THE IMPACT OF U. S. STEEL IN BUCKS COUNTY, PENNSYLVANIA: A REGIONAL DEVELOPMENT PLAN

by

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Submitted in partial fulfillment of the requirements for the degree of Master in City Planning.

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May 1951
May 18, 1951

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Dear Dean Belluschi:

I respectfully submit herewith a thesis entitled THE IMPACT OF U. S. STEEL IN BUCKS COUNTY, PENNSYLVANIA: A REGIONAL DEVELOPMENT PLAN in partial fulfillment of the requirements for the degree of Master in City Planning.

Respectfully,

Dean K. Boorman
THE IMPACT OF U. S. STEEL IN BUCKS COUNTY, PENNSYLVANIA: A REGIONAL DEVELOPMENT PLAN

SUMMARY AND CONCLUSIONS

The United States Steel Corporation has started construction on a large new steel mill as a subsidized defense project near Morrisville in Bucks County, Pennsylvania. Although situated between Trenton and Philadelphia, the Bucks County region in which the steel mill is located is now largely undeveloped. The purpose of the thesis is to estimate and plan for the growth resulting from the steel mill within a ten-year time span.

The steel mill, with 4,900 workers, can be expected to attract new metal-consuming and related industries to Bucks County with from 5,900 to 11,400 workers (the smaller estimate is the more reliable). If the new labor force all were to settle in Bucks County, the new population would be between 46,000 and 69,000. This population represents a demand for housing in Bucks County which should be met, both from a defense and from an economic and social standpoint. Development for which land has now been bought - there is much land speculation and expectation of growth problems in the area - is in the form of scattered housing groups which will not meet the need in price or quantity. The housing need can most economically and desirably be met by New Towns planned in advance for their ultimate development.

The regional plan involves two New Towns of 20,000 to 25,000 population each, to be built successively. Each Town is planned in conjunction with an industrial estate for industries following the steel mill. Town No. 1 is located in the same municipality as the steel mill, and so can use the mill as a tax base for public facilities.

For implementation, the best opportunities for New Town development are through Government action under the 1951 Defense Housing Bill or through a private development corporation financed by U. S. Steel. Plan implementation on the regional level must be done by the Bucks County Planning Commission.

Dean K. Boorman

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Collaboration by George S. Gatter is gratefully acknowledged in the design of New Town No. 1; as well as a valuable contribution in his financial analysis of New Town No. 1 and suggestions for its development.

Among the planning officials who gave generous assistance and advice in the field survey are Mr. David Longmaid, Director of the Montgomery County Planning Commission; Mr. Hans Blumenfeld and Mr. Harlin Loomer of the Philadelphia City Planning Commission Staff; and Mr. Herbert Smith of the New Jersey State Planning Section.
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>I. The Problem and Approach: Regional Development of New Towns</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>II. The Background: The Steel Mill, the Region, and Present Trends</td>
<td>3</td>
</tr>
<tr>
<td>The Region Before the Steel Mill</td>
<td>6</td>
</tr>
<tr>
<td>Present Development Trends</td>
<td>10</td>
</tr>
<tr>
<td>Local Attitudes</td>
<td>12</td>
</tr>
<tr>
<td>III. Industrial Development and Population Potential: The Demand for New Towns</td>
<td>14</td>
</tr>
<tr>
<td>&quot;Agglomerative&quot; Industries Following the Steel Mill: Minimum and Maximum Estimates</td>
<td>15</td>
</tr>
<tr>
<td>Total New Population</td>
<td>21</td>
</tr>
<tr>
<td>The Effective Demand for New Housing</td>
<td>23</td>
</tr>
<tr>
<td>The Scattered Development Now in Prospect Will Not Meet the Need</td>
<td>27</td>
</tr>
<tr>
<td>IV. The Regional Plan</td>
<td>34</td>
</tr>
<tr>
<td>The New Towns</td>
<td>34</td>
</tr>
<tr>
<td>New Town Design</td>
<td>36</td>
</tr>
<tr>
<td>New Town Siting</td>
<td>38</td>
</tr>
<tr>
<td>Regional Circulation: Rest of the Plan</td>
<td>41</td>
</tr>
<tr>
<td>V. Implementation</td>
<td>44</td>
</tr>
<tr>
<td>Industry and the New Towns</td>
<td>45</td>
</tr>
<tr>
<td>New Town Initiation Under the 1951 Defense Housing Bill</td>
<td>48</td>
</tr>
<tr>
<td>New Town Initiation by Private Enterprise</td>
<td>53</td>
</tr>
<tr>
<td>The County Planning Commission</td>
<td>54</td>
</tr>
<tr>
<td>Conclusion</td>
<td>57</td>
</tr>
</tbody>
</table>

