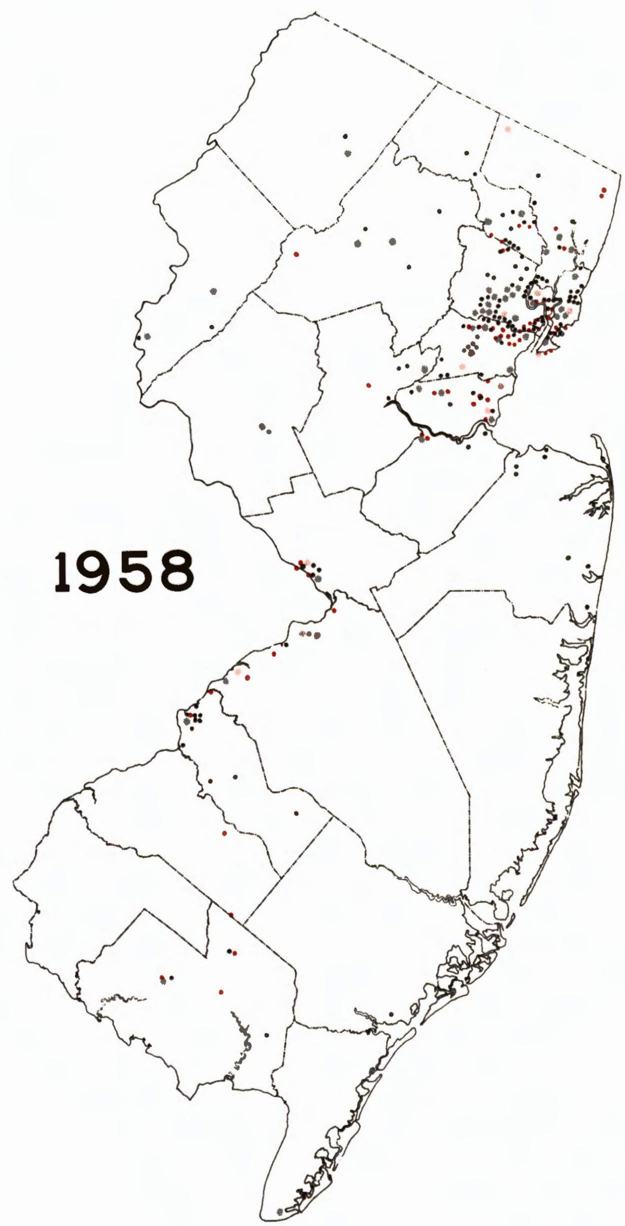
1958

**The past twenty years have witnessed a considerable fluctuation in the relative status of the stone, clay and glass industries. In 1954, the industry had declined from 2.6%, 5.3%, and 5.2% (1947) for number of establishments, number of employees, and value added by manufacturing, to 2.4%, 4.6% and 4.6%, respectively. Four years later, the industry rose to 2.5%, 4.9% and 4.9% in these three categories.**

S.I.C. 33 PRIMARY METAL INDUSTRIES



1947

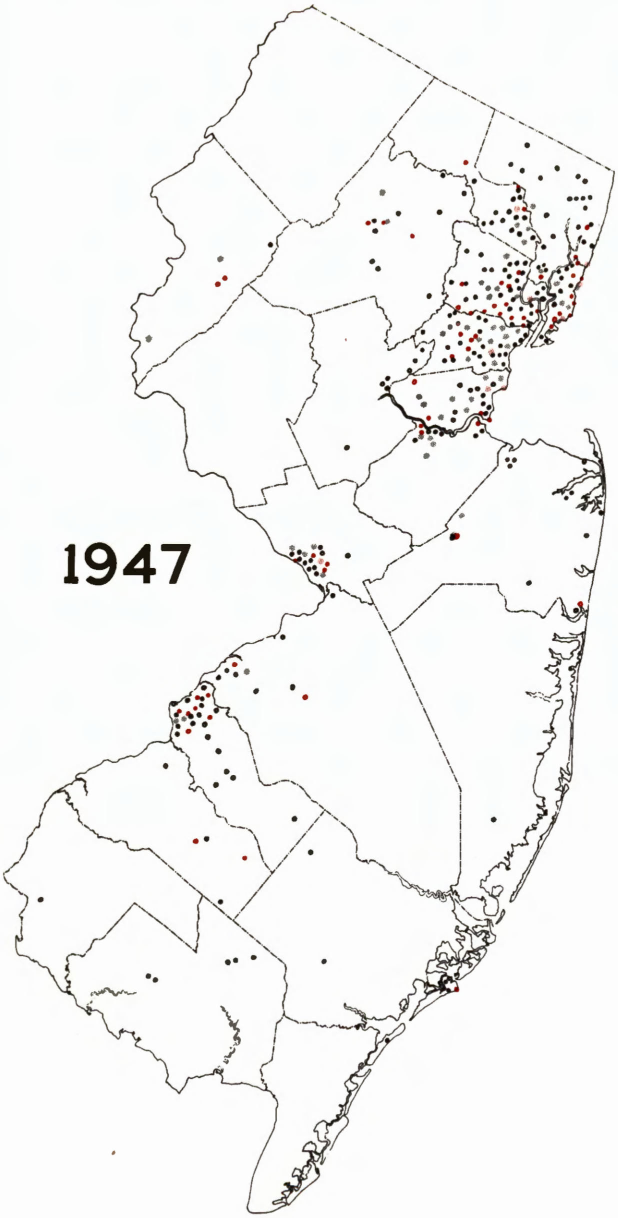


1958

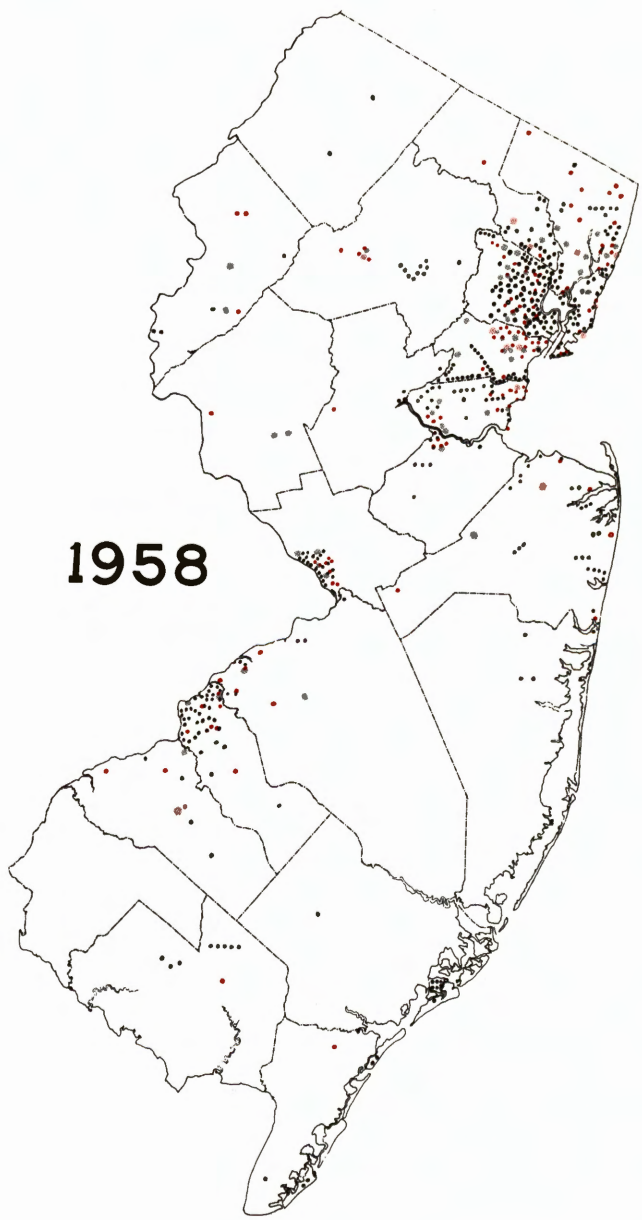
While the relative position of this grouping has shown little change, percentagewise this classification has declined. In 1939 the primary metal industries accounted for 2.4% of all manufacturing establishments in the State, and 5.2% of value added by manufacturing. While the percentage of firms rose to 2.5% by 1958, the relative position of the industry dropped from 11th to 13th and the percentage of value added fell to 4.9%.

S.I.C. 34 FABRICATED METAL PRODUCTS

1947

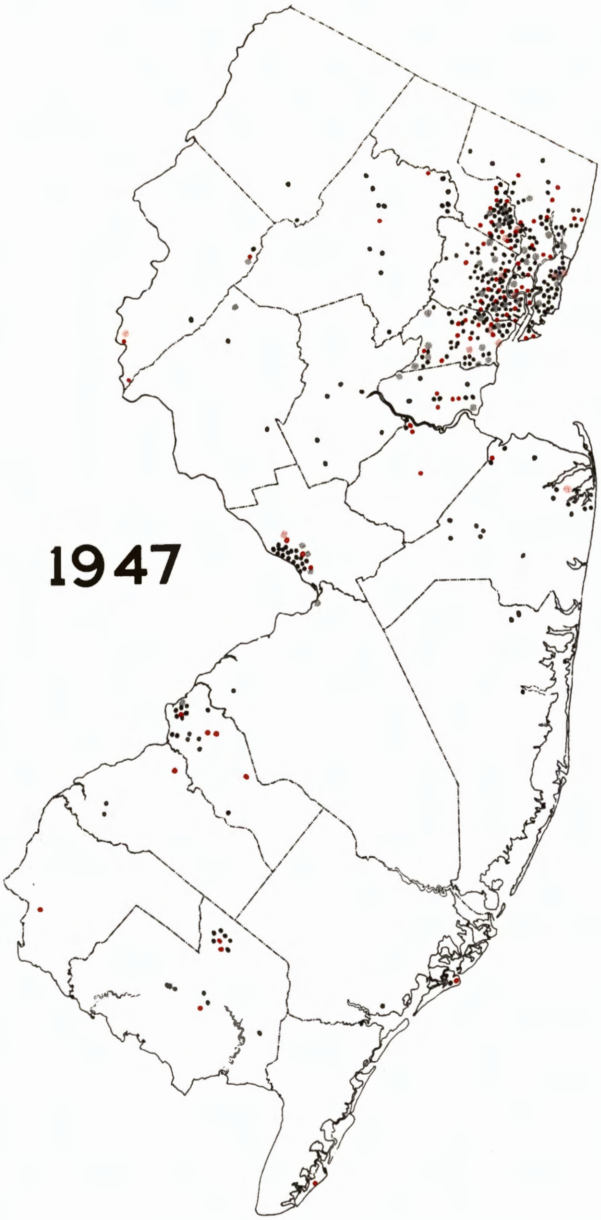


1958

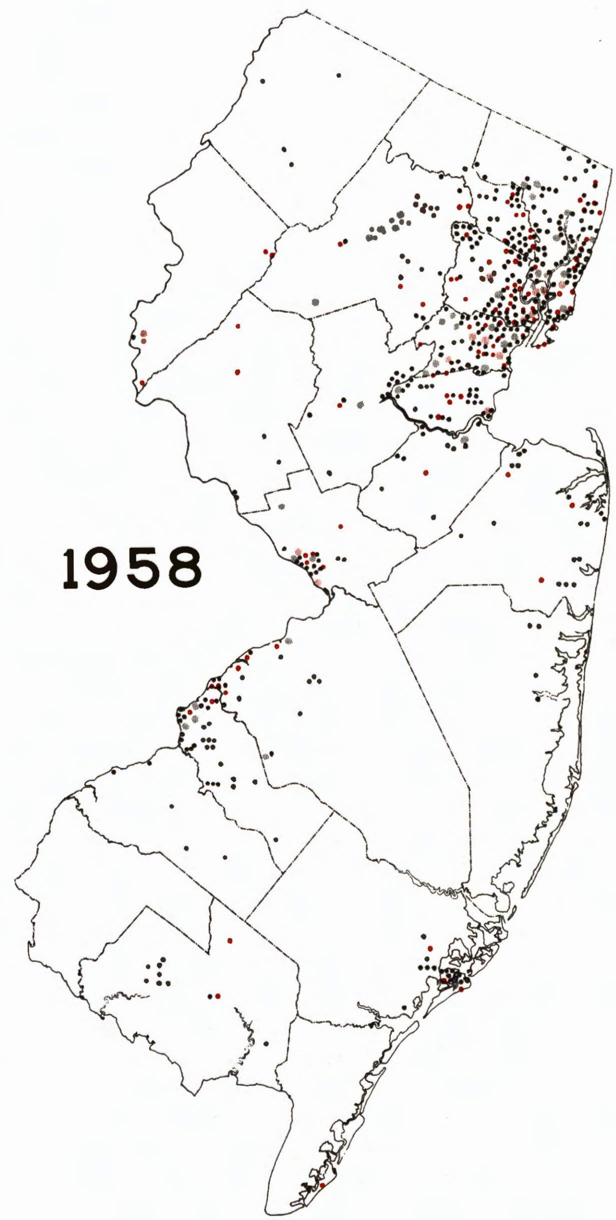


The fabricated metals industry has shown substantial increases across the board. It rose from sixth place in 1939 (5.6%) in terms of number of establishments, to third place in 1958 (11.5%), and from tenth place in 1939 in value added (4.7%), to sixth place in 1958 (6.8%). In terms of number of employees, it rose from eighth place in 1947 (5.7%) to sixth place in 1958 (7.0%) and from ninth place in payrolls to sixth place in 1958.

## S.I.C. 35 MACHINERY, EXCEPT ELECTRICAL



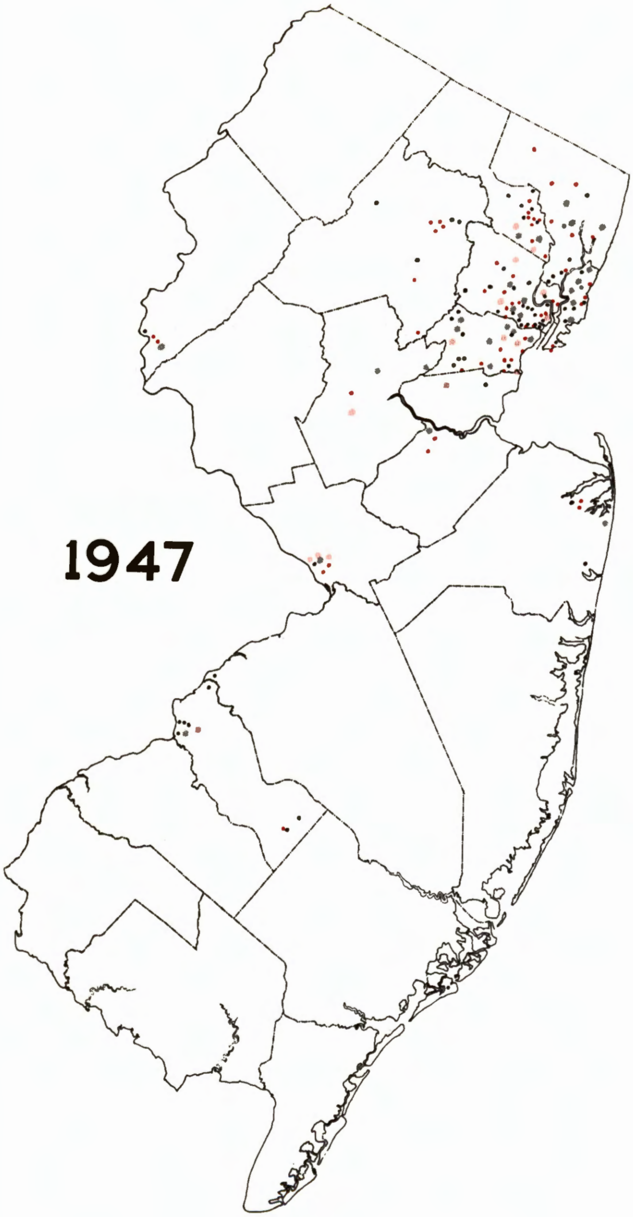
1947



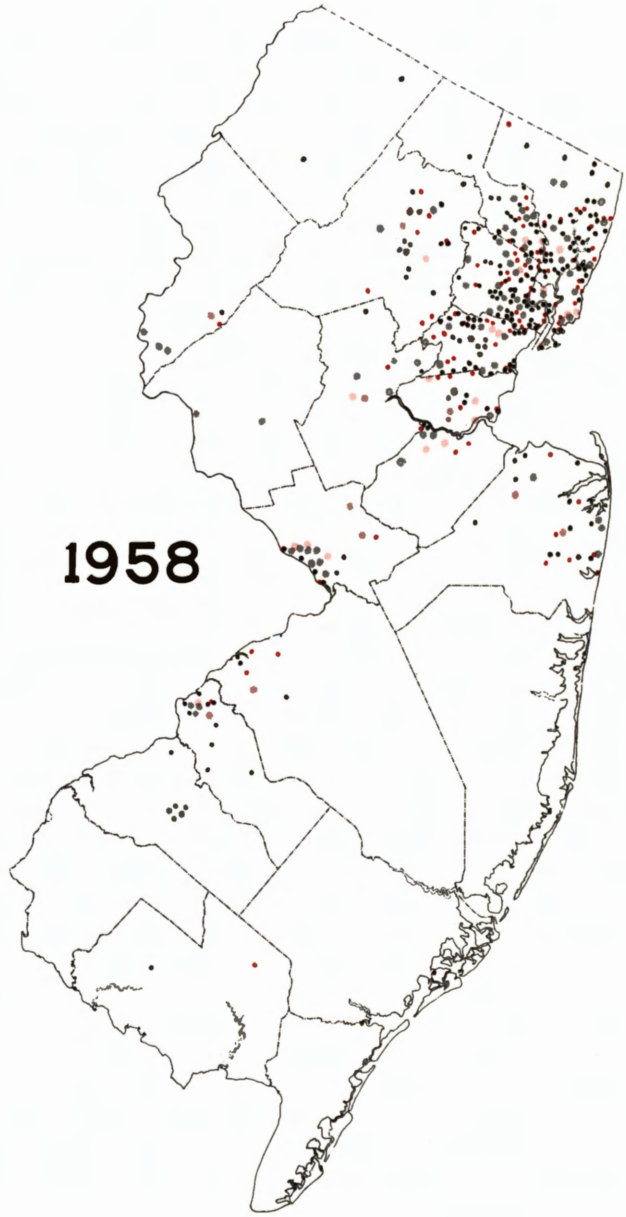
1958

While the machinery industry has shown marked increases in the number of establishments in the State (jumping from eighth place in 1939 to second place in 1947 and maintaining that position since that time), since the end of the war the relative number of employees and the relative value added by manufacturing has declined. The former measure showed 8.9% of the State's total in 1947, but dropped to 7.6% in 1958; while the latter fell from 8.0% to 6.9% during this period.