*Footnotes following 57

Maps following footnotes

Tables following maps

*Footnotes also serve as a Bibliography
MAPS

1. East Coast Regional
2. New Jersey-Pennsylvania Regional Circulation
3. New Jersey-Pennsylvania Regional Population Distribution
4. Municipalities
5. Existing Land Use
6. Existing Circulation
7. Present Growth Trends
8. Regional Growth Plan
9. Highway Circulation Plan

TABLES

1. Municipal Characteristics
2. Estimates of New Population in Bucks County Representing Demand for New Housing
3. Growth Capacity with Existing Community Facilities: Bucks County Municipalities
THE IMPACT OF U. S. STEEL IN BUCKS COUNTRY, PENNSYLVANIA: A REGIONAL DEVELOPMENT PLAN

Chapter I

THE PROBLEM AND THE APPROACH:

REGIONAL DEVELOPMENT BY NEW TOWNS

The elaborate ground-breaking ceremony staged by the United States Steel Corporation on March 1, 1951, to signal the start of construction on its $550,000,000 Fairless Works near Morrisville, Pennsylvania, was indeed a significant event. For the national defense mobilization program the Fairless Works will mean, with an annual production of 1,800,000 ingot tons, a substantial increase in vital steel production. For the steel industry the plant heralds a major shift of emphasis in the steel production pattern from the Pittsburgh area to the East Coast. For the Philadelphia-Trenton metropolitan region the advent of Big Steel gives promise of strong long-term industrial growth. For the Bucks County area in which the steel mill is locating, finally, the plant will bring the impact of rapid industrial and urban growth to this largely rural section.

It is with Bucks County that this thesis is primarily concerned. The planning problem involved is of setting up a plan for growth in a relatively undeveloped region - the amount of growth being capable of prediction from the initial fact of the new steel mill. The region in Bucks County...
in which the development may be expected to take place is taken as the planning area. The prediction of growth potential is made first on the basis of satellite industries likely to follow the steel mill, and then from the total new labor force brought into the region. The plan for this development is presented as being essentially short-range - for the direct effects of the steel mill - and cannot, within the resource limits of the study, consider the longer-range or ultimate development which Bucks County will share with the rest of the Philadelphia-Trenton metropolitan region. The time scale of the plan is on the order of ten years.

In approaching the plan, the proposition is advanced in this thesis that the demand for new housing and for new industrial sites in the area is sufficient for at least one New Town\(^1\); and that this type of development has clear advantages over the "sprawl" pattern now in prospect, even if the "sprawl" could be to some degree directed. Sites and general land use areas for two New Towns are indicated on the plan, with one to be developed immediately and the other to wait until the necessary demand arises within the ten-year period. For implementation, the 1951 Defense Housing Bill is seen as the most promising opportunity.
Chapter II  THE BACKGROUND: THE STEEL MILL, THE REGION, AND PRESENT TRENDS

The Steel Mill and Location Factors

The decision of U. S. Steel to locate in Bucks County was the result of a combination of factors of national, regional, and local significance. While it is not the purpose of this study to go very far into the economics of the locational pattern of steel production, a brief consideration of the various factors involved will help in understanding the sudden industrial boom which has come to Bucks County.

The outbreak of the Korean war in the summer of 1950, while it did speed the undertaking of the Fairless Works through the granting of tax concessions by the government for its construction, was not directly responsible for the new mill. The site was actually purchased in 1949, with newspaper reports of the deal appearing in December of that year.\(^1\) The mill appears to have been undertaken in response to pressure for an expansion of steel production to take advantage of changed cost factors favoring the East Coast. Probably the most urgent incentive for the move was the imminent exhaustion of the Mesabi iron ore range on Lake Superior, and the discovery by U. S. Steel of a new ore source in Venezuela reported to be equally as wealthy as the original Mesabi. Untapped ore reserves have also been located in Labrador, but development is contingent on the com-
pletion of the St. Lawrence seaway. Since ore from these sources is shipped by water, the East Coast is strongly favored in ore costs over the inland Pittsburgh area. Even after the St. Lawrence seaway is built, Venezuelan ore will be delivered as cheaply at Chicago as the Labrador ore; and will of course cost considerably less for the shorter trip to the East Coast.²

Also favoring East Coast steel production is the large market extending along the coast from Massachusetts to Virginia, of which the Philadelphia-Washington section alone was reported in 1950 at a "lush" 7 million tons annually.³ On the materials side the East Coast is a scrap surplus area which can contribute an increasing amount of scrap for steel production.⁴ For the finished product, East Coast steel mills can ship steel more cheaply to East Coast consumers.

The Delaware River basin has several advantages for steel production within the East Coast region. Its location between New York and Washington, and close to Philadelphia, puts it at the center of the East Coast steel-consuming market as well as in the midst of a large labor supply. It is relatively close to the Pennsylvania coal and limestone supplies. It forms, further, the only fresh-water port on the East Coast - with the Delaware River providing both access for ocean-going ore carriers and an unlimited source of fresh water for cooling.

The Fairless Works appears to be setting the pace for a
number of future steel mills to locate within the Delaware River basin. The National Steel Company has acquired land south of Camden for a projected 1,000,000-ingot ton per year plant, although it has not succeeded in obtaining tax concessions for its construction. Professor Walter Isard of Harvard, who successfully predicted early in 1949 an East Coast shift in steel production, expects the Delaware River basin to equal Pittsburgh as a steel producing center over a fifty-year period.

Although the controlling factors in the Steel Corporation's decision to locate in Bucks County rather than other parts of the lower Delaware River region are known only to its own executives, several very favorable features of the site may be mentioned. As Map 7 indicates, a large part of the flat, open 3850-acre site is needed for the mill's extensive facilities. One shop, the sheet steel finishing mill, will be over a mile long. The river-front location of the site allows ore boats to dock in slips built next to the blast furnaces (the Army Engineers are to dredge the Delaware River from its present 25-foot level to 40 feet to accommodate ore boats the size of the battleship Missouri). There is direct rail access to a Pennsylvania Railroad classification yard at the junction of the main New York-Philadelphia line and the Trenton freight cutoff which by-passes Philadelphia in connecting with the West. Highway access is provided nearby by Routes 1 and 13, two major routes connecting Trenton and Philadelphia. The site is close to
Trenton, finally, and within 30 miles of Philadelphia and New Brunswick, New Jersey; so that the Steel Corporation can try to induce workers to commute from these cities by higher wages and so avoid the responsibility of providing housing for its labor force. The Corporation has announced that it will hire up to 90 per cent of its labor force locally, which means largely from these cities.

In concluding the discussion of the steel mill and its location, the Government tax concession subsidy under which the mill is being built may be mentioned further. The subsidy consists of permission to amortize the cost of the mill in 5 instead of 25 years for income tax purposes. From early in 1950 to the beginning of April, 1951, over $2 billions in such concessions were given to steel companies by the Government, of which the Fairless Works undoubtedly took the largest single slice. Undue haste and lack of care in granting some of the concessions - U. S. Steel was not mentioned - was charged early in April by a Congressional Expenditures Subcommittee, which pointed out that only $7 billion in tax concessions had been granted during the entire World War II. Whether or not the Government was unduly generous to U. S. Steel, it may be argued that the Government incurred a definite responsibility in the project.

The Region Before the Steel Mill

Maps 1 through 6 and Table 1 present the general situation of the region before the arrival of U. S. Steel. A
word might be added about topography. Map 5 indicates the "Fall Line", the geological line along which the rocky Continental Shelf dips under the sandy Coastal Plain. In crossing rivers the Fall Line marks the head of navigation - as on the Delaware, where the mild rapids known as the "Falls of Trenton" prevent navigation upstream. The land east of the Fall Line is almost completely flat, and well suited for intensive truck farming. The steel mill site yielded 6 to 8 spinach crops per year.\(^{12}\) West of the Fall Line, in the section of Bucks County considered in this plan, there is a more noticeable slope to the ground and dairy rather than truck farming is common. Essentially the entire region, with the exception of limited stream areas and low spots, may be considered as buildable. There are very few excessive slopes or extensive swamp areas.

Highway and rail circulation, as indicated on Map 6, serves largely through rather than intra-regional traffic. There is some commuting to Philadelphia and Trenton on the Reading Railroad, while the Pennsylvania Railroad makes practically no local stops. The road system outside of the through arterial Routes 1 and 13, and the Bristol Bridge-Route 1 connection, consists almost entirely of narrow two-lane tar crown roads.