## S.I.C. 36 ELECTRICAL MACHINERY



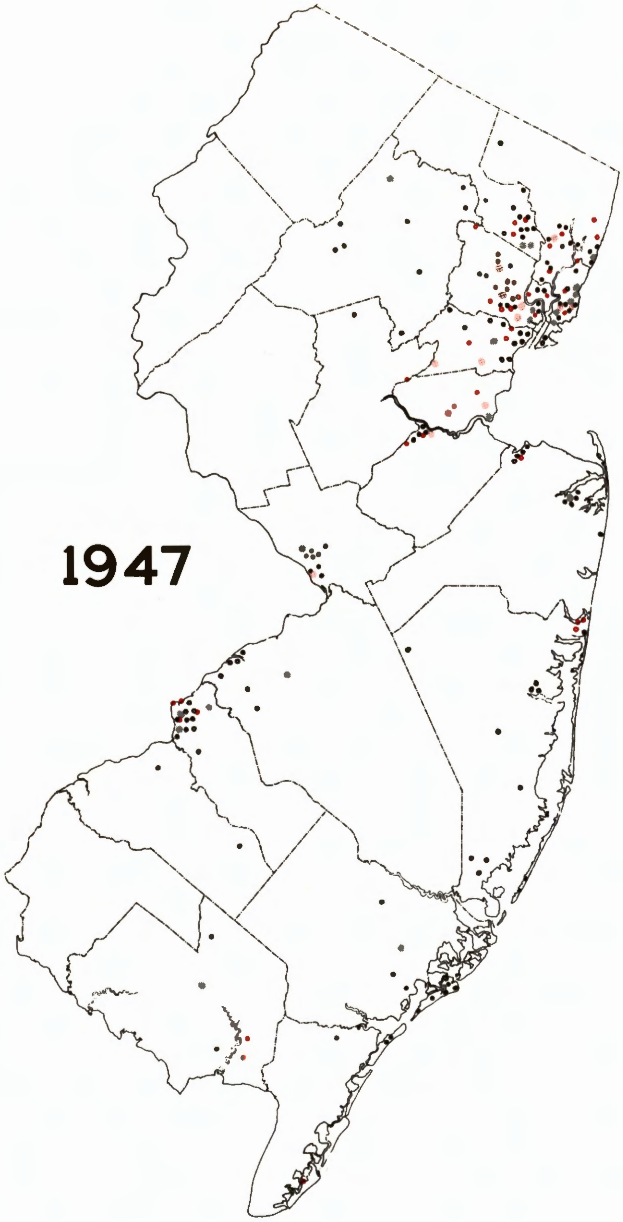
1947

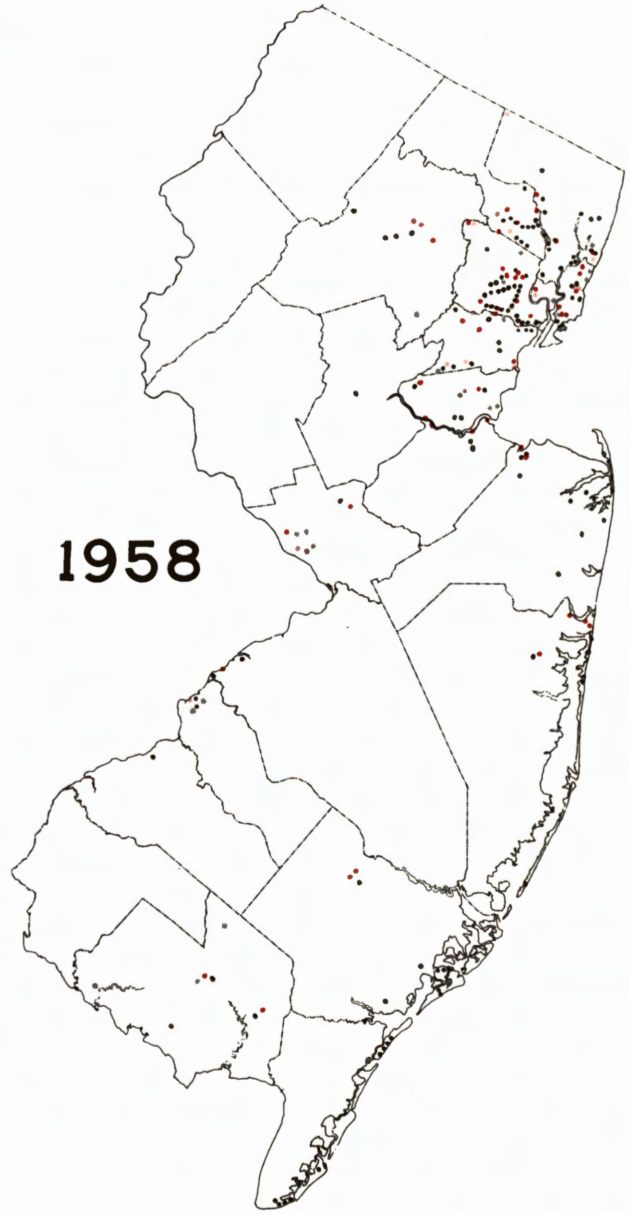


1958

**During the past twenty years the electrical machinery industry has been one of the leading manufacturing activities in the State. It has been first in number of employees and in salaries over the past ten years, and second in value added during this period. In 1939 it ranked 14th in number of establishments, but by 1958 had risen to seventh in this category.**

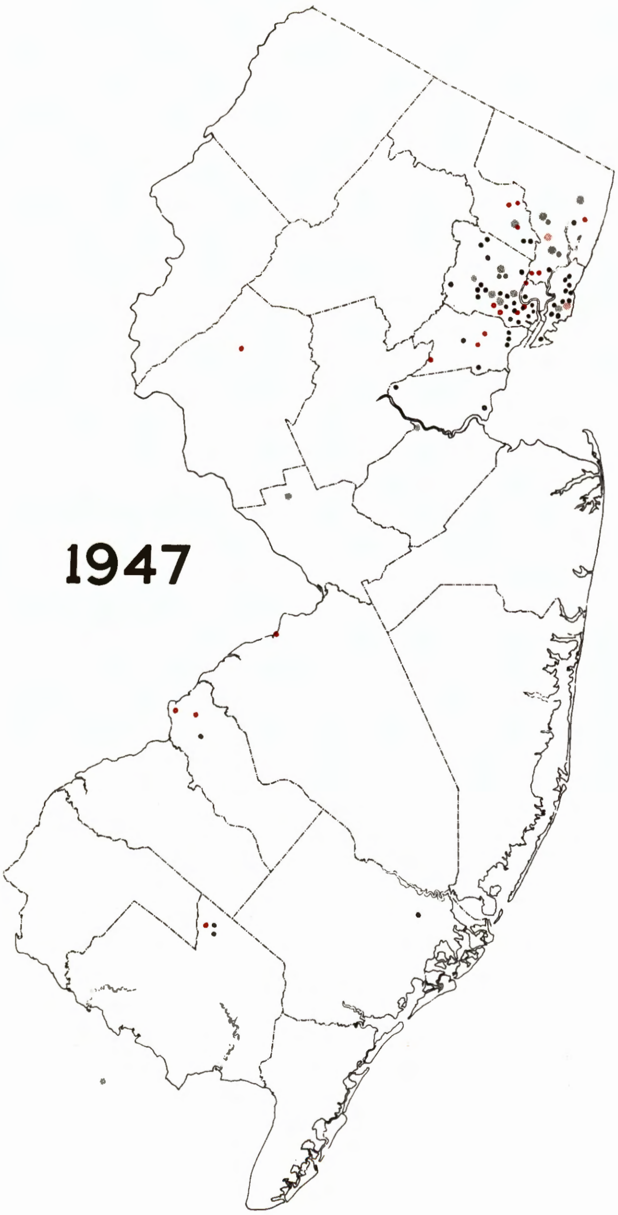
S.I.C. 37 TRANSPORTATION EQUIPMENT



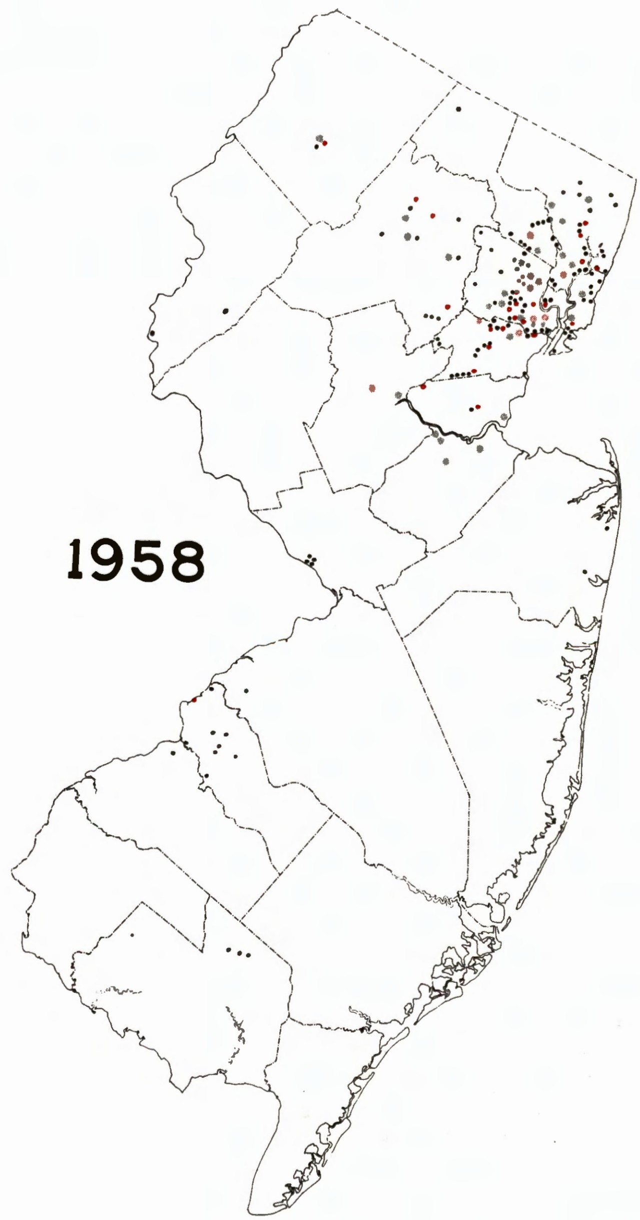




The transportation equipment industry in New Jersey has shown its greatest improvement in the area of value added by manufacturing. While its rank in the other .areas has remained substantially unchanged, value added rose from eighth place in 1939 to fourth place in 1958 (5.6% to 7.7%).

## S.I.C. 38 INSTRUMENTS AND RELATED PRODUCTS



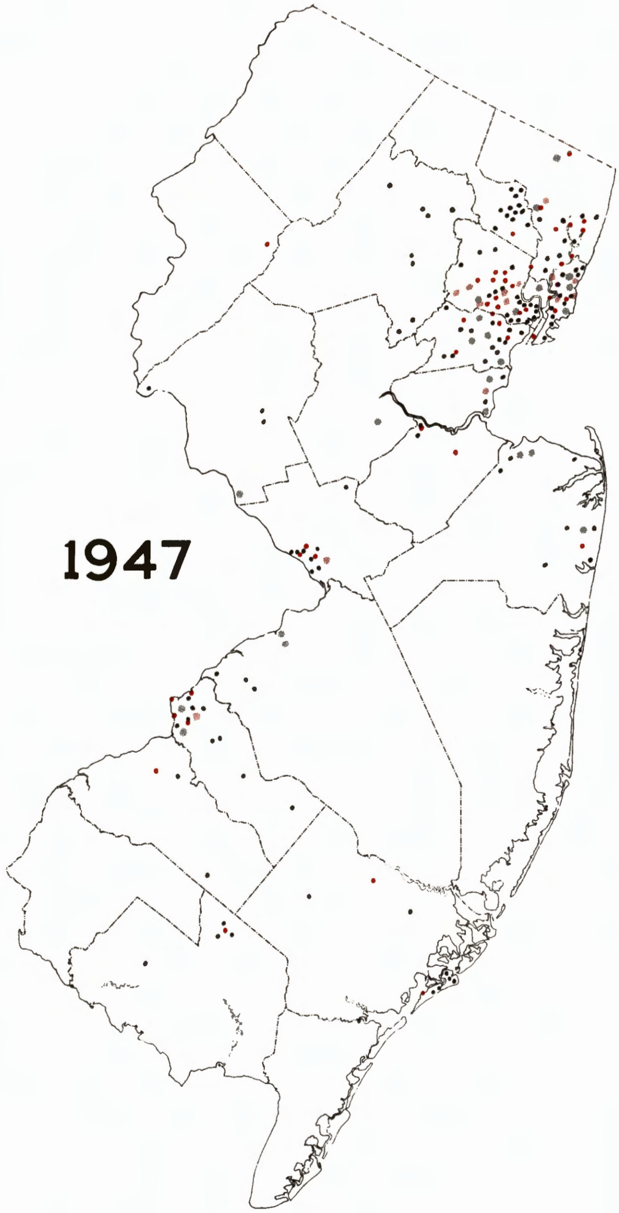
1947



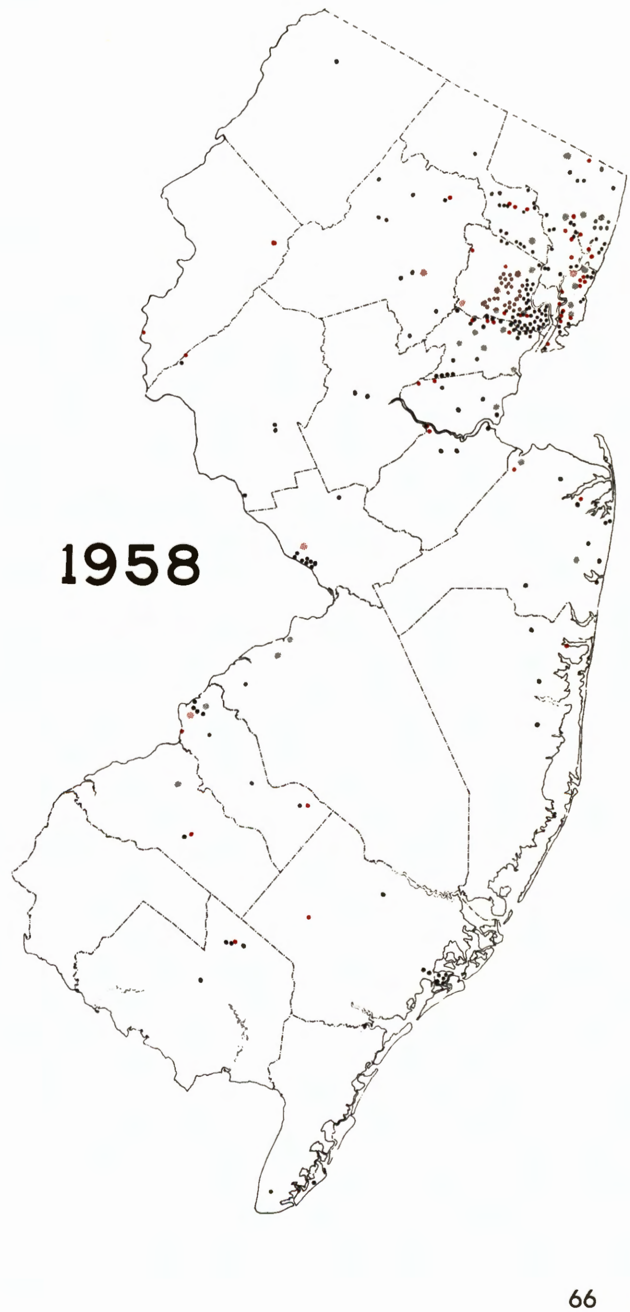
1958

**As in the case of S.I.C. 37, instruments and related products has shown gains in the area of value added by manufacturing, rising from 16th place (1.5% to 12th place 3.3%). Payrolls have also increased, relative to other industries, from 15th in 1947 to 11th in 1958.**

## S.I.C. 39 MISCELLANEOUS MANUFACTURES



1947



1958

Due to the perculiar "catch-all" character of this grouping, it is difficult to obtain a valid measure of its growth or decline. While this category has shown a relative decline in all areas, some of this can be accounted for by the reclassification of industries into other S.I.C. groupings.


# ANALYSES OF GENERAL STATISTICS BY COUNTIES

**Atlantic County** has had a relatively static industrial position during the past twenty years. While between 1939 and 1947 Atlantic County experienced an increase in the number of establishments and in the value added by manufacturing by these firms greater than the State's average for this period, since 1947 these figures have been consistently below the State average. Atlantic County's relative share of the State's manufacturing has remained constant at 1.9% during this twenty-year period. Between 1939 and 1958 the number of firms has increased from 209 to 265, largely in the smaller employment categories of 1 to 19 employees. The prime employer in Atlantic County is the apparel industry which accounts for 46.8% of all manufacturing employment.

**Bergen County** is perhaps the State's most rapidly growing county in terms of manufacturing. During the past twenty years Bergen County has nearly doubled its share of manufacturing establishments and value added by manufacturing, while its share of the State's total manufacturing employment has increased by 50 percent. Its rate of growth in these categories has consistently been nearly two to three times as great as the State average, with the most outstanding period of growth occuring between 1947 and 1954 when the number of establishments increased by 62.2% (as compared to the State average of 22.6%) and manufacturing employment increased by 58.1% (as compared to the State average of 6.7%). The apparel industry, the printing and publishing industries, the rubber and plastics industries, the fabricated metals industries and the machinery industries have made the most apparent advances in Bergen County. Further, the growth of manufacturing has been outstanding in all size categories of employment. The leading industrial employers in Bergen County are transportation equipment (18.5%), instruments (15.0%) and electrical goods and machinery (8.2%).

**Burlington County** has shown minor increases in the various measurable categories during the past five years. Prior to this time it was relatively static in terms of manufacturing growth. Although much of the more recent growth has occurred in smaller sized firms, employing between one and nineteen employees, several larger firms employing over 250 persons have located in the County. Burlington County, due to its geographic situation, would appear to be emerging as an industrial county. However, as indicated previously, its growth to date has not kept pace with the expectations of the local industrial zoning programs. The principal manufacturing employers in the County are electrical goods and machinery (29.0%), primary metals (16.1%) and textile mill products (12.1%).

**Camden County**—Despite the urban and suburban development which has occurred during the past ten years in Camden County, this area has shown relatively large declines in its share of the total number of employees in manufacturing and in the overall value added by manufacturing. Between 1954 and 1958, Camden County's manufacturing employment declined by 5.5%, surpassed only by the declines of 12.2% in Essex County, 9.3% in Hudson County, and 8.4% in Mercer County. Between 1939 and 1958, the County's share of the value added by manufacturing declined from 7.1% to 5.7%. Much of this overall decline can be accounted for by the decline in the number of large manufacturing employers (those employing over 100 persons), which has dropped from 63 firms in 1939 to 55 firms in 1958, and by the relative lack of growth and in some cases the decline in the number of firms in such major industrial categories as foodstuffs, textiles, furniture and fixtures, paper, leather, stone, clay and glass, and transportation equipment. Several industries such as shipbuilding, which accounts for 22.6% of all manufacturing employment, and food products, which accounts for 13.4% of manufacturing employment, are in this area of decline or static growth. The leading employers have remained the electrical goods and machinery industries which employ 29.8% of all manufacturing workers.

**Cape May County** has yet to experience any major industrial growth. Somewhat removed from the major industrial areas of the State, Cape May County has shown significant growth only during the post-war years from 1947 to 1954. By 1954, the number of establishments had increased by 53.2%, only to decline by 11.1% in 1958. During this period employment had just managed to keep pace with the State average, showing a 6.6% increase in 1954 and a 3.4% decline in 1958. Between 1954 and 1958, the only industrial category which showed a significant increase in the number of firms was the transportation equipment industry (shipbuilding and repair), which is closely allied to the major economic base factor of the county—the resort and tourist trade.

**Cumberland County** has shown some gains in the field of manufacturing, especially in the stone, clay and glass industry. It is, however, still primarily an agriculturally oriented county. Fifty-nine firms have been added in the past twenty years to the 1939 base figure of 210 manufacturing operations. Nearly half of these firms are in the twenty to ninety-nine employee category, while four new firms employing over 100 persons have located in the area.
Cumberland County may be expected to experience additional increases in industrialization, but this is not likely to alter its economic base away from agriculture for some time to come. At present, the leading employers in the County are the stone, clay and glass industry (43.5% of all manufacturing employment), apparel (20.5%) and food products (19.2%).

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**Essex County** has been for many years the leader in the State in the number of establishments and in the number of employees, and second only to Hudson County in value added by manufacturing. Its relative position, however, has declined steadily over the past twenty years. In 1947, Essex County had 24.2% of all the manufacturing firms of the State, 19.5% of all manufacturing employment, and accounted for 19.3% of the State's total of value added by manufacturing. By 1958, these figures had declined to 19.8% of the total of establishments (a net decline of 4.4%); 16.5% of employment (a net decline of 3.0%); and only 15.1% of value added (a net decline of 4.2%). During this ten-year period, eleven industrial categories—textiles, apparel, tobacco, furniture and fixtures, paper products, printing and publishing, petroleum and coal products, leather goods, fabricated metals, transportation equipment, and miscellaneous manufacturing—all showed declines in the number of firms in the County. Of the remaining nine categories, several showed only minor increases in the number of firms. This relative decline would seem indicative of the shift in many industries to outlying, less congested areas of the State. Electrical goods and machinery (22.8%), food products (12.8%), machinery (9.4%) and chemicals (9.0%) represent the principal manufacturing employers in the County.

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**Gloucester County** is located at the outer edge of the industrial belt of the State. While the County has both industrial and agricultural characteristics, its growth over the past twenty years has been relatively insignificant. A center for the petroleum industry in the southern part of the State, Gloucester County has shown some growth in such industrial categories as wood and wood products, stone, clay and glass, and chemicals. The petroleum industry in Gloucester County, unlike other areas of the State, would seem fairly stable. Two large refineries provide the major source of manufacturing employment for the County, accounting for 36.2% of all industrial workers. The chemical industry employs 20.5% of all manufacturing workers.

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**Hudson County,** like its neighbor, Essex County, has experienced a substantial decline in all categories. Between 1939 and 1958, the County's share of the total number of manufacturing firms declined from 21.9% to 17.1%, while value added by manufacturing fell from 22.6% to 16.3%. Between 1947 and 1958, the employment percentages fell from 19.4% to 15.8%. As in the case of Essex County, these figures do not mean that firms are universally leaving the County in large numbers (Hudson County has experienced growth in the number of firms in all categories except five — tobacco, chemicals, leather goods, primary metals, and instruments). These figures, however, point up the fact that the rate of growth in Hudson County is increasing at a decreasing rate. The overall growth of Hudson County has failed to approximate the State average in all categories during this twenty-year period. Electrical goods and machinery (21.4%), apparel (16.2%), and machinery (9.0%) provide the major sources of manufacturing employment in the County.

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**Hunterdon County** represents another instance of a rural, agriculturally oriented county which has experienced moderate industrial growth during the past twenty years. While the number of firms in the County has increased from 73 in 1947 to 103 in 1958, the relationship of this growth to the rest of the State has remained constant, falling between 0.4 and 0.7 percent of the total in each category. The non-electrical machinery industry is the only group of the S.I.C. categories which has shown any significant growth, increasing from 6 firms in 1947 to 12 firms in 1958. Of the thirty firms locating in the County since 1947, 19 have been in the 20 to 99 employee size category. The paper industry is the leading employer in the County, with 1,482 workers — 33.7% of all manufacturing employment. Primary metal products are second with 17.2% of manufacturing employment.

**Mercer County** represents another area whose industrial growth is increasing at a decreasing rate. In 1939 Mercer County had 4.3% of all manufacturing firms in the State. By 1958 this figure had dropped to 3.1%, while statistics on value added by manufacturing showed a parallel decline from 4.7% to 4.3% during this period. During the period from 1947 to 1958, employment figures showed a decline from 5.5% to 4.6% of the State's total. In cases where firms have gone out of business or have moved to other locations, the employment size was generally low, ranging between one and nineteen employees. One outstanding example of this is the food products industry which lost ten firms, representing a decline of over 20% between 1947 and 1958 in this employment category. Five industrial categories — fabricated metals (14.3%); rubber and plastics (13.5%); stone, clay and glass (12.2%); electrical goods and machinery (11.4%); and machinery (11.0%)—provide the major sources of manufacturing employment in the County.

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**Middlesex County,** despite the apparent industrial activity which has taken place in the past several years, has just managed to keep abreast with the State averages in terms of these various measurable indices of manufacturing growth. The most significant growth has come about in the category of value added by manufacturing, where the County's share of the State's total increased from 7.6% in 1939 to 9.6% in 1958. This indicates a relative shift in the types of industry toward a high sale-value product, exemplified by increases in such S.I.C. categories as chemicals, ceramics, machinery, transportation equipment, and plastics. The chemical industry provides a major source of employment, with 22.8% of all manufacturing workers, and the primary metal industries (12.8%), the apparel industry (10.1%) and electrical goods and machinery (9.7%) follow in that order.

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**Monmouth County**—Starting with a relatively small industrial base, Monmouth County has made moderate strides forward to increase its employment environment by attracting new industry to its area. Since 1939, Monmouth County's average growth has been above that of the State in all of the categories measured. Much of this activity has occurred through the location of small firms employing between one and nineteen persons. Between 1947 and 1958, 113 firms in this size category—representing an increase of over 50% — chose to locate in the County. This increase accounted for nearly 75% of all firms coming into the area during this period. The apparel industry employs 23.7% of all manufacturing workers in the County, while the electrical goods and machinery industry employs 21.7% of all manufacturing workers.

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**Morris County** represents the third most rapidly growing county in the State in terms of industrialization, surpassed only by that of Bergen and Union Counties. Between 1939 and 1958, Morris County's share of manufacturing firms in the State increased from 1.4% to 3.0%, and its share of the total value added by manufacturing went from 1.2% to 3.7%. Employment figures showed a parallel increase, from 1.7% in 1947 to 2.9% in 1958. This growth has occurred in all size categories of industries—nearly doubling the number of firms in each grouping. The most significant growth has occurred in such industries as chemicals, plastics, fabricated metals, machinery, and electrical goods and machinery, all of which are regarded as high sale-value and high wage-value industries. Nearly 60% of all persons employed in manufacturing in the County are on the payrolls of these five industrial categories, with the chemical industry (17.5%) and the electrical goods and machinery industry (14.7%) constituting the leading employers.

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**Ocean County,** like neighboring Monmouth County, has shown only moderate industrial growth. Starting with a small base, it has doubled the number of firms since 1947 (75 to 157), and has attracted several large employers as well as many small firms. For example, two chemical firms employ over 600 workers, who represent 28% of the total manufacturing labor force in the County, while over 17 firms in the apparel industry, with an average employment of 29 workers, and 16 shipbuilding firms with an average employment of 20 workers, account for 23% and 15% of the manufacturing employment, respectively.

**Passaic County,** which ranks third after Essex and Hudson Counties in terms of the measurable categories of manufacturing, has shown only moderate evidence of a decline in its position. Since 1939 it has managed from time to time to equal and even surpass the State average in various categories, which sets it apart from the other two leading industrial Counties which have consistently failed to approximate the State averages. The greatest evidence of decline in Passaic County occurred between 1947 and 1954, when employment in the County fell off by 7.9%. Since that time, expansion in the outlying areas and partial recovery by those areas which had relied heavily on the textile industry has bolstered the industrial base of the County sufficiently to allow it to maintain its relative position in the State. In 1958, for example, the increase of 20.4% in the value added by manufacturing surpassed the State's average increase of 18.5%. While textile mill products and apparel still account for a major portion of the County's manufacturing employment (30.0%), the increase in firms producing electrical goods and machinery, rubber and plastics, and chemicals now accounts for a comparable percentage of the employment in manufacturing.

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**Salem County,** evidencing little change in its relative manufacturing status, has witnessed considerable fluctuation in growth. Between 1947 and 1954 the County hit a low point, showing a decline in employment of 13.7% and only a small growth (2.1%) in the number of firms (as compared to the State's growth of 22.6%). Only fourteen new firms have located in the County since 1947, all in the one to nineteen employee size category. There is a heavy reliance in Salem County upon the chemical industry, with three firms reporting a total employment of over 7,000, representing 61.7% of all manufacturing employees. While over 78.0% of all persons employed in the County work in industry (the highest percentage of any county), the character of Salem County is still rural. Aside from the chemical and stone, clay and glass industries (seven firms employing over 62.0% of the gainfully employed population), the major source of income is the field of agriculture.

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**Somerset County**—Although much of the area of Somerset County is zoned against industry, moderate gains have been made in industrial growth in the past ten years. Forty-two new firms have been added to the 109-firm base since 1947. The most significant increase has occurred in the larger-size category, with seven new firms locating in Somerset County since 1947. Between 1954 and 1958, however, there has been an overall decline of fifteen firms. The electrical goods and machinery industry (32.3%), the stone, clay and glass industry (23.5%), and the chemical industry (21.9%) account for 77.7% of all industrial employment. Despite the highly residential character of Somerset County, nearly 64.0% of persons gainfully employed are in manufacturing.

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**Sussex County** — While Sussex County experienced a 100% growth in the number of firms located in the area between 1947 and 1954, since that time no further significant increases have been apparent. Only 42.4% of all persons who are gainfully employed work in industry, making it the fifth lowest-ranking in this respect. Only the resort Counties of Atlantic (20.5%), Cape May (17.7%), Monmouth (34.5%), and Ocean (16.7%) rank lower. Fifteen firms in the S.I.C. categories of apparel, textile mill products, instruments and primary metals account for over 60% of all manufacturing employment.

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**Union County** represents the second most rapidly growing county in terms of manufacturing activities. Between 1939 and 1958, the County's share of the total manufacturing firms rose from 6.0% to 8.8%, while value added by manufacture increased from 8.6% to 11.8%. The County's share of the total State industrial employment increased 1.3% between 1947 and 1958, surpassing Passaic County to gain fourth place in this respect. Since 1939, the growth figures for the number of establishments, number of employees, and value added by manufacturing in Union County have consistently been higher than the State average for the Census periods measured. While certain S.I.C. categories, such as textile mill products and apparel, have experienced a decline, large increases have occurred in the majority of industries. Nearly 500 new firms have located in the County since 1947, and this increase has been uniformly high in all size categories. Such high-value industries as chemicals, electrical goods and machinery, fabricated metal products, machinery, and automobile manufacturing are the leading employers in the County, accounting for over 60% of all manufacturing employment. While much of the land area in Union County has already been developed, statistics seem to indicate that further increases in industrial land use may be anticipated.

**Warren County,** with its industrial center in the Phillipsburg-Easton area, is still generally rural in character. During the past twenty years, Warren County has shown only moderate increases in industrialization. In 1947 there were 89 firms listed in the Census of Manufactures. By 1958 this number had risen to 124 firms. The manufacture of machinery accounts for the largest percentage of industrial employment (20.7%), while electrical goods and machinery, chemicals, textiles, and fabricated metals provide employment for an additional 4,100 workers (47.8% of manufacturing employment in the County). With the westward expansion of limited access highway facilities, Warren County may expect further to increase its manufacturing activities, as more firms seek suitable areas with land for expansion at relatively low acquisition costs.

## TABLE X — U. S. Census of Manufactures — General Statistics Percentage Change Over Time 1939-1958

| County | Number of Establishments | | | Number of Employees | | Value Added by Manufacture | | |
|---|---|---|---|---|---|---|---|---|
| | 1939-47 | 1947-54 | 1954-58 | 1947-54 | 1954-58 | 1939-47 | 1947-54 | 1954-58 |
| 1 Atlantic | 49.3 | 20.6 | 5.2 | 2.4 | 15.0 | 208.1 | 22.3 | 37.3 |
| 2 Bergen | 90.1 | 62.2 | 19.3 | 58.1 | -0.1 | 271.9 | 98.4 | 30.4 |
| 3 Burlington | 37.5 | 47.9 | 10.7 | 6.7 | 12.9 | 236.3 | 70.3 | 75.9 |
| 4 Camden | 43.2 | 29.7 | 8.9 | 5.0 | -5.5 | 110.8 | 61.7 | 15.7 |
| 5 Cape May | 46.9 | 53.2 | -11.1 | 6.6 | -3.4 | 431.4 | 56.2 | 23.7 |
| 6 Cumberland | 57.9 | 22.4 | 4.7 | 11.2 | 7.6 | 243.4 | 53.8 | 29.0 |
| 7 Essex | 36.3 | 8.4 | -1.3 | -.7 | -12.2 | 177.8 | 33.8 | 5.9 |
| 8 Gloucester | 56.9 | 45.1 | -2.4 | 27.7 | 0.1 | 92.9 | 49.4 | 33.1 |
| 9 Hudson | 32.9 | 8.9 | 1.6 | -7.2 | -9.3 | 157.9 | 25.8 | 9.5 |
| 10 Hunterdon | 87.2 | 17.8 | 19.8 | -14.1 | 26.4 | 232.0 | -0.1 | 89.0 |
| 11 Mercer | 26.4 | 10.2 | -0.7 | -5.3 | -8.4 | 189.3 | 45.3 | 7.0 |
| 12 Middlesex | 37.8 | 20.6 | 8.9 | 10.9 | -2.3 | 187.3 | 82.0 | 18.9 |
| 13 Monmouth | 53.0 | 31.4 | 14.0 | 20.9 | 3.4 | 253.7 | 70.6 | 9.9 |
| 14 Morris | 121.6 | 55.8 | 17.6 | 37.5 | 25.5 | 338.3 | 95.3 | 72.4 |
| 15 Ocean | 47.1 | 60.6 | 22.5 | 94.8 | 25.1 | 103.5 | 2.5 | 46.2 |
| 16 Passaic | 46.3 | 13.9 | 6.0 | -7.9 | 1.8 | 167.9 | 37.7 | 20.4 |
| 17 Salem | 45.5 | 2.1 | 26.5 | -13.7 | -1.5 | (d) | 58.4 | 5.3 |
| 18 Somerset | 29.8 | 52.3 | -9.0 | 13.8 | 15.8 | 146.2 | 52.7 | 36.2 |
| 19 Sussex | 15.6 | 100.0 | -1.4 | 59.8 | 13.9 | (d) | 136.4 | 19.9 |
| 20 Union | 65.0 | 46.6 | 13.4 | 22.1 | -2.9 | 233.4 | 68.6 | 20.2 |
| 21 Warren | 32.8 | 32.6 | 5.1 | 11.1 | 3.6 | 111.9 | 71.4 | 20.5 |
| State | 44.6 | 22.6 | 6.3 | 6.7 | -3.3 | 175.1 | 51.2 | 18.5 |

(d) Withheld to avoid disclosing figures for individual companies

## TABLE XI — U. S. Census of Manufactures — General Statistics
## Percentage of Total For 1939-1958

| County | Number of Establishments 1939 | 1947 | 1954 | 1958 | Number of Employees 1947 | 1954 | 1958 | Value Added by Manufacturing 1939 | 1947 | 1954 | 1958 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 Atlantic | 1.9 | 1.9 | 1.9 | 1.9 | .8 | .8 | .9 | .5 | .6 | .4 | .5 |
| 2 Bergen | 6.5 | 8.6 | 11.4 | 12.8 | 7.1 | 10.5 | 10.7 | 5.7 | 7.8 | 10.3 | 11.2 |
| 3 Burlington | 1.6 | 1.5 | 1.9 | 1.9 | 1.7 | 1.7 | 2.0 | 1.1 | 1.4 | 1.6 | 2.3 |
| 4 Camden | 3.7 | 3.6 | 3.8 | 3.9 | 6.0 | 5.9 | 5.7 | 7.1 | 5.5 | 5.8 | 5.7 |
| 5 Cape May | .4 | .4 | .5 | .5 | .2 | .2 | .2 | .1 | .1 | .1 | .1 |
| 6 Cumberland | 1.8 | 2.0 | 1.9 | 1.9 | 2.2 | 2.3 | 2.6 | 1.4 | 1.7 | 1.7 | 1.9 |
| 7 Essex | 25.6 | 24.2 | 21.4 | 19.8 | 19.5 | 18.2 | 16.5 | 19.1 | 19.3 | 16.9 | 15.1 |
| 8 Gloucester | 1.0 | 1.1 | 1.2 | 1.1 | 1.0 | 1.2 | 1.3 | 1.7 | 1.2 | 1.1 | 1.3 |
| 9 Hudson | 21.9 | 20.2 | 17.9 | 17.1 | 19.4 | 16.9 | 15.8 | 22.6 | 21.1 | 17.7 | 16.3 |
| 10 Hunterdon | .5 | .7 | .7 | .7 | .6 | .4 | .6 | .5 | .6 | .4 | .6 |
| 11 Mercer | 4.3 | 3.7 | 3.4 | 3.1 | 5.5 | 4.9 | 4.6 | 4.7 | 5.0 | 4.8 | 4.3 |
| 12 Middlesex | 5.3 | 5.0 | 4.9 | 5.1 | 8.0 | 8.3 | 8.4 | 7.6 | 7.9 | 9.6 | 9.6 |
| 13 Monmouth | 2.7 | 2.9 | 3.1 | 3.3 | 1.6 | 1.8 | 1.9 | 1.1 | 1.4 | 1.5 | 1.4 |
| 14 Morris | 1.4 | 2.1 | 2.7 | 3.0 | 1.7 | 2.2 | 2.9 | 1.2 | 2.0 | 2.5 | 3.7 |
| 15 Ocean | .7 | .7 | .9 | 1.0 | .1 | .2 | .3 | .1 | .1 | .1 | .2 |
| 16 Passaic | 11.7 | 11.9 | 11.1 | 11.0 | 10.6 | 9.2 | 9.8 | 9.2 | 9.0 | 8.0 | 8.3 |
| 17 Salem | .4 | .4 | .4 | .4 | 1.7 | 1.4 | 1.4 | (d) | 2.0 | 2.1 | 1.9 |
| 18 Somerset | 1.1 | 1.0 | 1.3 | 1.1 | 1.9 | 2.0 | 2.4 | 2.1 | 1.9 | 2.0 | 2.3 |
| 19 Sussex | .4 | .3 | .6 | .5 | .2 | .3 | .3 | (d) | .1 | .2 | .2 |
| 20 Union | 6.0 | 6.9 | 8.2 | 8.8 | 9.0 | 10.3 | 10.3 | 8.6 | 10.4 | 11.6 | 11.8 |
| 21 Warren | .9 | .8 | .9 | .9 | 1.2 | 1.3 | 1.4 | 1.3 | 1.0 | 1.1 | 1.1 |
| Total | 99.8 | 99.9 | 100.1 | 99.8 | 100.0 | 100.0 | 100.0 | 95.7 | 100.1 | 99.5 | 99.8 |

(d) Withheld to avoid disclosing figures for individual companies

### General Conclusions Derived From the Statiscal Data

Based upon the data presented and the brief summaries offered in the previous section of this report, certain general conclusions as to the demand trends of industry in New Jersey may be made. It would seem evident that certain industries, previously regarded as major industrial employers, are on the decline in New Jersey. The most striking example, of course, is the textile industry, firms of which have left the State in large numbers to seek lower labor costs, especially in the South. This movement has left behind considerable numbers of workers. Job opportunities must be found for these workers if we are to continue to have an economically sound environment. This problem will continue to be of major concern to the State, the counties, and to the local municipalities most acutely involved. The foundations for an extensive re-training program are currently being laid, and an upswing in employment may be anticipated in the near future.

In addition to the obvious losses experienced in the textile industry, other industrial categories have been suffering less dramatic, yet significant, declines. The decline in the petroleum and coal products industry, for example, is of concern to many industrial leaders and governmental officials, since this industry is an important element in our economic base. As a major land user and employer in certain sections of the State, the petroleum industry is a large contributor to the economic welfare of the people and communities in the form of wages and tax revenues. The major reason given for the decline of this industry has been the lack of adequate space for expansion in those areas presently occupied. The textile industry has been saddled with outdated machinery and production techniques. With the advent of new innovations in fibers and production methods the textile industry must seek lower labor costs in order to compete successfully in the market place. The petroleum industry, on the other hand, has grown steadily in the types and variety of products possible from its raw materials. Such growth requires space for expansion. With new production methods and innovations in bringing the products to the market, it often has become more feasible to abandon existing facilities and build new ones beyond the built-up urban areas.

The tobacco industry, while only a minor employer in New Jersey, has also shown significant declines over the past twenty years. Here again, new innovations in production methods have created a situation where the small entrepreneur can no longer compete successfully with major producers unless he can minimize some area of his production cost.

In addition to these declining industries in New Jersey, several others have remained static, unable to keep pace with the expanding industrial picture, while still others have shown a decline in number of firms or in the value added by manufacturing. The apparel industry, the lumber and wood products industry, the furniture and fixtures industry, and the paper industry are examples of categories which have remained static in terms of growth or decline, just managing to maintain their relative position in the overall industrial complex of the State. While the number of firms in the foodstuffs industry, the leather industry, and the printing and publishing industry have declined over the past twenty years, these industries have advanced in employment and wages, and/or in value added by manufacturing. The primary metals industry, on the other hand, has shown a decline in the value added by manufacturing, while it has remained fairly stable in the other measurable categories.

The current growth industries of the State include the chemical industry, the fabricated metal products industry, the machinery industry, the electrical goods and machinery industry, the plastic industry (as a part of both the chemical and rubber products classifications), the transportation industry, and the instruments and related products industry. All of these industries have shown marked increases in one or more of the categories measured. The most outstanding increases have occurred in the fabricated metal products industry, which rose from sixth place to third place in terms of the number of establishments, from tenth place to sixth place in value added, from eighth to sixth place in terms of total employment, and from ninth place to sixth in payrolls. Electrical goods and machinery, which has been first in number of employees and in salaries and second in value added during the past ten years, has risen from fourteenth place in terms of the number of establishments to seventh place in this category.