Bucks County is best known, according to a NEW YORK TIMES writer, for its "art colonies and country homes of well-known New Yorkers".\(^{13}\) The art center, New Hope, is 12
miles up the Delaware River from Morrisville; and most of the country estate region is to the north of the area considered in this plan. There are some estates and converted farmhouses in the vicinity of Langhorne and Newtown.

Table 1 indicates the types of local government in the area and the degree of planning controls. In Pennsylvania the boroughs, which are organized for full local services, include only largely built up areas. Rural areas, and in many cases areas in which recent suburban fringe development has been taking place, are included in townships. Most of these townships are "second class", with 3-man Boards of Supervisors concerned largely with road maintenance. The more urbanized townships may be "first class", paying a larger county tax, having a more complex government, and providing more services. Each type of township has separate school districts. The county, in contrast to the New England system, performs a number of important functions. In February, 1951, a Bucks County Planning Commission was formed, with advisory functions only. The Commission now has a temporary director, and is attempting to hire a permanent staff.

Mention should be brought in at this point of the background situation in Falls Township, in which the steel mill site is located. Before the Steel Corporation came into the picture the two dominant interests in the Township were Starkey Farms, Inc. and the Warner Company. The former is a
large truck farming and canning concern which operated largely on the steel mill site, using numbers of colored migrant workers housed in one-room shack colonies. It is reported now to have bought farmland in other parts of Falls Township and in Lower Makefield Township, perhaps for speculation. The Warner Company mines and processes sand and gravel on a large scale, shipping by barge from its own dock on the river. The elongated lake shown on Map 5 between the railroad and the steel mill site was made by Warner. Perhaps at the instigation of these two large companies, a move for a zoning ordinance was turned down in 1950 in a series of three meetings. The chairman of the Board of Supervisors, while recognizing that the Township should have had zoning "ten years ago", states that bringing up the issue again would take at least six months and would be too late to control the expected development.

As illustrated by Map 3, the lower part of Bucks County is almost completely undeveloped populationwise as compared to the metropolitan centers of Trenton and Philadelphia on its east and west borders. On the Philadelphia side this is understandable since the city itself has not developed at all intensively up to the border. On the Trenton side, however, there appears to be no physical reason other than the barrier formed by the river for the lack of significant development spreading from the city.
Present Development Trends

Although the face of the Bucks County countryside around Morrisville has not changed to any extent outside of the steel mill site since U. S. Steel announced its coming, there have been wide repercussions in the form of land speculation in anticipation of future development. Several housing developments and two industries have been reported as definitely intending to locate in the area. A scattered pattern of both housing and industry is indicated.

Land in the region was originally worth, before the advent of U. S. Steel, about $400 per acre for truck farming alone, shading upward somewhat in places for intensively mechanized farming or country estate use. U. S. Steel was reported to have paid an average of $1300 per acre for its 3850-acre site in 1949. Some of the former landowners on the site bought land nearby for $1200 to $1500, reportedly in the expectation of resale for housing development. Present prices for land within perhaps 7 miles of the steel mill site probably range over $2000. Land prices have been affected by chains of sales and resales as far as Doylestown, 20 miles to the north.

Map 7 indicates the location of housing developments which have been announced so far. In general, mass subdivisions seem to be in prospect to the west and southwest of the steel mill site, in unzoned Falls and Bristol Townships,
while development in Lower Makefield Township and to the north will be higher-cost and more restricted. Land purchases have been reported for a 1500-house development by Levitt of New York in Bristol Township; for a 600-house group by Galbraith of Ohio near Fallsington; and for 200 houses on the Lower Makefield Township line by McCloskey of Philadelphia, who also plans 1000 units in row houses 12 miles west of Morrisville in North Philadelphia. It is likely that higher-cost development north and northwest of Morrisville in Lower Makefield Township will continue its post-war trend on individual lots and in small groups. Morrisville itself has room for only about 300 more houses. The actual building of the developments may be held up until the region is declared a defense area by the Government and credit controls are relaxed. This may not be much of a deterrent, judging by the high volume of housebuilding continuing now in 1951.

A number of metal-consuming and related industries are expected to "agglomerate" near the steel mill, as will be discussed in the forecasts in Chapter III. Two are already definitely announced: a refractory brick (for blast furnaces) works on the river just north of the steel mill site, and a container factory south of Bristol. Each firm will employ about 350 workers.
Local Attitudes

The attitude with which the steel mill is being received in Bucks County may be described as one of qualified anticipation. There appears to be wide appreciation of the profits to be made from land speculation and business expansion - as a local gossip column put it, "turning a Fast Buck in good old Lower Buck$$.30 There is also a fear of the class of people that will be brought in as steelworkers. A rather striking indication of this apprehension is given by the concern expressed by several local officials over the cost of the greatly expanded police protection they felt would be necessary once the steelworkers begin roaming the area.