A difficulty which arose in the course of this analysis stems from the broad scope of the two-digit Standard Industrial Code categories. While certain component industries of a general category may show marked rises, losses in other areas may result in the overall impression of a relatively static situation or even a decline. The stone, clay and glass category is an excellent example of this situation. While the glass-making industry in the southern portion of the State has grown over the years to emerge as a major employer, in other areas of the State the ceramic industry has experienced declines which counterbalance this trend. This presents a somewhat distorted picture of the overall "health" of this particular industry. In order to obtain detailed information concerning any particular category, it would be necessary to break down the Standard Industrial Code classifications to their three-digit and four-digit levels.[1] However, the general information provided by the broader scope of the two-digit classification would seem sufficient for the purposes of this present analysis.

In general, it may be said that there has been a shift in the industrial character of the State away from the more highly market-oriented industries, such as apparel, textiles, and foodstuffs, toward a more diverse industrial base including many high sale-value, high wage-value concerns. This may be viewed, generally, as a healthy situation. While the loss of industry in the former categories has created an unemployment situation of vital concern to both private citizens and government officials, the diversification of the industrial base should provide a more stable employment environment in the long run.

In the past several years, there has also been a substantial increase in research and development activities in the State. Although this form of industrial activity can not be considered a major source of industrial employment, because of the nature of its operations, it represents high wage-value concerns. Therefore, the further growth of research and development activities may be a desirable trend to foster.

### The Changing Industrial Character of New Jersey Will Have an Effect on Land Use Patterns

In terms of land use patterns, the shift from the more highly market-oriented industries toward a more diverse industrial base is likely to result in greater demands for larger areas for future development and expansion. Many of the "growth" industries are of the type that require large quantities of land on which to conduct their operations, while the declining industries are generally intensive land users, usually conducting their manufacturing activities in multi-story factory buildings in the more densely occupied areas.

This fact is borne out by the growth patterns at the county level. The major areas of industrial growth have occurred in the less densely populated suburban areas such as Bergen, Morris, and Somerset counties, and in the open areas of such counties as Middlesex, Union, and Passaic. The highly urbanized areas, on the other hand, have shown marked declines. Hudson, Essex, Mercer, and Camden Counties have not been able to keep pace with the overall industrial growth of the State. The maps on page 9 show the new industrial construction and additions which have taken place during the past ten years. This data tends to substantiate this outward shift of industrial growth and expansion.

This trend may be expected to continue, with further industrial expansion into the rural areas of the State. Evidence of this movement is already apparent in parts of Monmouth, Hunterdon, Burlington, and Warren Counties. Since industry must compete with a variety of other forms of land use, we must make every effort to direct this development along lines which will assure the State of a desirable pattern of future growth and development. To do this, we must next examine in detail some of the specific considerations which go to make up the general factors of demand and which ultimately influence the location of industrial activities.

[1]The digital system used in the Standard Industrial Code provides for the identification of various forms of industrial activities. At the two-digit level, manufacturing activities are divided into twenty broad categories as previously cited. At the three-digit level, these broader industrial categories are further divided, so that, for example, the manufacture of "men's and boys' furnishings" becomes 232, with the first two numbers signifying the broad grouping of "Apparel and related products". There are also 460 four-digit categories. Carrying the example one step further, the manufacture of men's ties is denoted by a four-digit code 2323.

# PART II:

## WHAT ARE THE POTENTIAL DEMAND AND SUPPLY FACTORS AS THE POPULATION GROWS TO SEVEN, EIGHT, AND NINE MILLION?

*As the State continues to grow, new trends in industrial land use are likely to emerge. A continual appraisal of the many factors influencing the potential demands for jobs in manufacturing is necessary. These potential demands can be translated into actual acres of industrial land which will be needed to meet the emerging requirements for new employment opportunities as the population grows.*

*Further increases in the demand for lands suitable for industrial development can be anticipated in the future. On the basis of projections, it is possible to make comparisons between the existing and potential supply and demand of industrial land. It is also important to know the underlying causes for the current supply trends and to recognize what industry looks for in local zoning practices.*

# CHAPTER 6

## ESTIMATES FOR MANUFACTURING JOB DEMANDS MUST BE CALCULATED

With the anticipated continued growth of the State, new jobs in manufacturing must be created in order to provide employment opportunities for the expanding population. Having discussed in Chapters Four and Five the present and potential supply of lands for future industrial activities, the potential demand for this supply must now be calculated. To do this, it is first necessary to ascertain the future manufacturing job demands that are likely to accompany the increase in population. Estimates of the demand have been calculated for each of the twenty-one counties, for four general "sectors" of the State, and for the State as a whole. By applying various recognized standards, such as acre-employee ratios and industrial density standards, these figures may then be translated into the acres of industrial land necessary to meet the demands for job opportunities that are likely to occur as the population grows to seven, eight, and nine million.

The preceding analysis of existing vacant lands provides an insight into the present and future supply of lands available and/or desirable for future industrial development. Assuming this supply of land to be constant, the demand must next be calculated. However, it should be mentioned that this assumption can be made in theory only, since lands in the "possible supply areas" category are likely to be consumed by other uses as the population expands. Current trends also would indicate that the "available supply areas" will increase as zoning activity increases.

As the population of the State grows new job opportunities must be created to provide employment. In the past several years, new technological developments, the introduction of automation, and innovations in manufacturing and marketing procedures have not only contributed to changing patterns of production methods and the spatial design of plants, but also have altered industrial employment patterns. Further, the repercussions of these changes are only beginning to be felt. It has been predicted, for example, that the further application of automation may cause a major shift in employment from manufacturing to the retail and service industries.

Nevertheless, substantial future manufacturing job demands may be anticipated throughout the State as future increments in population occur. Through an examination of these projected demands, some insight into the potential demand for industrial land may be gained.

## Estimates for Manufacturing Job Demands Can Be Calculated By Counties, Regions, and the State

Two approaches to the problem of estimating the future manufacturing job demands at the State level were undertaken. The first was to apply various standard ratios between manufacturing employment and total population to the seven, eight, and nine million population projections without regard for the year in which such population increases will occur. This data is presented in Table XII on page 80. The reason for applying several differing ratios stems from the fact that alternative courses of development could result in any of several demand patterns. The use of several ratios, therefore, will provide for a range of potential demands which should cover all of the eventualities.

At present, about 15.3% of our total population is employed in all forms of manufacturing. Applying this ratio to the seven, eight, and nine million figures in a straight line projection results in the data which is presented in the first column of the Table. On this basis, for example, by the time the population of the State reaches nine million, there will be a potential demand for about 1,377,000 jobs in manufacturing.

In 1957, a report was prepared for the State Legislature by a Special Commission created to study laws affecting industrial development in New Jersey. Several ratios of manufacturing employment to total population were designed to provide some indication of future growth patterns. The application of two of these ratios, 14.5% for the State average and 17.2% for an average employment in urban areas, are presented in columns two and three of Table XII.

A recent publication prepared by the Bureau of Commerce of the Department of Conservation and Economic Development provides a fourth ratio based upon current employment data. This ratio of 13.7% is based upon data gathered by the Division of Employment Security of the Department of Labor and Industry and includes only employment covered by that agency. The projection of this ratio is presented in column four of the Table.

These four ratios based on existing State data and trends provide a range of 35,000 jobs per million population to compensate for any possible variations which may arise in the future development patterns of the State.

Three additional ratios, based upon regional and national data and trends were also computed and are presented in columns five through seven of the Table. The first of these is the ratio offered in the Regional Plan Association's report on population projections for the twenty-one county region centering around New York City. Their manufacturing employment estimates are based upon the fact that in the region 28.2% of the employed population over fourteen years of age is engaged in manufacturing activities. Due to the high concentration of service industries and retail and wholesale trade activities in the New York Metropolitan Area, estimates based on this ratio fall somewhat below the range resulting from the data computed on the four State average ratios.

The second additional ratio presented in the Table (column six) is also based upon employed population fourteen years of age and over. Amos Hawley, a noted demographer, in his book **Human Ecology** presents data based upon national statistics, which indicate that 24.6% of all employed persons fourteen years of age and over are engaged in manufacturing activities at the national level. Again, the resultant figures are below the State's average and are below the statistics derived from the Regional Plan Association ratio, due to the influence of the agricultural areas of the Midwest and South upon the industrial area of the nation.

Finally, the standard employment ratio of 1950 industrial workers to 1000 population (15.0%), commonly cited in planning and urban land economics text books, was used. This ratio is based upon national averages for urbanized areas and makes provision for the effects of the agricultural areas on national statistics.

These seven ratios were also applied to population projections for five year periods from 1965 through 1985. The population projections are of the straight line variety (that is, if the data were plotted on standard graph paper, the increments would fall in a straight line) and were provided by studies conducted by the Research and Statistics Section of the Bureau of Commerce.

## TABLE XII — Future Demands For Manufacturing Employment

| Population Level | Straight Line Projection — 15.3% | Tax Committee Report Projection — 14.5% | Urban Projection Tax Comm. Report 17.2% | Research and Statistics Projection — 13.7% |
|---|---|---|---|---|
| 1965 — 6,666,790 | 1,020,019 | 966,685 | 1,146,688 | 913,350 |
| 7,000,000 | 1,071,000 | 1,015,000 | 1,204,000 | 959,000 |
| 1970 — 7,266,785 | 1,111,818 | 1,053,684 | 1,249,887 | 995,550 |
| 1975 — 7,890,800 | 1,207,292 | 1,144,166 | 1,357,218 | 1,081,040 |
| 8,000,000 | 1,224,000 | 1,160,000 | 1,376,000 | 1,096,000 |
| 1980 — 8,514,850 | 1,302,772 | 1,234,653 | 1,464,554 | 1,166,490 |
| 9,000,000 | 1,377,000 | 1,305,000 | 1,548,000 | 1,233,000 |
| 1985 — 9,084,500 | 1,389,929 | 1,317,253 | 1,562,534 | 1,244.570 |

| Population Level | R.P.A. Ratio 28.2% of employed population of 14 | Hawley's Ratio 24.6% of employed population over 14 | 150:1000 Ratio |
|---|---|---|---|
| 1965 — 6,666,790 | 817,815 | 713,413 | 1,000,002 |
| 7,000,000 | 858,690 | 749,070 | 1,050,000 |
| 1970 — 7,266,785 | 891,416 | 777,619 | 1,090,018 |
| 1975 — 7,890,800 | 967,964 | 844,395 | 1,183,620 |
| 8,000,000 | 981,360 | 856,080 | 1,200,000 |
| 1980 — 8,514,850 | 1,044,517 | 911,174 | 1,277,228 |
| 9,000,000 | 1,104,030 | 963,090 | 1,350,000 |
| 1985 — 9,084,500 | 1,114,396 | 972,132 | 1,362,675 |

### Fixed Ratios May Also Be Applied to County Population Estimates

The second approach used in this analysis was to apply fixed ratios to population estimates at the county, regional and State levels. The statistics are presented in Table XIII on page 82 Population projections for the twenty-one counties and for four general "sectors" of the State were made for 1965 through 1985. Each county and region was then assigned a ratio based upon past trends in industrial employment. These ratios, in some cases, were adjusted to allow for anticipated increases in specific counties or sectors. Once the data was computed for each of the counties and regions, the figures were added in order to provide manufacturing employment information for the State as a whole for the projected population levels.

This additional data provides an important aspect of the present analysis. In addition to providing manufacturing employment estimates at the county and regional levels, the use of five-year projections provides the element of time often sought in such prognostications. Based on these projections, for example, it has been estimated that we shall reach the seven million mark around the year 1968, and the eight million mark about 1976.

By comparing this data to the statistics presented in the previous Table, it may be seen that the five-year projections fall between the straight line projection of 15.3% and the 14.5% projection from the report prepared by the Special Commission on Industrial Development. The range of 35,000 jobs per one million population, therefore, remains unchanged with the addition of this information.

### These Figures May Be Translated Into Acres of Industrial Land Needed

Many studies have been made concerning the relationship between industrial operations and land used for industry and industrial operations. One of the best ways of determining how much land will be necessary to accommodate the projected increases in manufacturing employment is to derive a ratio which shows the number of occupied acres per 100 employees in manufacturing.

Various studies have been made to determine acre-employee relationships for the twenty Standard Industrial Code (S.I.C.) categories and to derive a nation-wide average of industrial land consumption. One study found that, on the average, 2.3 acres of land were occupied by industry for every 100 workers.[1] Space requirements ranged from about one-third of an acre per 100 workers in printing and publishing establishments and textile mills (which are mostly multi-story operations with intensive use of space), to nine acres in the case of earth products (brick, cement, stone, etc.), which require extensive storage space and tend to be located on cheaper land in less densely occupied areas. It is interesting to note that according to this study, iron and steel mills occupied only 3.5 acres per 100 workers and chemical plants only 2.9 acres.

A second general method of determining the future land use needs of industry is through the use of industrial density standards. F. Stuart Chapin, Jr., has pointed out in his book **Urban Land Use Planning** that, while industrial density standards (defined as the number of manufacturing employees per gross industrial acre) vary considerably from locale to locale, three basic classifications—intensive, intermediate, and extensive—provide useful distinctions in industrial land use. Intensive industrial land use, as defined for the purposes of this study, includes all manufacturing activities with an average employment of 50 workers per gross acre (or two acres per 100 workers); intermediate use includes areas with an average employment of 18 workers per acre (or 5.6 acres per 100 employees); and extensive land use includes an average employment of 6 workers per gross acre (or 16.8 acres per 100 employees).

To apply this method of determining potential industrial land needs, the existing industries of the area must first be classified according to three basic categories of inten-

[1] **Planning the Region of Chicago,** Chicago Regional Planning Association, 1956.

## TABLE XIII — Future Demand Factors For Manufacturing Employment
## By Counties and Sectors

| County or Sector | Ratio | 1965 | 1970 | 1975 | 1980 | 1985 |
|---|---|---|---|---|---|---|
| Bergen | 15.3 | 131,316 | 143,254 | 153,999 | 164,743 | 174,628 |
| Essex | 15.0 | 140,609 | 142,587 | 144,828 | 146,968 | 149,173 |
| Hudson | 16.2 | 97,454 | 95,970 | 95,970 | 95,977 | 96,930 |
| Middlesex | 20.3 | 105,687 | 123,302 | 144,879 | 166,457 | 187,265 |
| Morris | 11.9 | 37,358 | 43,586 | 50,123 | 56,662 | 62,328 |
| Passaic | 21.7 | 94,854 | 101,472 | 106,545 | 111,619 | 114,409 |
| Somerset | 15.7 | 27,113 | 31,632 | 36,377 | 41,122 | 45,234 |
| Union | 18.8 | 102,858 | 110,916 | 117,571 | 124,226 | 129,195 |
| Northeastern Sector Total | | 737,250 | 792,819 | 850,292 | 907,774 | 959,162 |
| | 17.8 | 754,865 | 810,584 | 868,158 | 925,738 | 977,472 |
| Burlington | 12.2 | 32,867 | 38,344 | 44,096 | 49,848 | 54,833 |
| Camden | 15.6 | 67,273 | 73,389 | 77,792 | 82,196 | 86,305 |
| Gloucester | 14.4 | 21,650 | 23,883 | 25,913 | 27,943 | 30,039 |
| Mercer | 16.3 | 46,679 | 49,935 | 53,680 | 57,426 | 60,297 |
| Salem | 16.2 | 10,320 | 11,128 | 12,241 | 13,354 | 14,355 |
| Southwestern Sector Total | | 178,789 | 196,679 | 213,722 | 230,767 | 245,829 |
| | 15.9 | 190,969 | 210,776 | 229,748 | 248,718 | 265,501 |
| Atlantic | 5.1 | 9,025 | 9,846 | 10,584 | 11,323 | 12,002 |
| Cape May | 4.1 | 2,190 | 2,389 | 2,568 | 2,724 | 2,912 |
| Cumberland | 15.9 | 18,688 | 20,387 | 21,916 | 23,445 | 24,852 |
| Monmouth | 7.5 | 30,723 | 36,366 | 42,730 | 49,094 | 55,230 |
| Ocean | 3.3 | 4,376 | 5,179 | 6,086 | 6,992 | 7,866 |
| Coastal Sector Total | | 65,002 | 74,167 | 83,884 | 93,578 | 102,862 |
| | 6.2 | 55,189 | 65,325 | 72,054 | 80,782 | 89,121 |
| Hunterdon | 11.0 | 6,845 | 7,737 | 9,091 | 10,445 | 11,751 |
| Sussex | 6.9 | 3,908 | 4,418 | 5,081 | 5,744 | 6,462 |
| Warren | 17.2 | 11,689 | 12,505 | 13,756 | 15,006 | 16,131 |
| Northwestern Sector Total | | 22,442 | 24,660 | 27,928 | 31,195 | 34,344 |
| | 11.1 | 20,738 | 22,985 | 26,225 | 29,464 | 32,663 |
| State Total | | 1,021,761 | 1,107,670 | 1,196,185 | 1,284,702 | 1,364,757 |

sive, intermediate, and extensive use. Once the percentage represented by each category has been determined, an overall average can be obtained by multiplying the established standards by these percentages. Table XIV shows the general classifications of New Jersey industries in these three categories.

**TABLE XIV — General Classification of New Jersey Industries By Land Use Categories**

**Intensive Land Use**

1. Tobacco Manufacturing
2. Textile Mill Products
3. Apparel and Related Prod.
4. Leather and Leather Goods
5. Fabricated Metal Products
6. Machinery, Non-electric
7. Instruments
8. Printing and Publishing

**Intermediate Land Use**

1. Food and Kindred Products
2. Furniture and Fixtures
3. Pulp and Paper Products
4. Rubber and Plastic Goods
5. Fabricated Metal Products
6. Machinery, Non-electric
7. Electrical Goods & Machinery
8. Miscellaneous Manufactures

**Extensive Land Use**

1. Lumber and Wood Products
2. Chemicals
3. Petroleum & Coal Products
4. Stone, Clay and Glass Products
5. Primary Metal Products
6. Transportation Equipment

It should be noted that certain industries, such as machinery and fabricated metals, have a wide range of land requirements. In such cases, these industries are shown in two or more general classifications. The resulting percentages reflect this factor.

It was found that approximately 31% of all industrial employees are engaged in intensive land use industries; 40.5% are employed by intermediate industrial land users; and 28.5% work in manufacturing activities which make extensive use of land. The following calculations illustrate how these percentages were used to determine the average industrial density and the acre-employee relationship for the State.

**1. Industrial Density—Workers per gross acre**

31.0% + 50 workers/gross acre = 0.62
40.5% + 18 workers/gross acre = 2.25
28.5% + 6 workers/gross acre = 4.75

100.0% acres/100 workers = 7.62

$$\frac{100}{7.62} = 13.12 \text{ workers per gross acre}$$

**2. Acre-Employee Relationship—Acres per 100 workers**

2.0 acres/100 workers X 31.0% = .62
5.6 acres/100 workers X 40.6% = 2.2736
16.8 acres/100 workers X 28.5% = 4.7880

acres/100 workers = 7.6816

This average of 7.68 acres per 100 employees is decidedly higher than the 2.3-acre average cited previously. This figure is the result of the high concentration of extensive land use industries found in New Jersey. Since several of these industries are among the "growth industries" of the State, the average of 7.68 acres per 100 employees may be expected to hold for the future.

A third method of estimating the future land use demands of industry involves the computation of ratios of industrial acreage to total population. Several studies have been conducted on this basis. In general, it was found that small suburban communities could expect about two acres of industrial land per 1,000 population, while large urban communities might anticipate a ratio as high as fifteen acres per 1,000 population. In New Jersey, with its high concentration of urban population and over half of its labor force employed in manufacturing, the present ratio stands at approximately ten acres of industrial land per 1,000 population. Again, it may be anticipated that this average will be maintained in the future.

By applying these ratios to the data on manufacturing employment and population estimates, it is possible to obtain projections of the total industrial land needs that may be anticipated in the future. This information is summarized in Table XV.

# CHAPTER 7

## EXTENSIVE LAND DEMANDS FOR INDUSTRIAL DEVELOPMENT MAY BE ANTICIPATED IN THE FUTURE

The foregoing analysis of potential demands for industrial development and expansion reveals that extensive land demands will be placed upon the available supply of vacant areas, as the population of the State continues to expand. Further, as might be anticipated, these demands for land will not be uniformly distributed throughout the State, but rather, will center on various sections where current development activities are already reaching the boiling point. While the highly urbanized portions of the State may be expected to continue to account for a high proportion of the total amount of land in industrial use, the bulk of new development is likely to occur in the less extensively developed areas immediately adjacent to the great concentrations of economic activity. While innovations and technological advancements may substantially alter the trends in demand, the analysis thus far provides a basis for further comparison of the existing and potential supply with the potential demand.

From the foregoing data it may be seen that the two ratios based upon national or regional averages (the ratio suggested by Amos Hawley and the ratio suggested by the research of the Regional Plan Association) are not applicable to New Jersey. They are far below the current rates of occupancy by industry in the State. Disregarding these figures for the moment, it may be concluded that the amount of land needed to meet future demands five years hence will be between 66,670 acres and 78,340 acres, a range of about 11,670 acres. This range provides a mean or average estimate of total future land consumption by industry of approximately 72,500 acres. This would mean about 7,500 additional acres must be added to current industrial land use to meet the projected demands for new employment opportunities in industry. These figures are in keeping with the present trends of land development throughout the State.

Further, by the time the population of New Jersey reaches seven million, we can anticipate a land demand of between 70,000 and 92,470 acres for industrial purposes. Mean or average total land consumption by industry at this point will be approximately 81,235 acres, requiring an addition of over 16,200 acres to the existing (1960) occupancy by industry. Estimates of the range of future demands, the average total consumption, and demand increments are summarized according to five-year periods and by levels of total population in the following Table.

Potential land demands for industry were also calculated for the twenty-one Counties and the four general "sectors" on the basis of the manufacturing employment estimates. This data on acres of land needed to meet future demands of industry is presented in Table XVI. To provide a range of potential land use, the ratios of 7.68 acres per 100 workers and 10 acres per 1,000 population were both used.

In some counties, where there are extensive land use industries, the existing ratio of acres per 100 workers is far in excess of the State average of 7.68. In such cases, adjustments had to be made to compensate for this variance.

This was done in the following manner: Existing acre-employee ratios were computed for each of the twenty-one Counties. Where these ratios were above the State average, new maximum land demand figures were computed for each of the five-year periods from 1965 through 1985. If the ratio was less than twice the State average of 7.68, the resultant figures were used as new maximum land demand data. Where the ratio was greater than twice the State average, an average was calculated between the minimum land demand figure and the new maximum figure based on the existing acre-employee ratios. This average was then added to the previous maximum figure shown in Table XVI to obtain an adjusted maximum land use demand figure for each of the five-year periods. This data may be obtained from Table XVII.

**TABLE XV — Future Demand Increments For Industrial Development**

| Year or Population Level | Range of Consumption Minimum | Maximum | Average Consumption | Demand Increment |
|---|---|---|---|---|
| 1965 | 66,668 | 78,337 | 72,503 | 7,632 |
| 7,000,000 | 70,000 | 92,467 | 81,234 | 16,363 |
| 1970 | 72,668 | 95,991 | 84,330 | 19,459 |
| 1975 | 78,908 | 104,234 | 91,571 | 26,700 |
| 8,000,000 | 80,000 | 105,677 | 92,839 | 27,968 |
| 1980 | 85,149 | 112,478 | 98,814 | 33,943 |
| 9,000,000 | 90,000 | 118,886 | 104,443 | 39,572 |
| 1985 | 90,845 | 120,003 | 105,424 | 40,553 |

## TABLE XVI — Acres of Land Needed To Meet Future Industrial Demands By Counties and "Sectors"

| County | 1965 10/1,000 pop. | 1965 7.68/100 workers | 1970 10/1,000 pop. | 1970 7.68/100 workers | 1975 10/1,000 pop. | 1975 7.68/100 workers | 1980 10/1,000 pop. | 1980 7.68/100 workers | 1985 10/1,000 pop. | 1985 7.68/100 workers |
|---|---|---|---|---|---|---|---|---|---|---|
| Bergen | 8,583 | 10,085 | 9,363 | 11,002 | 10,065 | 11,827 | 10,768 | 12,652 | 11,414 | 13,411 |
| Essex | 9,374 | 10,799 | 9,513 | 10,958 | 9,655 | 11,123 | 9,798 | 11,287 | 9,945 | 11,456 |
| Hudson | 6,016 | 7,484 | 5,924 | 7,370 | 5,924 | 7,370 | 5,925 | 7,371 | 5,983 | 7,444 |
| Middlesex | 5,206 | 8,117 | 6,074 | 9,470 | 7,137 | 11,127 | 8,200 | 12,784 | 9,225 | 14,382 |
| Morris | 3,139 | 2,869 | 3,663 | 3,347 | 4,212 | 3,849 | 4,761 | 4,352 | 5,238 | 4,787 |
| Passaic | 4,371 | 7,285 | 4,676 | 7,793 | 4,910 | 8,183 | 5,144 | 8,572 | 5,272 | 8,787 |
| Somerset | 1,726 | 2,082 | 2,015 | 2,429 | 2,317 | 2,794 | 2,619 | 3,158 | 2,881 | 3,474 |
| Union | 5,471 | 7,899 | 5,900 | 8,518 | 6,254 | 9,029 | 6,608 | 9,541 | 6,872 | 9,922 |
| NORTHEASTERN | 43,886 | 56,620 | 47,128 | 60,887 | 50,474 | 65,302 | 53,823 | 69,717 | 56,830 | 73,663 |
| Burlington | 2,694 | 2,524 | 3,143 | 2,945 | 3,614 | 3,387 | 4,086 | 3,828 | 4,494 | 4,211 |
| Camden | 4,312 | 5,167 | 4,704 | 5,636 | 4,987 | 5,974 | 5,269 | 6,313 | 5,532 | 6,628 |
| Gloucester | 1,503 | 1,663 | 1,659 | 1,834 | 1,800 | 1,990 | 1,940 | 2,146 | 2,086 | 2,307 |
| Mercer | 2,864 | 3,585 | 3,064 | 3,835 | 3,293 | 4,123 | 3,523 | 4,410 | 3,699 | 4,631 |
| Salem | 647 | 793 | 687 | 855 | 756 | 940 | 824 | 1,026 | 886 | 1,102 |
| SOUTHWESTERN | 12,020 | 13,732 | 13,257 | 15,105 | 14,450 | 16,414 | 15,642 | 17,723 | 16,697 | 18,879 |
| Atlantic | 1,770 | 693 | 1,931 | 756 | 2,075 | 813 | 2,220 | 870 | 2,353 | 922 |
| Cape May | 534 | 168 | 583 | 183 | 626 | 197 | 670 | 209 | 710 | 224 |
| Cumberland | 1,175 | 1,435 | 1,282 | 1,566 | 1,378 | 1,683 | 1,475 | 1,801 | 1,563 | 1,909 |
| Monmouth | 4,096 | 2,360 | 4,849 | 2,793 | 5,697 | 3,282 | 6,546 | 3,770 | 7,364 | 4,242 |
| Ocean | 1,326 | 336 | 1,569 | 398 | 1,844 | 467 | 2,118 | 537 | 2,384 | 604 |
| COASTAL | 8,901 | 4,992 | 10,214 | 5,696 | 11,620 | 6,442 | 13,029 | 7,194 | 14,374 | 7,901 |
| Hunterdon | 622 | 526 | 703 | 594 | 826 | 698 | 950 | 802 | 1,068 | 902 |
| Sussex | 566 | 300 | 640 | 339 | 736 | 390 | 832 | 441 | 936 | 496 |
| Warren | 680 | 898 | 727 | 960 | 800 | 1,056 | 872 | 1,152 | 937 | 1,239 |
| NORTHWESTERN | 1,868 | 1,724 | 2,070 | 1,893 | 2,362 | 2,144 | 2,654 | 2,395 | 2,941 | 2,637 |
| STATE | 66,675 | 77,068 | 72,669 | 83,581 | 78,906 | 90,362 | 85,148 | 97,029 | 90,842 | 103,080 |

**TABLE XVII– Adjusted Maximum Land Use Demands For Select Counties – 1965-1985**

| | 1965 | 1970 | 1975 | 1980 | 1985 |
|---|---|---|---|---|---|
| Middlesex | 16,284 | 18,990 | 22,322 | 25,646 | 28,852 |
| Morris | 4,660 | 5,437 | 6,252 | 7,067 | 7,775 |
| Somerset | 3,571 | 4,166 | 4,791 | 5,416 | 5,958 |
| Union | 8,043 | 8,674 | 9,194 | 9,714 | 10,103 |
| Gloucester | 4,192 | 4,626 | 5,019 | 5,411 | 5,818 |
| Salem | 1,796 | 1,937 | 2,131 | 2,325 | 2,499 |
| Warren | 990 | 1,059 | 1,165 | 1,271 | 1,366 |

From these estimates, it may be seen that by 1985 the greatest areas of land consumption by industry will occur in Bergen and Middlesex Counties. Bergen County's potential demand in 1985 will be between 11,400 and 13,400 acres, while in Middlesex County, between 9,225 and 28,852 acres will be needed to meet the anticipated demands for industrial land. This, of course, is predicated on the anticipated growth of population for these two Counties. Essex and Hudson Counties, on the other hand, may anticipate a relatively small increase in industrial land use, because of the high concentrations of industry which already exist in these areas. Despite the lack of growth in these two Counties, they will continue to maintain a high proportion of the State's total industrial land consumption.

With a potential demand of between 5,270 and 8,780 acres, it is anticipated that by 1970 Passaic County will surpass Hudson County in terms of industrial land consumption. Much of this new growth will occur in the outlying areas of the County. Estimates for Union, Morris and Somerset Counties also show extensive growth trends in industrial land use, parallelling their anticipated growth in population. It is also anticipated that the percentage of manufacturing employment in these three Counties during this twenty-five year period will be somewhat above the current percentage as the shift of industry continues outward from the congested urban areas.

In the Southwestern Sector, further growth in the demand for industrial space, parallelling the anticipated growth of population, may also be expected. Camden and Mercer Counties are likely to maintain their lead in this area in terms of total industrial land use, with Burlington County, especially in the corridor area between Camden and Mercer Counties, showing a major increase in the demand for industrial land. By 1985, between 5,530 and 6,630 acres will be necessary to provide space for industrial expansion to meet the demands for manufacturing employment in Camden County, while between 3,700 and 4,630 acres will be needed in Mercer County to meet this increase. Burlington County, by 1985, may expect a potential demand from 3,280 to 4,495 acres.

Gloucester County, while exhibiting a trend toward some additional industrial expansion, is not expected to increase as rapidly as many of the other areas in this general region. As in Salem County, however, the types of industry locating in Gloucester County have been, in the past, extensive land users. The linkage which exists between such industries may provide for a continuation of this general trend in both Counties.

With the possible exception of Cumberland County, the "Coastal" counties are not expected to experience a growth in demand for industrial lands in proportion to population increases. This situation, of course, is a result of the heavy reliance of these counties on the resort and tourist industries as an economic base. Cumberland County, however, has shown moderate gains in industrial development during the past several years, and this trend may be expected to continue.

In the Northwestern Sector of the State, further demands for suitable industrial lands can be expected as new routes are opened linking this area with the metropolitan markets to the east. Warren County will probably show the greatest increase in demand with an estimated growth of manufacturing somewhat in excess of its population growth. By 1985, it is estimated that between 940 and 1,366 acres will be needed to provide sufficient area for industrial development to accommodate the potential manufacturing employment demands in Warren County.

The following Table ranks the twenty-one Counties according to the estimated average or mean total land consumption by industry which is anticipated by 1985.

necessary as these future trends emerge. However, based upon existing knowledge, these general projections must be viewed as a starting point for any program which has as its ultimate goal the provision of a balanced program of economic growth and land development at the State level.

### A Comparison of Supply and Demand Can Now Be Made

In subsequent stages of the Statewide Planning Program, further refinements will be made upon this inventory material and various alternative approaches must be examined. At this point, however, it would be of value to compare these potential factors of demand with the existing factors of supply, which, as we have noted earlier, have been

**TABLE XVIII – Average Total Land Consumption For the Twenty-One Counties – 1985**

| Rank | County | Average Land Consumption | Rank | County | Average Land Consumption |
|---|---|---|---|---|---|
| 1. | Middlesex | 19,039 | 12. | Gloucester | 3,952 |
| 2. | Bergen | 12,413 | 13. | Burlington | 3,887 |
| 3. | Essex | 10,700 | 14. | Cumberland | 1,844 |
| 4. | Union | 8,488 | 15. | Salem | 1,693 |
| 5. | Hudson | 7,082 | 16. | Atlantic | 1,637 |
| 6. | Passaic | 7,030 | 17. | Ocean | 1,494 |
| 7. | Morris | 6,281 | 18. | Warren | 1,152 |
| 8. | Camden | 6,080 | 19. | Hunterdon | 984 |
| 9. | Monmouth | 5,803 | 20. | Sussex | 716 |
| 10. | Somerset | 4,420 | 21. | Cape May | 467 |
| 11. | Mercer | 4,165 | | | |

These projections provide some insight into the future demand factors which must be reckoned with if New Jersey is to maintain a desirable pattern of growth in manufacturing employment opportunities. New innovations and technological advancements, of course, may create totally different demands and, therefore, adjustments may be held constant for the purposes of analysis. This comparison will provide a basis upon which conclusions can be drawn as to the areas of deficit or surplus supply which may exist now and in the future. It will also provide a foundation for further conclusions and recommendations as to the cause and resultant effects of this deficiency or surplus.

# CHAPTER 8

## EXISTING AND POTENTIAL SUPPLY VS. POTENTIAL DEMAND

The analysis of the current status of industrial land use has revealed that over 80 percent of the lands currently zoned for industrial use are unoccupied. Further, it is likely that zoning activities at the local level will continue to provide additional increments to the supply in excess of the immediate need. If, for example, one can assume that the additional acreage suggested by the analysis of potential supply areas (Chapter 6) will eventually be zoned for industrial development when combined with the existing supply, a total supply could result which would be approximately six times as great as the highest estimated potential demands for such lands for the year 1985.

This apparent excess of supply is not, however, uniformly distributed throughout the State. A major portion of this chapter, therefore, is devoted to a discussion of the range of excess supply throughout New Jersey.

The concluding sections of this chapter attempt to provide some insight into the causes for this imbalance of supply, by exploring the questions: "What are some of the shortcomings in the approach to providing for the factors of supply?"; and "Why is the State overzoned for industry?". Having reviewed some of the shortcomings in our current approach to industrial zoning, it follows logically that a discussion of what industry looks for in local zoning practices should next be undertaken. This becomes the final task of Chapter Nine.

Nearly 314,000 acres thus far have been zoned for industry, of which about 250,000 acres are presently unoccupied. The four categories under the general grouping of "possible supply areas" provide an additional 426,000 acres, about 20 percent of which have been zoned for industrial development. The next step in this analysis would be to compare the existing supply with projected demands, in order to determine the potential surplus or deficiency of lands set aside for future industrial growth and development. From such a comparison, it may be concluded that at present the "available supply areas" combined with the "possible supply areas" provide a total supply which is approximately six times as great as the highest estimated potential demands for industrial lands for the year 1985. Taken separately, the existing available supply is approximately two and a half times as great as the projected demand, while the desirable supply area is over three and a half times as great as the highest potential demand for 1985.

It should be evident from this general comparison that much of the land which has been set aside for industrial use is destined to lie idle for some years to come. In areas where occupancy by industry is not likely to occur in the foreseeable future, it is probable that other forms of use will encroach upon these lands, creating an undesirable pattern of development.

The following Table provides a quick reference as to the excess of supply over demand during the projected twenty-five year period.

### The Excess of Supply Is Not Uniform

This apparent excess of supply is not uniformly distributed throughout the State. Considering only "available supply areas", certain areas of the State, particularly the Coastal and Northwestern sections, have as much as thirty times the amount of land presently zoned for industry that can be anticipated to be occupied by 1985. In other areas, such as the urbanized Counties of Essex and Passaic, the existing supply will not be sufficient to meet the potential demands should no additional lands be zoned for industry.

In Table XX the twenty-one Counties are ranked according to the closeness with which the existing available supply areas correspond with the average projected demand figures for the year 1985.

**TABLE XIX — Excess of Supply Over Projected Demand—1965-1985**

| Year or Population Level | Available Supply Areas Minimum | Available Supply Areas Maximum | Desirable Supply Areas Minimum | Desirable Supply Areas Maximum | Total Minimum | Total Maximum |
|---|---|---|---|---|---|---|
| 1965 | 4.47 | 3.56 | 6.07 | 4.84 | 10.54 | 8.40 |
| 7,000,000 | 4.26 | 3.39 | 5.78 | 4.61 | 10.04 | 8.00 |
| 1970 | 4.10 | 3.27 | 5.57 | 4.44 | 9.67 | 7.71 |
| 1975 | 3.78 | 3.01 | 5.13 | 4.09 | 8.91 | 7.10 |
| 8,000,000 | 3.73 | 2.97 | 5.06 | 4.03 | 8.79 | 7.00 |
| 1980 | 3.50 | 2.79 | 4.75 | 3.79 | 8.25 | 6.58 |
| 9,000,000 | 3.31 | 2.64 | 4.50 | 3.58 | 7.81 | 6.22 |
| 1985 | 3.28 | 2.61 | 4.46 | 3.55 | 7.74 | 6.16 |

**TABLE XX — Comparison of Future Demand and Existing Supply for the 21 Counties**

| Rank | County | Available Supply / Projected Demand |
|---|---|---|
| 1. | Essex | –0.86 |
| 2. | Passaic | –0.98 |
| 3. | Union | 1.38 |
| 4. | Bergen | 1.48 |
| 5. | Hunterdon | 1.60 |
| 6. | Sussex | 1.79 |
| 7. | Camden | 1.99 |
| 8. | Hudson | 2.34 |
| 9. | Morris | 2.34 |
| 10. | Somerset | 2.47 |
| 11. | Middlesex | 2.55 |
| 12. | Monmouth | 2.68 |
| 13. | Gloucester | 2.99 |
| 14. | Atlantic | 4.41 |
| 15. | Mercer | 4.62 |
| 16. | Cumberland | 4.89 |
| 17. | Ocean | 5.86 |
| 18. | Warren | 8.45 |
| 19. | Salem | 9.39 |
| 20. | Burlington | 10.70 |
| 21. | Cape May | 49.00 |

Counties such as Hunterdon and Sussex, where there has been only limited zoning activity, rank comparatively high. This situation is likely to change as further programs of zoning are undertaken in these Counties. The leading industrial Counties—Essex, Passaic, Union, Bergen, Camden, and Hudson—also score very high, with available supply closely approximating projected demands.

By considering the factor of desirability, the situation is further complicated. In the more industrialized sectors of the State, the "possible supply areas" appear to be far less than the projected demands. The following Table shows the ranking of the twenty-one Counties according to the closeness with which the delineated "possible supply areas" approximate the average projected demand figures for the year 1985.

**TABLE XXI — Comparison of Future Demands and Possible Supply Areas for the 21 Counties**

| Rank | County | Desirable Supply / Projected Demands |
|---|---|---|
| 1. | Bergen | –0.63 |
| 2. | Essex | –0.70 |
| 3. | Passaic | –0.90 |
| 4. | Union | 1.21 |
| 5. | Hudson | 1.47 |
| 6. | Middlesex | 1.69 |
| 7. | Mercer | 2.71 |
| 8. | Morris | 3.16 |
| 9. | Monmouth | 3.73 |
| 10. | Gloucester | 3.86 |
| 11. | Camden | 4.35 |
| 12. | Somerset | 5.87 |
| 13. | Salem | 7.74 |
| 14. | Burlington | 12.25 |
| 15. | Warren | 18.33 |
| 16. | Cumberland | 19.03 |
| 17. | Ocean | 19.14 |
| 18. | Hunterdon | 25.94 |
| 19. | Cape May | 39.77 |
| 20. | Atlantic | 44.70 |
| 21. | Sussex | 45.65 |

### What Are Some of the Shortcomings in Our Approach to Providing for the Factors of Supply?

From the above data, it may be seen that there will be a potential deficiency of desirable land for industrial development in the three major industrial Counties of Bergen, Essex, and Passaic. Further, since this supply is constantly diminishing as other forms of land use expand, an acute shortage may also be expected in Union, Hudson, and Middlesex Counties. Even as far out as Morris, Monmouth, Somerset, and Gloucester Counties, the rapid outward expansion of suburban development is likely to greatly diminish the existing desirable supply areas, to the point where by 1985 industry will be forced into a highly competitive situation in order to obtain sufficient space for development. These estimates are predicated on the fact that the less desirable of the desirable supply areas (those which at present are not served by public water or sewer) will be further developed as the factors of demand become more and more acute.