At least some local officials are very much aware of the growing pains likely to be caused in the area by the steel mill. The chairman of the Morrisville Planning Board is fearful of an intense traffic problem which will be caused by workers driving to the steel mill from the Trenton area.31 A Lower Makefield Township official points to the disproportionate rise in municipal costs caused by housebuilding in the past few years, and regards further growth due to the steel mill as likely to cause more difficulties.32 Accentuating the financial difficulties of the municipalities in the area in adjusting to growth following the steel mill is the fact that only Falls Township, in which the steel mill site is located, will receive a direct tax income from the mill.
The attitude of U. S. Steel toward local development and planning problems is somewhat enigmatic. The Corporation has announced, as mentioned above, that it intends to hire up to 90 per cent of its labor force from within a 30-mile commuting range; which presumably is intended to justify its policy of not taking part in the construction of housing for its workers.\textsuperscript{33} In a speech at the ground-breaking ceremony on March 1, President Fairless of U. S. Steel recognized the likelihood of growth problems in the local municipalities in the form of new roads, schools, and other facilities. He then went on to state that since the municipalities would not be able to handle these problems alone, the Steel Corporation would help them. A similar assurance was given to the Lower Makefield Township school district\textsuperscript{34} and to the Falls Township road commissioner.\textsuperscript{35} There has been no indication, however, of the form this aid might take. Extensive speaking tours have been made in the area by U. S. Steel's public relations representatives for the purpose of explaining that the mill will not be a nuisance in such respects as smoke and water pollution, for which the most modern control methods will be used. Some interest in local planning on the part of the Steel Corporation may be indicated by the fact that Thomas B. Stockham, a Morrisville realtor who received a large commission for his help in the acquisition of the steel mill site, has been made a member of the Bucks County Planning Commission and tried (unsuccessfully) to join the Lower Makefield Township Planning Board.\textsuperscript{36}
Chapter III    INDUSTRIAL DEVELOPMENT AND
               POPULATION POTENTIAL: THE DEMAND
               FOR NEW TOWNS

A firm population forecast for Bucks County and especially for its municipal subdivisions appears to be futile at the present time for several reasons. Federal policy, first, operating through credit controls and a possible defense housing program, has not crystallized. Continuation of the present credit restrictions could hamper building in the area, while a certification as a defense zone could encourage it. Second, in accord with its announced policy of hiring 90 per cent of its labor force locally the Steel Corporation may be able by higher wages to induce a substantial number of workers to leave their present jobs and commute from existing cities within a 30-mile radius. Third, land speculation may prevent extensive new subdivisions because of high land prices. From the viewpoint of the individual municipalities, finally, the location of future subdivisions in the area will be at least partly random.

The amount of industry following the steel mill into Bucks County does, however, appear to be subject to tentative prediction. In this chapter such a forecast is made, with minimum and maximum limits. The amount of population is then estimated which would result in Bucks County if the entire labor force in the new industries, including the steel mill, were to settle in the County. The proposition is
advanced that this population represents an actual demand for new housing in Bucks County which should be satisfied. It is then argued that housing development along the lines now in prospect will not meet the demand. Finally, the case for New Towns is presented as offering the best solution.

The calculation of new population representing housing demand is summarized in Table 2.

"Agglomerative" Industries Following the Steel Mill: Minimum and Maximum Estimates

Steel is a basic industry, and its "agglomerative" effect in drawing steel fabricating and related industries close to sources of raw steel is well known. As a NEW YORK TIMES correspondent has stated it, "since steel constitutes the raw material of 40 per cent of America's manufacturing industry, automobile, appliance, and metal-working plants of all kinds, making 100,000 different kinds of products from steel, try to locate as close as possible to their source of steel supply to cut down shipping charges". It is possible to predict the amount of agglomerative of industry likely to follow a new steel mill, using as a basis past experience, existing patterns in steel-producing centers, and current industrial conditions in the area in question. There are a number of more or less indeterminate factors in the prediction, however, and so a range between a minimum and a maximum is presented here. Of the two values, the minimum is considered the more reliable; the maximum is pre-
sented as a possibility to be recognized but not counted on in a planning program.