In the rural areas of the State, the potential supply greatly exceeds the potential demand. This, of course, accounts in large measure for the high State average in this regard. Much caution must be exercised in the development of programs which might recommend further industrial zoning in such areas.

The general conclusions which may be drawn from this phase of the analysis are that in certain areas of the State there will not be a sufficient supply, either of lands presently zoned for industry or lands which are potentially desirable for industrial development, to meet the anticipated future demands. While the State appears to have an excess of available and/or desirable lands for future industrial development, in reality, the excess of vacant land in the less densely populated areas of the State overshadows the potentially acute situation in the urbanized areas. As has been pointed out in the introduction to this report, land is a limited resource. Since we cannot "create" new lands which would be suitable for industrial development, every effort must be made to see that the existing supply is used wisely and efficiently, particularly in the urban areas.

In the more open areas of the State, where the supply of land for industry far exceeds the potential demand, care must be taken to direct future development along such lines as would minimize the ultimate cost of providing municipal, county, and State services to industry. Lands which are less desirable for industrial development should be re-evaluated and re-apportioned to other more suitable uses. Indiscriminate zoning can tie up areas which have no real potential for industrial use, preventing their development to meet other pressing needs. In certain areas of the State, overzealous programs of industrial zoning have created an economically unhealthy situation by which natural development has been thwarted and unrealistic future land use plans have resulted. Prime agricultural lands and open space areas may fall prey to long-term speculative buying, with the result that the municipality, the county, and the State may suffer from a growing demand and a diminishing supply of desirable areas for such forms of land use. Large holdings of land for future industrial development and large tracts of land unrealistically zoned for industry may channel other forms of development along lines which would ultimately prove detrimental to the future growth of the State.

What are the underlying causes of this overzealous industrial zoning? This question must be answered before a firm foundation can be laid for future land use recommendations at the State level.

### Why are We Overzoned for Industry?

Officials and citizens of many communities repeatedly are confronted with the problem of evaluating the advantages and disadvantages of new manufacturing plants or of the expansion of existing concerns. Frequently, they try to meet the responsibility of making these decisions without an awareness of the availability of criteria for reaching judgements and without impartial and competent technical and planning advice.

At a critical point in the development of a community, it is necessary that local officials and citizens formulate their desires as to the future character of their municipality. This involves the careful weighing of many factors, the prospective changes that may occur, and the alternative directions which the future growth of the community might take. In this regard, the counsel of experts from such divergent fields as planning, industrial development and promotion, engineering, land use economics, and city management should be sought.

Without a long-range comprehensive program of economic development to assure future generations the conservation and protection of the community's natural assets, as well as a desirable environment for economic growth, chaos can result.

As has been pointed out, industry provides the foundation for almost every local economic development program. The classical argument for a stable economic base at the local level, predicated upon a stable industrial foundation, is as old as the industrial revolution.

There are few communities in which the arrival of a new manufacturing concern will not be viewed by the general public as a highly favorable event. Back of this attitude is the rather vague and possibly unformulated notion that the new industry will directly or indirectly enhance the overall property of the community. The new firm may be expected to increase the number of workers employed and perhaps raise the average level of wages, thus increasing the total income of the community. This, in turn, may be expected to bring about a greater volume of local spending which will benefit merchants, landlords, and professional men. Finally, the new plant and the economic benefits which accompany it may be expected to increase the taxing capacity of the community, thus permitting more and better government services without an increase in the tax rates.

The probable effects of industrialization, however, should be presented early to the citizens of any community contemplating programs to attract industry. The increased activity at the beginning of industrialization often leads to an overassessment of the total effect, with the result that expansion and speculation occur out of proportion to the actual needs or demands.

Because people believe that industrial growth will improve the material prosperity of their community, they wish to establish conditions in their community which are favorable to such growth. As was pointed out in the section on the factors influencing plant location, many of the conditions are not under the control of the local municipality. One element which can be controlled at the local level, however, is the factor of supply.

The lure of "economic salvation through local industrial development" has created an extremely undesirable situation with regard to the factors of supply. In an effort to secure industry for the community, an overly zealous approach to industrial zoning has resulted, in many cases, in an excess of lands zoned for industry. Such programs often result in "dead land" that is dedicated to a specific use and never fully used. This condition not only arrests orderly development, but may add to the cost of municipal extension and maintenance of utilities.

The local property tax situation in New Jersey has been a subject of much discussion and study over the years. In states where local municipalities must rely on property taxes as their sole or major source of revenue, industry plays an important role in the community's tax structure. It has been estimated that every $1.00 spent by a community to service an industrial firm results in $1.50 in direct benefits to the community, while every $1.00 of direct benefits to be derived from residential development **costs** the community $1.50 in services. While this is an oversimplified generalization, it is true that it costs more to service residential areas than can be derived in revenues from local property taxes. To balance this factor, therefore, communities actively court industry, which more than pays its way in local tax revenues. This active "courting" is reflected in the eagerness with which many communities have cut up their vacant and undeveloped areas into industrial zones in order to insure prospective industrial developers an adequate supply from which to choose.

In making cost and benefit studies to determine whether land should be zoned for residential or industrial use, however, it is not enough merely to make general comparisons, such as the percentage of total taxes paid by industry as compared to the percentage paid by residential owners, or the average tax bills of industries compared to the average bills of residential owners. It is important to understand the more intricate processes of economic development.

For example, even if it were demonstrated that industries pay more taxes than they receive in services and residential owners pay less in taxes than the cost of services, this would not necessarily prove that industry confers net advantages on the community. If an industry hires low-paid workers whose taxes are correspondingly low, for example, then their tax deficiency is the result of industrial development. The relationship is obscured in considering only average and percentage revenue and service costs for all existing industrial and residential taxpayers, but becomes clear when the tax revenue and service costs of a new enterprise are considered independently. Even if the workers involved in the new industrial firm have a wage-earning capacity at or above the average for the community, the additional costs to the municipality of serving their homes and providing schools for their children (schools are the important item because housing is usually assessed heavily enough initially to cover water, sewers, and roads) is often overlooked in determining the cost-benefit relationships of new industrial development.

Table XXII, adapted from a study prepared by the Bureau of Business and Economic Research of the University of Maryland[1] provides a hypothetical example of contrasting allocations of industrial benefits and costs to a community.

In section A., where industrial costs and revenues are shown independently of residential costs and revenues, it appears that industry pays 37.5 percent of taxes and receives only 29.0 percent of all service benefits, leaving a net gain from industrial land use. However, in section B., the revenues and costs of residential development associated with industrial activity are added to the industrial accounts. After this adjustment has been made, it is clear that industry and industry-related residences pay 59 percent of all taxes but receive 65 percent of all service expenditures. While this illustrative material must be viewed as hypothetical, it provides evidence to corroborate the statement that the introduction or increase of manufacturing is not identical with economic welfare—it may contribute to economic welfare or prove a detriment.

If, as the data would seem to substantiate, the heavy reliance on industry as a local tax base is subject to re-evaluation, what are some of the consequences arising from this situation?

The primary consequence arising from the "scramble for the tax dollar" is that it has created a situation where in many parts of the State indiscriminate zoning practices have resulted in land being set aside for industrial development in excess of the most generous estimates of potential demands. Generally, what is needed in such cases is not more land zoned for industry, but a more realistic approach based upon the principles of industrial zoning and the factors influencing plant location. While the factors of demand must be constantly re-appraised, for they are always changing, it may be said that the day will come when such areas will be "zoning rich and poor land". That is to say, while these areas appear to have more than ample lands presently zoned for industry, much of the land so designated is either unsuited to the needs of industry or is too far removed from major areas of industrial activity. Such lands must be reapportioned for other uses if the State is to be assured of a healthy and desirable living environment and a sound economic base in the future.

On the other hand, some of the more desirable sites for industry are rapidly being consumed by other uses. Industry has long been an orphan in many communities, expected to pay more than its way in taxes, yet relegated to the least desirable areas. In the future, a reappraisal of this attitude must be made by the local municipalities, the counties and the State, and lands for all purposes must be designated for use according to realistic principles.

One of the side effects of the "scramble for the tax dollar" is that it creates animosity between political subdivisions and inhibits "regional" cooperation. Intermunicipal co-

[1]"Industry As A Local Tax Base", Bureau of Business and Economic Research, University of Maryland, Volume 14, Number 1, June 1960.

## TABLE XXII — Industry Benefits and Costs to Community
## Hypothetical Case—Contrasting Allocations

| | COMMUNITY BENEFITS | COMMUNITY COSTS |
|---|---|---|
| Direct | Total $1,000,000 | Total $1,100,000 |
| 1. Industry taxes, fees, etc. | 400,000 | 300,000 |
| 2. Residential revenue | 600,000 | 800,000 |
| Indirect | Total $ 200,000 | Total $ 100,000 |
| 1. Industrial | 50,000 | 50,000 |
| 2. Residential | 150,000 | 50,000 |
| Grand Total | $1,200,000 | Grand Total $1,200,000 |

Ostensible Shares

| | BENEFITS | | COSTS | |
|---|---|---|---|---|
| Industrial | $ 450,000 | ( 37.5 %) | $ 350,000 | ( 29 %) |
| Residential | 750,000 | ( 62.5 %) | 850,000 | ( 71 %) |
| | $1,200,000 | (100.0 %) | $1,200,000 | (100 %) |

**B. Plant and Industrial-Affiliated Residential Combined**

| | COMMUNITY BENEFITS | COMMUNITY COSTS |
|---|---|---|
| Direct | | |
| 1. Industry | $ 400,000 | $ 300,000 |
| 2. Residential | 200,000 | 400,000 |
| Indirect | | |
| 1. Industry | 50,000 | 50,000 |
| 2. Residential | 60,000 | 30,000 |
| Total | $ 710,000 (59 %) | $ 780,000 (65 %) |

Non-Affiliated Residential

| | COMMUNITY BENEFITS | |
|---|---|---|
| Direct | $ 400,000 | $ 400,000 |
| Indirect | 90,000 | 20,000 |
| | $ 490,000 (41 %) | $ 420,000 (35 %) |
| Grand Total | $1,200,000 | $1,200,000 |

operation must stem from a joint understanding of and approach to problems. When neighboring communities are suspicious of programs designed to enhance the economic development of the "region" by promoting the desirable industrial potential in one of their number, mutual cooperation breaks down and each community pulls in its own direction. Many county or regional industrial development commissions, for example, are faced with the problem of securing new industry for one community within their jurisdiction, at the apparent expense of the others. Often the ineffectiveness of the industrial development programs of such agencies can be laid to their inability to deal with this basic lack of mutual understanding and cooperation.

### What Does Industry Look For In Local Zoning?

Zoning is a tool to help effectuate comprehensive plans, and was devised to promote the best use of land and buildings. Its purpose is positive, not negative. However, in the zeal of citizens and technicians to extend "protection" to some types of land use, other forms of land use have sometimes suffered, even to the point where the economic base of the community has been disrupted. It must be recognized that every legitimate form of land use in the average community is worthy of being accorded an appropriate share in the community's planning and zoning.

Several studies and "procedural guides" have been written outlining sound zoning principles which are applicable to almost every community in the country. One series of guide books, which was prepared by the National Industrial Zoning Committee, is of particular interest, in light of the objectives of the present study, as it provides an insight into what it is that industry looks for in local zoning. The following section of this report will draw upon the pamphlets in this series to briefly set forth some basic principles, in the hope that future industrial zoning activities may be improved.

While there are some municipalities which do not contain industry and do not make specific provision in their "plans" for manufacturing uses, most communities require a certain amount of industrial development to produce a sound economy. Good zoning recognizes this need and empowers the community to provide for the adequate expansion of industry appropriate to the location. If a zoning plan merely preserves existing industrial sites without providing sufficient land for expansion, the result may be economic stagnation of a community which actually should grow industrially. This does not mean, however, that the more land that a community zones for industry the greater the likelihood will be of insuring a sound economy. It must be borne in mind that industry has a long-term investment involved when it locates a new plant or expands an existing facility. As a result, industry wants to know where the town is going. Too much land zoned for industrial development is often just as bad as too little, for indiscriminate zoning opens to question the future direction which the community will take.

One of the effects of over-zoning for industry is the encroachment of other forms of land use. Habitually, the drafters of zoning ordinances have organized land uses in a series ranging from "most restricted" uses (single family residential) down a listing of districts to the "least restricted" types of uses (heavy industry, junkyards, etc.). Industrial areas too often are made the stepchild, at the bottom of the list with all other forms of use permitted. Allowing residential encroachment in areas zoned for industry, for example, can destroy the potential of the adjacent portions of the area for industrial development. People seldom go into an industrial zone and build substantial homes. Rather, cheap structures are thrown up that too often become slums before they are even completed. The previous sale of a few lots at important access points or within larger tracts can make the assembly of land for industrial purposes impossible or at best prohibitively difficult. This is particularly true in cases where excessive industrial zoning has occurred.

Instead of protecting a number of choice locations for future industrial development, large-tract zoning lumps the good in with the bad. Encroachment by other forms of land use usually occurs on the more desirable locations, leaving the low, swampy, hilly, remote, or inaccessible areas for future industrial development, which never occurs.

Through proper zoning, industrial and residential areas can be good neighbors. Many modern industrial plants have been established close to residential areas and by their quality have demonstrated that they are compatible. These plants are characterized by good architecture and relatively low buildings which preserve the right of light and air of neighboring residence. They have high standards of setback with landscape treatment of lawns, trees, and shrubs. They have been provided with dustless, well-drained, off-street parking areas to accommodate all of the cars of employees and visitors and so do not cause undesirable congestion of nearby streets. In many instances, it is no longer necessary or desirable to relegate potential industrial development to the outskirts of town or to the congested railroad areas of the downtown "gray areas".

In light of these circumstances, there is need for a reclassification of industry based on modern manufacturing processes and the prevailing policy of plant construction. The traditional classification of industry under a single heading, or arbitrarily dividing it into "light" and "heavy" categories has come to be insufficient for intelligent differentiation between various types of industries, or for determining the type of district to which they should be allocated so that the greater public good can be served. In allocating an industry to a specific industrial district, the potential effect of the industry on its environment is more important to consider than any classification based on the material it produces.

One case study, for example, has shown that the location of an industry in a district previously protected against such development can actually improve the potential of the area and benefit the entire community. In this instance, a manufacturer was interested in a piece of property in a partially developed residential area that had once been zoned for commercial use and was dotted with a few retail establishments. Homeowners in the area protested that the location of an industrial plant would seriously lower the value of their homes. Despite the objections, a change in zoning was permitted. With the development of the industry, new homes were built by the employees of the plant, often of a better quality than the existing residences. The end result was an upgrading of the values of existing homes, the removal of the marginal retail operations which were potentially detrimental to the area, and an improved and more diverse economic base with the addition of a potential of 800 job opportunities.

Zoning ordinances should be "permissive" rather than "prohibitive" and should be sufficiently definite to convey to a landowner a clear concept of what he can do with his land. Too often there has been a tendency to draft zoning ordinances in terms of what may not be done, rather than what is permitted. Many municipalities have found that, in listing prohibited industrial uses, they have failed to list certain undesirable uses, or have excluded certain inoffensive uses. It is virtually impossible to anticipate all technological developments, new products and processes, and to include or exclude such unborn industries from specific industrial zones. More recent practices have been to permit in industrial districts certain classes of industrial uses which meet stated performance standards, while other industries failing to meet these standards are automatically excluded.

This is not to imply that those manufacturing activities generally classified as "heavy", "nuisance" or "offensive" industries should be zoned out of the State. They represent a very important element in a manufacturing-oriented economy and as such, they have been accepted in many parts of the State. Sites for such operations, however, are becoming increasingly difficult to find. The Division of State and Regional Planning recently published a special study of waterfront land use in northeastern New Jersey. One of the basic recommendations of this study concerns the creation of a "land bank" to assure that there will be sufficient land to meet the future needs of the heavier types of industry. While such lands may often be marginal in nature and therefore unsuited to other uses, the suggestion is that they should be protected from premature use. At the same time, identification of these areas would serve notice of the intended use of these sites to developers of other types of land use who may choose to locate in the vicinity. This suggestion will undoubtedly require considerable further study. It does, however, offer a possible solution to the diminishing supply of sites for heavy industry.

From the standpoint of the land developer, a zoning ordinance which does not convey a clear understanding of the permitted uses and which requires frequent "interpretation" by a Board of Appeals is extremely undesirable. Communities with such ordinances often may find that they are being by-passed by potential industrial developers, who would rather pass over a choice location than become over involved in legal proceedings to determine the extent and limits of their development rights.

Industrial zoning can be most effective when considered on a metropolitan scale, because the economy of the metropolitan area or "economic region" represents the sum of its interrelated parts. The zoning plan should be extended across the corporate limits of political subdivisions, either through the use of the powers available to officially constituted intermunicipal regional planning agencies, or by close coordination and cooperation between municipalities or other political subdivisions. In this manner, a coordinated system of industrial areas, adequate in size and properly located, can be devised as a whole and given uniform protection for future development. Here, however, the animosity created by the "scramble for the tax dollar" and the courting of industrial rateables have proved to be a stumbling block to such cooperation among neighboring communities.

The power of zoning is formidable. The zoning map is, in effect, a picture of what a community will look like several years hence assuming that all vacant lands will be effectively utilized. When exercised to preserve space for industrial growth in a community, the power to zone must be used with full consideration of the many complex factors stated above.

Mr. Dennis O'Harrow, Executive Director of the American Society of Planning Officials, has summed up the general concepts of zoning in a succinct and explicit manner in a pamphlet of the National Industrial Zoning Committee, entitled, **"Steps to Secure Sound Zoning"**:

> . . . the preparation of a zoning ordinance is difficult and time consuming. . . . zoning is bound to be improper unless it is a part of a study and plan for the entire city. . . . zoning should be a positive thing, an expression of a land use plan. . . . zoning should stick to zoning and not try to cover every conceivable regulation needed for the proper growth of a city.
>
> To me this adds up to just one thing: the zoning ordinance must be prepared by the cooperative efforts of the people of the city, the city's legislators and administrators, and the best professional planning help you can get. . . . in the long run you pay a lot more for a cheap job than you do for one that was done right in the first place . . . .
>
> If you are going to ask that your zoning ordinance be done by the city attorney in his spare time, or by a local surveyor, it is my advice that you forget about it entirely and get along with your 1923 version or with none at all.
>
> But if you really have the idea that you would like to help your city become a better place in which to live and to work, that you would like to see rational progress into the future, then I recommend that you approach land use planning and zoning as a creative process which is worth all the time and money and intelligence and patience that you can dig up to put into it.

# PART III:

## THE CHALLENGE AND THE ROLE OF GOVERNMENT

*In order to meet effectively the challenge of future growth and development, the various levels of government—the State, the counties, and the individual municipalities—must assume certain responsibilities with regard to the factors of supply and demand in industrial land use. Cooperation among the three levels of government is necessary if New Jersey is to receive the maximum benefits from the orderly growth and development of the State's physical assets. Industrial lands are but one important factor in this growth.*

# CHAPTER 9

## SUMMARY OF CONCLUSIONS REGARDING SUPPLY AND DEMAND

Prior to undertaking a discussion of the role of government in meeting the challenge of providing a balanced industrial growth, this chapter briefly summarizes some of the basic conclusions which have emerged from the previous development of statistics and analyses of supply and demand trends. It also carries the analysis a step further, so as to establish a basis for the discussion of the role of government. An attempt is made to provide an insight into the changing attitudes of communities toward industry, as they are reflected in their planning and zoning. The role of the industrial park as it relates to the emerging trends is also briefly discussed.

The overall economic welfare of the State is heavily dependent upon the general health of industry in New Jersey. In seeking a harmonious balance of economic growth and stability to promote the orderly development of the State's physical assets, a great deal of attention must be given to the planning of industrial development at the State level. In 1960, New Jersey had 3.4% of the nation's population and 4.9% of all manufacturing employment. Over 805,000 persons in New Jersey were engaged in manufacturing, representing 5.5% of the United States payroll in manufacturing and contributing 5.4% of the nation's total value added by manufacturing in 1958. Further, 4.7% of the country's new capital investment has taken place in New Jersey.

### The Factor of Supply

Over the years there has been a change in the attitude of communities toward industry. Industry, for the most part, is no longer thought of as an ugly, dirty, undesirable multi-story factory or "sweat shop". With the trend toward more harmonious and attractive structures to house industrial activities, industry has become accepted as a desirable "blue-white collar" place to work, and a good neighbor to residences.

There is little doubt in most people's minds that industry contributes many benefits to the community. Industries contribute to the tax base. Communities seek to hold existing industry and to entice new ones in order to insure a stable employment base. Often the prestige value of certain industries can put a community on the map.

### How Is This Change in Attitude Reflected in Zoning and Planning?

Despite this change in attitude on the part of local communities, many still relegate industrial land use to the bottom of the zoning totem pole. Chiefly as a result of permitting non-industrial activities, such as residential and commercial uses, to encroach on industrial zones, there is a serious shortage of desirable sites suitable for industrial use in many parts of the State. A basic principle which must be recognized by local communities is that manufacturing is important. It can no longer be delegated to "left-over" zoning practices.

Despite the apparent competition for industrial rateables, in many parts of the State there has not been adequate recognition in zoning of the needs of industry for large sites relatively free from encroachment by other uses. At the same time these sites must be properly situated in relation to transportation, service, and residential areas. The scattered, piecemeal location of industrial districts often shows little relationship to a comprehensive coordination of basic internal movement patterns within the total "regional" functional structure. Indiscriminate and scattered industrial development seriously threatens the ultimate efficiency and economy of the entire State.

In the future, industrial zoning must increasingly reflect the basic principle of providing adequate space for all legitimate forms of land use. In effect, there are three levels of development to be considered—open or vacant areas; partially developed areas; and developed areas. To a greater or lesser degree, these basic levels of development are applicable to the guidance of future land use patterns in all parts of the State.

### Open Areas

When dealing with open areas the questions to be answered are: "How much land?"; "Where?"; and "What controls are necessary?". In zoning open or vacant areas the first question to be answered is what portion of the land should be devoted to each of the possible forms of land use. Once this has been determined, the actual site allocations can be made according to various accepted planning standards. Finally, the desired uses must have adequate protection against encroachment by other forms of land use.

The factors influencing plant location, as previously enumerated, are most important in evaluating the future industrial potential of a given parcel of vacant land. Man-made facilities, particularly railroads, highways, harbor areas, and utilities, usually determine land utilization patterns for industrial purposes. Industrial zoning must also take into consideration such things as employment potential, service facilities, sewer, water, and gas, etc. to answer the question "How much land?".

The "Where?" is also determined by the above factors, plus the overall pattern of development sought by the community. The subtle relationships between various forms of potential land use must be examined to insure a workable pattern of circulation and a realistic pattern of future development. In some sections of the State, the patterns of circulation required for the movements of workers between their homes and their places of employment, for incoming raw materials and outgoing products, and for related service functions are one of almost unbelievable inefficiency and complexity. Poor zoning, which creates undesirable patterns of circulation and development, can serve as a deterrent to industrial development.

The question, "What controls are necessary?", is often the most difficult to answer. Drafters of local zoning are usually willing to protect residential areas from industry, but only recently and in only a few isolated cases are they showing a willingness to protect industry from encroachment by other forms of land use. Controls must protect industry as well as the rest of the community, if the State is to experience desirable industrial growth and expansion in the future.

### Partially Developed Areas

Industry is a responsible form of investment and should be afforded security in its location. Too often the industrial promotion and public relations program of a community stops abruptly, once sufficient industry has been secured. Perhaps even more common is the case where, once a particular industrial site is filled, the promotional efforts are turned to other "courtings", leaving the most recently "romanced" industry to fend for itself. Public relations cannot stop on the day that the firm lays its cornerstone.

Further, in partially developed areas, as in open or vacant areas, industry should be afforded protection from such things as "residential blight" and "junk yard zoning", and should have a degree of "built-in stability" in its location. While in partially developed areas industry has a better chance to see what and whom its neighbors will be, too often ordinances are written in a manner to "encourage" forms of land use in small parcel development which are incompatible with industry. This is particularly true in the catch-all, "everything goes", heavy industrial zone where, once several major industrial land users have located in the district, the remaining small parcels may be sold off for the development of junk yards, marginal commercial uses, or even residential uses. Industrial districts should have sufficient "built-in stability" to assure industry that one, two, or five years hence, its next-door neighbor will not be a scrap yard or a row of tar-paper shacks.

As has been pointed out, permissive controls and performance standards should be used rather than prohibitive controls. An immediate response to this pat statement, offered by the planner and the industrial consultant as the panacea for all the community's industrial ills is: "How can we afford the equipment, measuring devices, etc. necessary to undertake an industrial zoning program based on performance standards." Initially, certain basic permissive controls and performance standards actually can be used in zoning without excessive cost to the community. Many of these have already "invaded" the more recent zoning ordinances.

Two additional avenues appear open to local communities wishing to undertake an active performance standards program. First, local communities might create the demand for performance standards "consultants" by writing performance standards into existing or newly created zoning ordinances. Secondly, several communities can band together on an inter-municipal or regional basis, and either purchase the necessary measuring equipment themselves or petition a higher level of government, such as the county or State, to acquire such equipment. Here again, the demand for these services may have to precede the supply.

Zoning controls should allow for expansion areas for future development. Failure to do so is one of the greatest errors of "strip zoning" along highways and railroads, for designated strip development can be "piece-mealed" by other forms of development. Just as it is illogical to subdivide a residential area in such a way that the front yards of one row of homes view the back yards of the next so, too, a six mile industrial district 100 feet deep along a highway or railroad is not likely to attract major contributors to the community's economic base.

Another area which may be overlooked in the promotion and guidance of partially developed areas is the matter of improvement. While the building of roads, sewers, etc. often precedes complete residential development by several years, the construction of improvements in industrial areas often receives low priority. The day is just about gone when an industrial concern is willing to assemble a large tract of land in the face of extensive zoning litigations, the high cost of land improvements, and without the normal assurances of community services. Only 400 major branch factories were built in 1960, according to a recent nationwide survey. Thousands of local competitors are bidding for these industrial plants. The market for industrial land is far different from the market for residential land; therefore, the marketing approach must be adjusted accordingly. The provision of adequate service facilities on reasonably suitable industrial land can assist substantially in assuring the industrial development of a community.

### Developed Areas

Obsolescence in developed areas creates a highly unstable condition. Brick loft buildings and multi-story factories must compete for tenants, many of whom are likely to be only short-term residents. For example, a downtown loft building in Paterson may provide "incubator space" for several small industries with low overhead and low per square foot rental potential, but cannot successfully attract a solid, medium-sized firm. A backlog of surplus space inhibits the development of new sites because of the risk factor which may be involved. However, central city industrial areas often have certain characteristics such as linkage, more extensive service areas, more complete transportation networks, etc., which permit them to compete favorably with outlying areas. When the central city can compete favorably with outlying areas, except in terms of the obsolescence of its structure and sites, remedial action is indicated.

There are two basic types of obsolescence: (1) physical obsolescence, determined by the condition of the structures and sites; and (2) functional obsolescence, a result of changing requirements of specific industries due to shifts in markets, distribution points, raw materials, etc. Most downtown industrial areas are faced, to a greater or lesser degree, with both forms of obsolescence. The solution to functional obsolescence must come from an active program of industrial promotion in order to secure a more diverse industrial base, while the solution to physical obsolescence may come about only through an extensive program of renewal and redevelopment.

Each community, faced with the problem of industrial "gray areas", should make a detailed inventory of existing sites and structures and of the needs and expansion plans of industry. Parking is often one of the most critical needs in such areas. Many of these developed "gray areas" are ringed by "residential slums". With the removal of these slum areas, parking facilities could be enhanced. This might call for the use of urban renewal powers to provide sufficient expansion areas for existing facilities.

This brings into focus one of the major problems facing communities with developed areas—how can existing manufacturing concerns be retained in order to insure a stable economic base for the community? The point brought out in the discussion of partially developed areas, the matter of continuing promotion and public relations, is perhaps equally important in communities whose industrial potential has reached the limit of its development. This does not mean that industry must be coddled and given excessive tax concessions or other inducements to keep them from moving out. Nevertheless, a community bears a certain responsibility to all of its occupants—industry and business as well as homeowners. Industry also has an equity in the total environment of the community. The close involvement of industry and of industrial leaders in community affairs may be expected to benefit both industry and the community. In some areas of the country, annual, semi-annual, or even monthly meetings are held under the auspices of the local governing body to bring together the leaders of industry, the professional and business men for discussions of their problems, needs, and future programs and objectives. These meetings not only provide a forum for discussion and a sounding board for new ideas, they also provide a ready source of spirit for community improvement. Relationships of this nature should be further fostered in New Jersey.

### The Factor of Demand

It seems apparent that certain types of industry, previously regarded as major employers, have remained static or are on the decline in New Jersey, while other industries have increased in importance. The decline of certain industries is indicative of a shift in emphasis in New Jersey from industries producing non-durable goods (textiles, petroleum products, apparel, etc.) to those producing durable goods (electrical goods, machinery, instruments, etc.). While certain industries and areas of the State have been adversely affected by this shift, as the more diversified manufacturing base becomes stabilized an even sounder economic environment may be expected to emerge.

### The Stability and Diversity of N. J. Industries

Several studies have been conducted at the national level[1] which provide a substantial amount of evidence regarding the comparative stability of certain industrial classifications. While the findings of these studies show that non-durable goods industries are highly insensitive to economic fluctuations, only three manufacturing classifications—tobacco manufacturers, food and kindred products, and printing and publishing—managed to score above the average for cyclical or markedly sensitive categories. This, of course, means that manufacturing in general is one of the more sensitive of the private nonagricultural activities. Further refinements in this field have centered around attempts to determine indices of diversification. Applying Rodgers' formula to the current New Jersey manufacturing picture it may be seen that New Jersey's index of diversification of 105 ranks the State in the highly diversified category.[2]

Although the studies which were conducted by Mr. Rodgers were oriented toward Standard Metropolitan Areas and not States, the relatively high score of New Jersey adds further verification to the concept that the industrial base of the State is quite diverse, even when the inherent "error" of such a generalization is taken into consideration.

### The Significance of the "Shift"

The shift from the production of non-durable goods to the production of durable goods will have an important bearing on the future land use patterns of industrial development. For the most part, the "growth industries" of New Jersey are large land users. Nation-wide, the trend toward the single-story,

[1]Ernest M. and Robert M. Fisher, **Urban Real Estate,** Henry Holt and Co., 1954; Edward F. Denison, "Industrial Composition of National Income", **Survey of Current Business,** 1948;
Allan Rodgers, "Some Aspects of Industrial Diversification in the United States" **Papers and Proceedings,** Volume I, Regional Science Association, 1955; Rapkin, Winnick, and Blank, **Housing Market Analysis, A Study of Theory and Methods,** a Housing and Home Finance Agency monograph, Government Printing Office, 1954

[2]Rodgers' system of diversification classifies scores as follows:
39 to 199 — highly diversified
200 to 399 — moderately diversified
400 to 599 — average diversified
600 to 799 — moderately specialized
800 to 934 — highly specialized.

**TABLE XXIII — The Index of Diversification as Applied to New Jersey — 1960**

| Manufacturing Groups | Employment by Industrial Group | Percent of Total | Cumulative Addition of Ranked Percentage |
|---|---|---|---|
| All Manufacturing | 809,247 | 100.0 % | 16.0 |
| Electrical Goods | 129,327 | 16.0 | 16.0 |
| Chemicals | 89,233 | 11.0 | 27.0 |
| Apparel | 81,013 | 10.0 | 37.0 |
| Food | 62,286 | 7.7 | 44.7 |
| Machinery | 56,801 | 7.0 | 51.7 |
| Fabricated Metal Prod. | 53,870 | 6.7 | 58.4 |
| Primary Metal Industry | 35,070 | 4.3 | 62.7 |
| Stone, Clay, Glass | 34,346 | 4.3 | 67.0 |
| Textile Mill | 34,303 | 4.2 | 71.2 |
| Miscellaneous | 31,560 | 3.9 | 75.1 |
| Instruments | 30,864 | 3.8 | 78.9 |
| Printing and Publishing | 30,544 | 3.8 | 82.7 |
| Paper | 29,028 | 3.6 | 86.3 |
| Rubber and Plastic | 24,009 | 3.0 | 89.3 |
| Automobile Industry | 16,101 | 2.0 | 91.3 |
| Aircraft Industry | 15,983 | 2.0 | 93.3 |
| Shipbuilding Industry | 15,056 | 1.9 | 95.2 |
| Leather | 11,654 | 1.4 | 96.6 |
| Petroleum & Coal | 11,566 | 1.4 | 98.0 |
| Furniture and Fixtures | 9,122 | 1.1 | 99.1 |
| Basic Lumber | 6,000 | 0.7 | 99.8 |
| Tobacco Manufacturers | 1,511 | 0.2 | 100.0 |
| Total | 809,247 | 100.0 | 1621.3 = Crude Diversification Index |

$$\text{Refined Index} = \frac{\text{Actual Crude Index - Crude Index for all Industrial Areas}}{\text{Crude Index for Least Diversity - Crude Index for all Industrial Areas}}$$

$$\text{Refined Index} = \frac{1621 - 1553}{2200 - 1553} = \frac{68}{647}$$

$$\text{Refined Index} = 0.105$$

rambling industrial concern is most apparent among such industrial classifications as chemicals, electronics, instruments, and plastics, which are among the growth industries of the State. To compensate for this trend, a ratio of 7.68 acres per 100 employees was used in the projections for the calculation of future industrial land needs. At present, the average employment in growth industries is approximately 135 workers per firm. Such industries require sites of approximately 10.4 acres for the establishment of new facilities, plus an additional 3 or 4 acres for expansion. This space requirement is approximately two and a half times as large as the present average industrial land holding in the State. While smaller parcels undoubtedly still will be in demand by certain forms of development, larger tracts of land must be assembled to provide adequate space for future industrial development by the large land consuming industries.

### The Role of the Industrial Park

One way in which this demand may be met is through the development of industrial parks. Industrial parks are most useful in an area where good industrial sites are scarce, difficult to assemble or acquire, difficult to preserve against the encroachment of residential and commercial uses, and/or the demand for industrial land is strong.

The concentration of industry in large tracts has many desirable aspects from the community's point of view. Specialized requirements for water, sanitary sewer, gas, and electricity can be provided efficiently. The large generation of intra-area traffic is confined and removed from arterial streets. The provision of police, fire, and sanitation services is somewhat specialized for the industrial area and therefore can best be provided in major clusters. Equitable tax structures are more easily established and administered. Finally, the retention of existing concerns and the attraction of new ones is facilitated.

One innovation which has been recently suggested is the development of an industrial park oriented specifically to incubator industries. Such an undertaking might provide a medium for retaining some vestige of an industrial tax base in central cities. Its distinguishing characteristic would be rental of space and services by "seed" industries rather than their acquisition of title to the site.

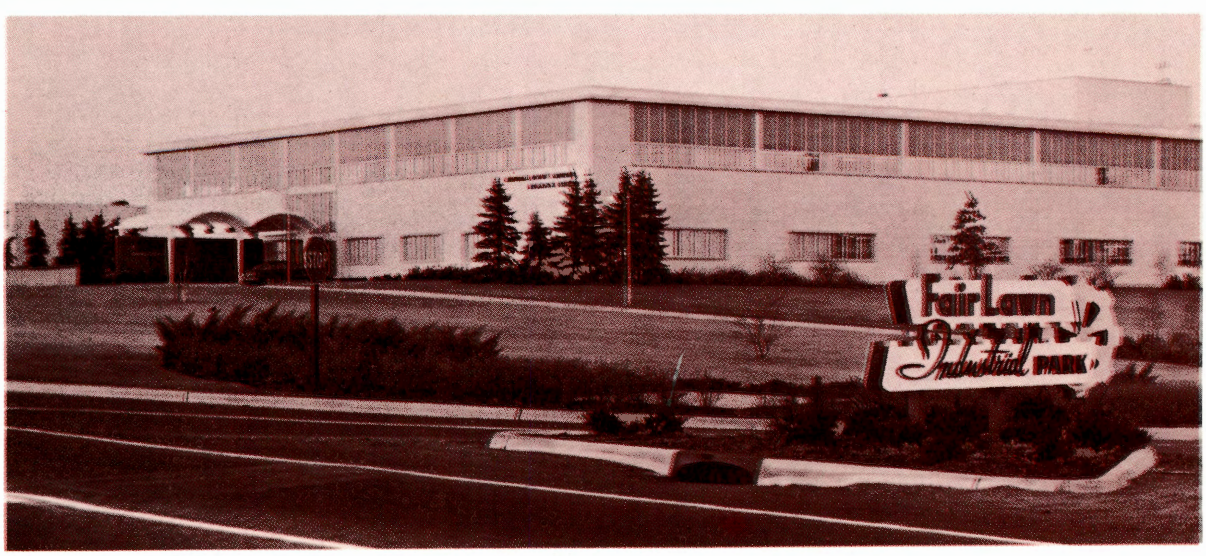
There are, however, several disadvantages in adherence to the industrial park form of development. The planned industrial park is expensive to develop. Improvements run about 25 cents a square foot—higher in the larger cities. Improved sites in a planned district may bring anywhere from 50 cents to $1 or more per square foot. For an improved one-acre site, this means a cost of $20,000 to $45,000. As a result, an organized industrial district appeals only to certain types of industries, largely the light and medium type of manufacturing and the processing-distributing types of activities. Finally, it may be more advantageous for a community to guide the development of industry uniformly over a larger area, rather than concentrate it into a single industrial park.

Nevertheless, as Victor Roterus, Director of the United States Office of Area Development, has pointed out:

> . . . an organized district or planned subdivision for industry, is a logical, man-directed response to present day trends and conditions in the location of industry . . . Many types of industry are using horizontal-line production methods best housed in a land-consuming, one-story building. More employees are driving to work and parking their cars instead of using public transit—another factor arguing for more space in the plant site. Space is also required for loading docks and for employee cafeterias and recreational facilities. Furthermore, profiting by lessons from the past, land is now being reserved by industry for future expansion needs (note that the new plants usually have at least one temporary wall). These trends have forced industry to seek outlying sites . . . where larger parcels of vacant land in single ownership are available . . .

## Supply Vs. Demand

To reiterate an earlier statement, what is needed in most parts of the State is not more land zoned for industry, but a more realistic approach based upon the principles of industrial zoning and the factors influencing plant location. In other sections of the State, particularly the highly urbanized portions, the more desirable potential industrial sites are being rapidly consumed, and immediate steps must be taken to sure an adequate future supply.



# CHAPTER 10

## THE ROLE OF GOVERNMENT IN THE PROMOTION OF EFFECTIVE INDUSTRIAL LAND USE

In order to insure that future land use developmental patterns are in the best interest of the State and its people, each level of government must assume certain areas of responsibility. While it must remain the responsibility of the local governing body to determine, through the development of a realistic future land use plan and a corresponding zoning program, the future growth potential of the community and the direction which this growth should take, these goals cannot be accomplished in isolation. Cooperation between neighboring communities, between municipalities and counties, and between both levels of government and the State is vital to the ultimate success of any program of orderly development. This chapter attempts to explore some of the areas of responsibility which fall to each level of government, and to point out areas where cooperation is necessary if a balanced program of economic growth is to be accomplished.

Each level of government must assume certain areas of responsibility if future patterns of industrial land use are to be in the best interest of the State and its people. No level of government, however, can operate independently and without regard for the responsibilities of the other levels. Rather, each must seek to achieve a high degree of cooperation and a division of labor which will permit each to do that which it does best.

Of factors affecting industrial development in New Jersey, the large degree of local control is the most apparent. The largest tax burden is local. Zoning and planning are bound within town, village, and county lines. Water development and flood control are essentially under home rule.

The drafting of the zoning ordinance is likely to continue to be a local function and responsibility. Local officials must make every effort to formulate a zoning plan which reflects a balanced land use program appropriate to their community. The drafting of a good zoning ordinance is not an easy task, for such ordinances should be neither too flexible nor too rigid. Too much flexibility leads to spot zoning and variances, while an inflexible ordinance cannot keep pace with changes in technology, innovations in construction, and new methods and procedures in land use planning.

However, it must remain the responsibility of the local governing body to assess, through the development of a realistic future land use plan and a corresponding zoning program, the future growth potential of the community and the direction which this growth should take. This cannot be done in isolation, but must take into consideration the overall growth trends which will occur in the surrounding communities which together may form an "economic region". For this reason, the State must stand ready to assist the local municipalities to insure complete cognizance of all of the factors which may be involved in local development.

Cooperation between neighboring communities is vital to the ultimate success of any planning and zoning program. Street patterns cannot stop short at municipal boundaries, but must be coordinated across such artificial barriers. It is extremely undesirable to have an industrial zone in one community abutting a residential zone in another, unless proper measures are taken to assure the compatibility of these adjacent uses. In such cases, one community, through the use of performance standards for measuring and controlling the potential nuisances of industry, can provide adequate protection both to industry and to the residential areas of the neighboring community, which may provide homes for the workers.

As previously pointed out, area-wide or regional zoning has always been open to suspicion on the part of local officials. However, cooperative zoning can be undertaken in such a way that no municipality is forced to give up its individuality or to compromise its goals and objectives. Contiguous communities possessing similar characteristics can be grouped together in such a way that no single community can dictate the direction of others. If there exists an interdependence among the communities, each is provided with an equal bargaining point. Here again, the role of the State is to provide assistance to the local municipalities in determining areas where cooperation would be most feasible.

One solution to the problem of tax inequalities, suggested by a number of experts in the field, is for industrial rateables to be assessed by a central agency on an area-wide basis. The revenues then would be distributed to the various communities on a cost-benefit basis. Area-wide tax collections have been in effect in several western states for some time. This approach provides for a more uniform and equitable assessment of property and allows residential communities without industry but with the cost of servicing the homes of the workers to share in the resultant tax revenues. The county, as an existing governmental unit, might serve as the appropriate level to undertake an area-wide assessment program.

Beyond this innovation in tax collecting and distribution, the county can make its greatest contribution as a coordinating agency. As such, it would provide basic data to the municipalities within its jurisdiction and offer suggestions and recommendations regarding ways and means of affecting desirable patterns of growth.

County-wide industrial inventories have been undertaken in a number of instances, and these studies have proved useful in assisting the local communities in the assessment of their individual potential. In some states, the counties are charged with the responsibility of review and evaluation of local zoning ordinances and other regulatory controls which affect the physical environment. The county is also directed to serve as a mediator, should conflicts arise between political subdivisions within their boundaries over matters of zoning. This system provides for a review which serves as a check against unrealistic zoning activities, illogical street patterns, inequitable assessment procedures, improper building and subdivision procedures, etc. As county planning becomes more firmly established throughout the State, the role of the county as a coordinator of planning and zoning activities within its jurisdiction should receive further emphasis.

The responsibility for the overall coordination of the economic growth of the State must lie with State government. Through its various promotional, planning, developmental, and service agencies and committees, the State can suggest, recommend, guide, and regulate the steps that must be taken to assure the State a healthy and sound economic future. The Statewide Planning Program, through the Interdepartmental Committee for State Planning, should be the keystone in this effort. The mandate of this agency has been set forth in the introduction to this report. It is purposely broad in scope, for the problem of assuring the effective development of the State's physical assets requires a point of view which is broad enough and comprehensive enough to include the many areas of activity which will be involved.

The Division of State and Regional Planning must continue to undertake the kinds of studies which have a statewide impact, and which will provide assistance to the local municipalities and the counties in their planning and development programs. The dissemination of informational bulletins, studies, and reports on areas of interest to the State in general must continue to be one of its primary functions. The Division also can play an important role in the coordination of the planning activities of the counties and local municipalities by serving as a mediator between these levels of government and State and federal authorities in the fields of planning, redevelopment, urban renewal, housing, economic development, mass transportation, open space development, etc.

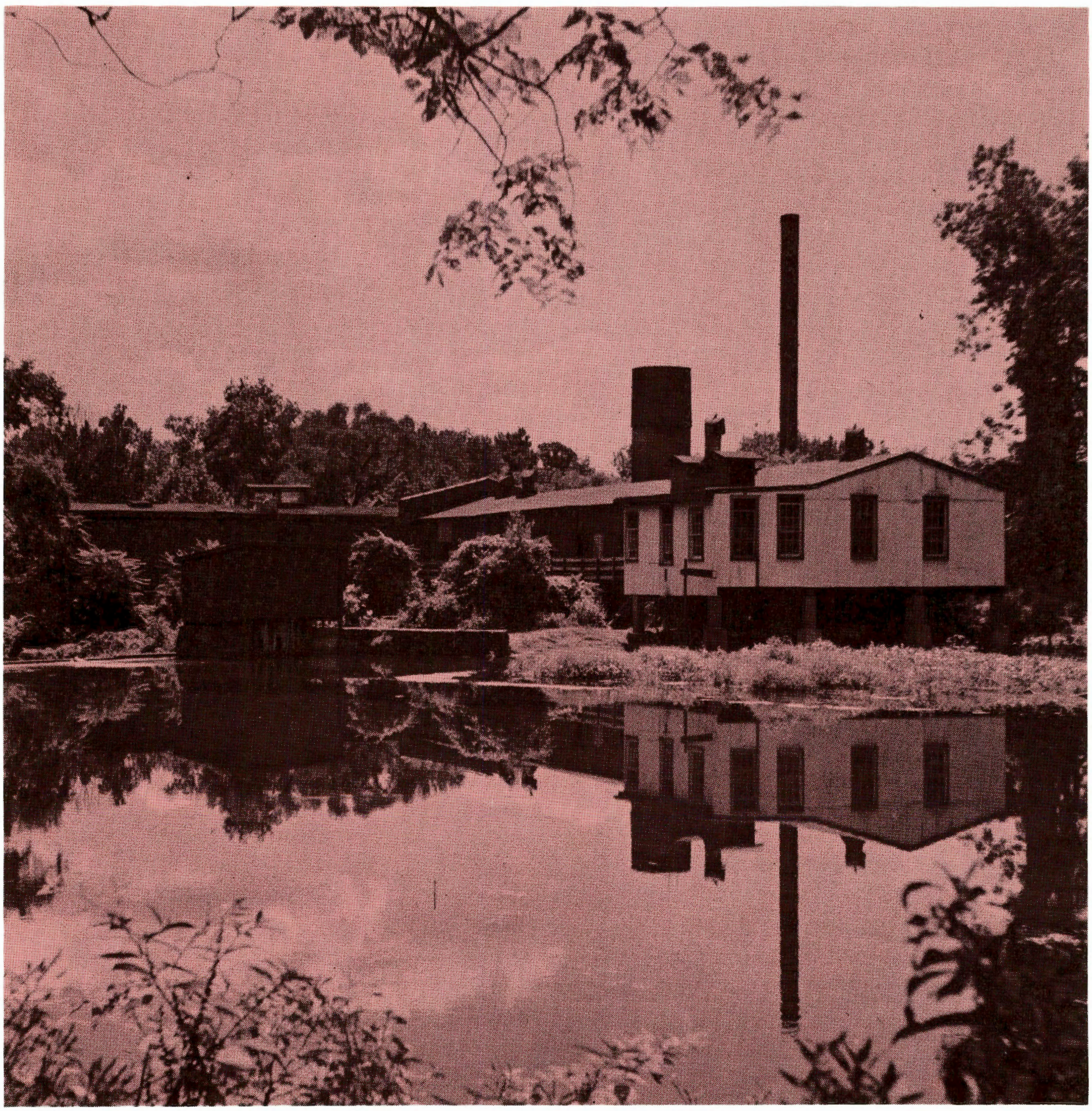
Beyond these information dissemination and development coordination activities, the State should continue to engage in activities and studies which will contribute to the future improvement of the general living and working environment of the State. Two areas of concern which should receive particular attention involve the problem of tax adjustments and the problem of industrial development and promotion. In this respect, the **Report of the Commission to Study Laws Affecting Industrial Development**[1] should be studied, reviewed, and updated, as it contains a number of worthwhile, carefully documented recommendations on taxation, social insurance, water supply, planning and zoning, transportation, and the political climate. Undoubtedly, as the tax problem in New Jersey becomes increasingly acute, further studies of this nature will be undertaken.

In several states, the matter of industrial development and promotion has received the attention of specially created commissions, committees, and/or governmental agencies. The New Jersey Economic Ambassadors, appointed by Governor Meyner in July, 1957, on the recommendation of officials of the New Jersey Manufacturers Association and the New Jersey Industrial Development Association, is such a quasi-official industrial promotion group. Faced with increasing interstate rivalry for new business and industry, this committee addressed itself to the "formidable task" of maintaining "our long standing posi-

[1]State of New Jersey Commission to Study Laws Affecting Industrial Development, (SCR 13, Laws of 1955), submitted to the State Legislature, June, 1957.

tion of commercial and industrial leadership."

The work of this special committee has been assisted and supplemented by basic research and studies by a number of State agencies such as the Bureau of Commerce of the Department of Conservation and Economic Development and the Division of Employment Security of the Department of Labor and Industry. To date, these activities have not been assimilated under a single State agency such as a Division of Industrial Development. However, as further advances are made by private development groups, by quasi-official State and "regional" industrial development organizations, and by local industrial promotion agencies, the creation of such a State coordinating agency may become feasible.



## RECOMMENDATIONS

The primary objective of this report has been to investigate where New Jersey stands at the present time with regard to existing patterns of industrial land use. An attempt has also been made to examine some of the ramifications of present trends as they relate to future development possibilities. On the basis of the present inventory, general recommendations have been set forth throughout this report. It is hoped that these recommendations may provide a guide for the further investigation of problems under the Statewide Planning Program and as a stimulus for discussion and study beyond the scope of the Statewide Program. Some of the more important recommendations are summarized in the following pages.

1. **FURTHER ANALYSIS OF INDUSTRIAL LAND USE IS NECESSARY**

A number of inventory studies dealing with existing development conditions and trends have been undertaken as a part of the initial phase of the Statewide Planning Program. In the Formulation Stage, all of these studies must be brought together and analyzed as to their inter-relationships, in order to point out feasible future development alternatives. **Since manufacturing activities provide a key to the economic well-being of the State, the further analysis of industrial land use must form an important element of the Formulation Stage of the Statewide Program.** In order to provide for more accurate analyses of the ramifications of industrial activities on the economy of the State, future studies should be undertaken within the framework of the socio-economic regions previously delineated under the Statewide Planning Program.

2. **A CONTINUAL APPRAISAL OF POPULATION TRENDS MUST BE MADE**

The successful preparation of a Statewide Development Plan and Capital Improvements Program must be based upon levels of population to be served. **A continual appraisal of population growth, therefore, must be made, to insure cognizance of changing trends and conditions which may have a bearing on the physical and economic development of the State.** This is of particular importance in relation to industrial development analyses, since future land use needs are based upon the anticipated growth in demand for manufacturing job opportunities which, in turn, stems from projected population increases.

3. **A RE-APPRAISAL OF LOCAL ZONING PRACTICES DESIRABLE**

In many areas of the State, a more realistic approach to zoning, based upon recognized sound principles, is needed. **A re-appraisal of local zoning practices, to include not only a re-examination of the quantity and quality of lands zoned for industrial use, but their relationships to other forms of land use should be undertaken.** Where possible, consideration should be given to the adoption of performance standards as a part of the local zoning ordinance. In this regard, the possibility of creating a governmental agency equipped to assist local communities in testing for adherence to performance standards should be investigated.

## 4. PROTECTION OF "POSSIBLE SUPPLY AREAS" SHOULD BE CONSIDERED

With the anticipated growth in population and the resultant increase in competition for land, it will become necessary to protect prime industrial sites. **As a part of the re-appraisal of local zoning practices, local and county planning officials should give consideration to the protection of those areas delimited as "possible supply areas".** While some of these sites are zoned for industrial purposes, the majority either are zoned for other uses or are unzoned. Upon closer examination and evaluation by local planners, the substitution of such areas for existing industrially zoned lands may provide a sounder basis for future industrial growth in many parts of the State.

## 5. SUPPLY STANDARDS MUST BE DERIVED

One of the basic conclusions of this report is that there is an excess of land zoned for industry in certain parts of the State. However, a question which remains unanswered is, how much surplus land is too much. **It is, therefore, recommended that further study be undertaken as a part of the Statewide Planning Program to formulate criteria for various areas of the State to determine their proper level of industrial zoning activity.**

## 6. TRANSFERENCE OF DEFICITS SHOULD BE CONSIDERED

Throughout the State, the supply of land presently set aside for industrial use appears to be three or four times in excess of projected demands for the year 1985. The excess of supply, however, is not uniformly distributed. In many parts of the State there will be a deficit of suitable land for industry by 1985. **In the next stage of the Statewide Planning Program, studies must be undertaken to ascertain how much of the deficit which is likely to occur in the built-up areas can be transferred to areas of surplus.** Such studies should point out the extent to which industry will be able to find suitable locations beyond the present industrial areas of the State.

## 7. A LAND BANK MAY BE DESIRABLE

There is a growing scarcity of suitable sites for the development of heavy industry. Manufacturing activities which fall into this general classification are important to the economic well-being of the State. **The concept of establishing a land bank for heavy industrial sites should receive further attention and investigation.**

## 8. COOPERATION AMONG LEVELS OF GOVERNMENT IS NECESSARY

To insure that future land use patterns are in the best interest of the State and its people, each level of government must assume certain areas of responsibility. Cooperation between neighboring communities, municipalities and counties, and the State is vital to the promotion of the orderly development of the State. **A cooperative approach to zoning on an area-wide basis should be undertaken in order to provide the means of insuring desirable future land use patterns.** Such a program may best be initiated as part of an attempt to plan on the basis of functioning urban regions.

## 9. APPLICATION OF A REGIONAL TAX SYSTEM SHOULD BE EXPLORED

The local property tax, as a major source of revenue for municipalities, has contributed to the creation of a "scramble for tax rateables". The resultant competition among communities has created an undesirable situation from the standpoint of orderly development. In many parts of the State, an imbalance of land uses has resulted. **Efforts should be made to explore the feasibility of a regional taxing system in order to provide a more equitable distribution of revenues.**

## 10. AN INDUSTRIAL DEVELOPMENT AGENCY SHOULD BE CREATED

Industrial promotion and development activities have been undertaken both within State government and private enterprise. Utility companies and the railroads have made particularly significant contributions in this area. However, as the economy of the nation has expanded in the past decade, a greater competition among the States to secure industry has developed. Most states now have large, well-financed industrial development agencies. **New Jersey's industrial development and promotion program, therefore, must be greatly strengthened in order to meet this competition.**

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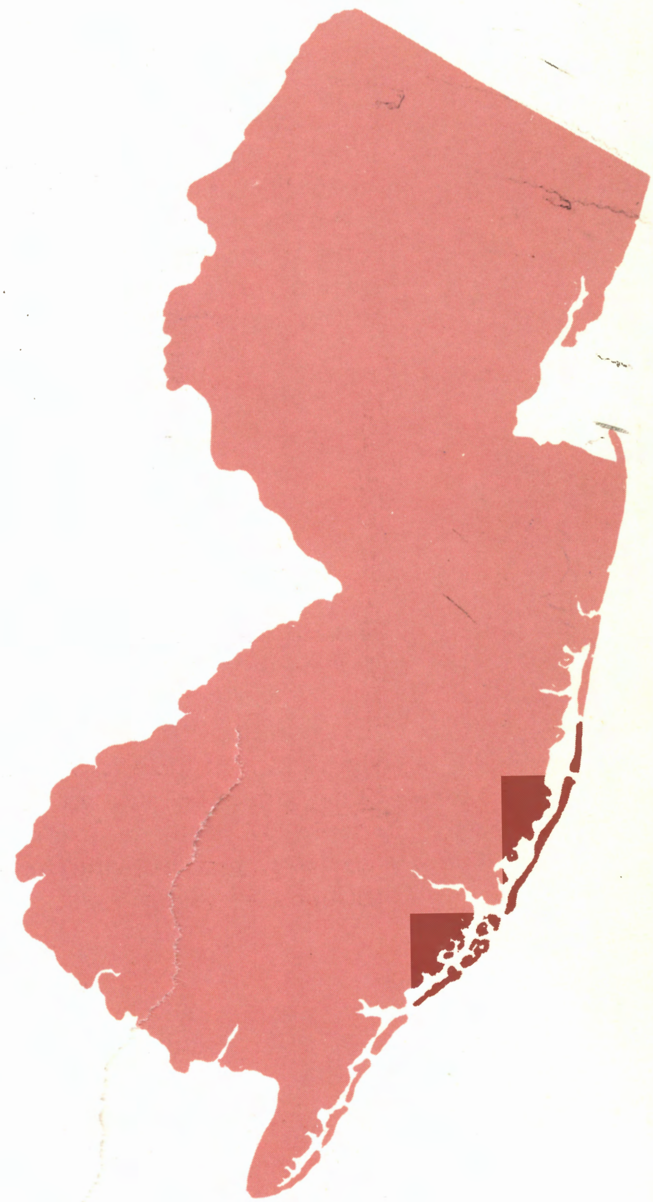

*This report was prepared and written by Alan Walter Steiss
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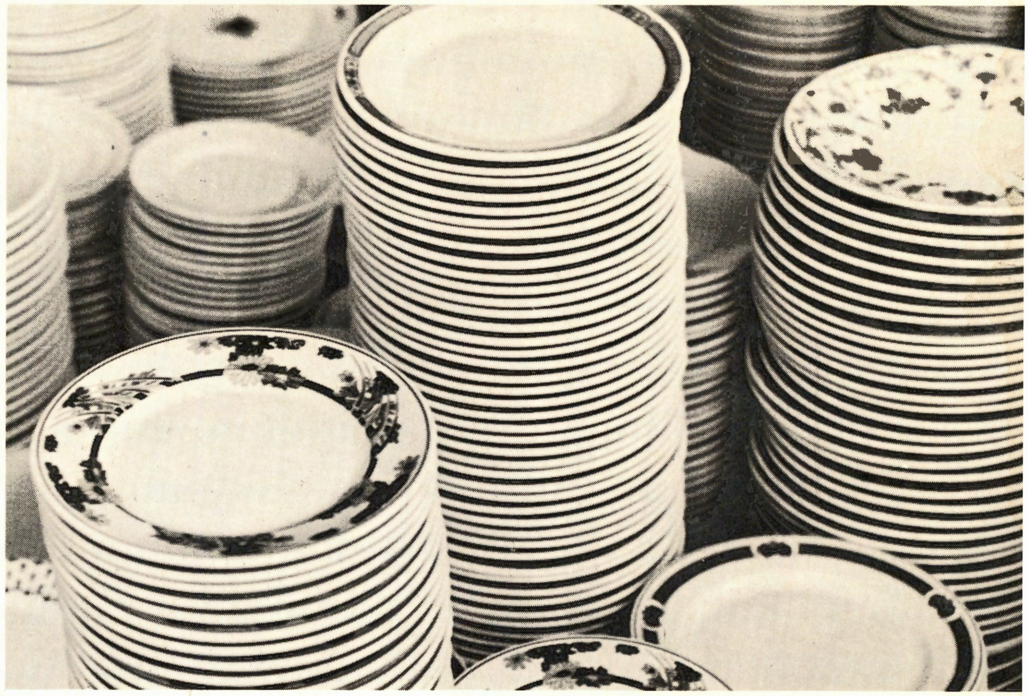

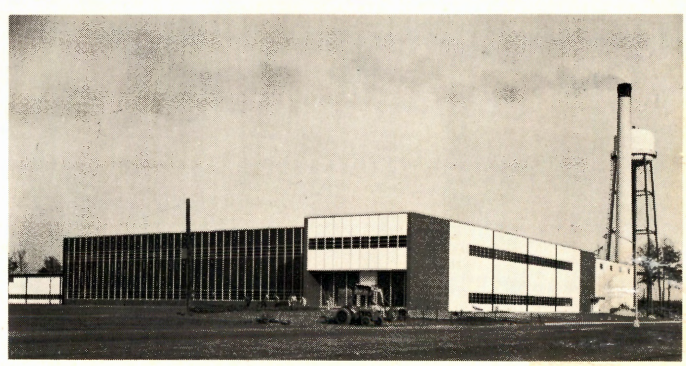


NEW JERSEY TERCENTENARY

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