The minimum estimate is based on a recent doctoral thesis by John Cumberland of Harvard. Although this study is concerned specifically with the projected New England steel mill at New London, Cumberland's prediction of industries following the New England mill may be applied with some reason to the Bucks County situation. The prediction made is of the number of workers in plants of 9 major metal-consuming industry groups (see footnote for the groups and the prediction for each). It is made on the following bases:

1. A study of geographic association between existing steel plants and 9 major metal-consuming industry groups.

2. The trend-projection method developed by Dr. Neal of the Boston Federal Reserve Bank.


Cumberland's prediction for the New England mill can be applied to the U. S. Steel mill by multiplying the predicted number of New England workers by the ratio of the steel-producing capacities of the two mills. This procedure is subject to two main difficulties:
1. There may be no straight-line or proportionate relationship between steel capacity and the amount of metal-consuming industry attracted.

2. The industrial pattern of the Delaware River Basin presumably varies from that of New England, on which Cumberland's estimate was partly based.

Cumberland states, however, that his estimate is heavily weighted on the conservative side. The prediction is only, moreover, for certain steel-consuming industry groups. Other types of metal-working plants might locate near the steel mill, as well as industries servicing the steel mill and the other industries rather than consuming steel products. The refractory brick works mentioned above is an example. There seems to be no reason to assume, further, that the industrial potential of the Philadelphia-Trenton region is lower than that of the New London, Connecticut, area.

Applying Cumberland's prediction:

New England mill capacity. ... .1,270,000 tons

New workers predicted in agglomerative industries. ... .12,500

U. S. Steel mill capacity. ... .1,800,000 tons

\[
\frac{1,800,000}{1,270,000} = \frac{x}{12,500} \Rightarrow x = 17,700 \text{ workers}
\]

The prediction is for the total number of new workers in agglomerative industries in the entire region. The number to be expected in Bucks County will be estimated below.
The maximum estimate of agglomerative or satellite industry is based on a "rule-of-thumb" ratio claimed by several sources to be put out by unnamed "industrial authorities". The ratio is 7 workers in satellite plants for every 1 steelworker. Among the sources for this prediction are the U. S. Steel public relations office, a NEW YORK TIMES correspondent, the director of the Philadelphia office of the United Steelworkers, and the Mercer County, New Jersey, Planning Board in Trenton. Attempts to trace the original authority for the 7:1 rule were unsuccessful. One possibility is that it was developed from the ratio of 1:6.55 between workers in primary metals (nonintegrated plants producing steel for further fabrication) and workers in other metalworking reported in 1949 by IRON AGE magazine in the 5-county Philadelphia region. Perhaps a more probable original source is some high U. S. Steel official.

It is claimed that present indications of industrial development reinforce the 7:1 rule. The NEW YORK TIMES correspondent cites rumors of "scores" of industries to follow the steel mill, and reports that "realty concerns and chambers of commerce on both sides of the river are being besieged with inquiries about factory space and industrial sites". The Philadelphia Chamber of Commerce has a list of 20 firms which are definitely planning to locate in the region as a result of the steel mill. Operating on the conservative side in applying the 7:1 rule is the opinion of the ex-Research Director of the United Steelworkers Union that actual employment in the steel mill will
probably far exceed the announced 4900. His judgment is based on past experiences in developing steel mills, notably the Geneva Works in Utah during World War II.

On the other side of the question a note of caution is introduced by a Philadelphia City Planning Commission analyst who points out that there is already much metal-consuming industry in the Trenton-Philadelphia region, and that substantially more cannot be supported or will not want to come in. The analyst may not be recognizing fully the likelihood of an industrial expansion for defense mobilization in the near future, but his point is probably to some extent valid. In general, the 7:1 ratio is not well substantiated and is not to be relied upon very strongly; but it must be recognized as a possibility for which a planning program in Bucks County must be prepared.

Applying the ratio:

Number of workers in steel mill announced at 4900.

\[ 4900 \times 7 = 34,300 \text{ workers} \]

The minimum and maximum figures so far presented are for the entire Philadelphia-Trenton region. To arrive at the number of workers in agglomerating industries in Bucks County, a three-way split is assumed between Bucks County, the Trenton-Mercer County (New Jersey) area, and the rest of the Philadelphia region. This assumption is based largely on general knowledge of the region and its land use pattern. Partial justification is indicated from two sources.
The Mercer County Industrial Development Commission anticipates that an equal amount of industry will follow the steel mill in Mercer as in Bucks County.\textsuperscript{13} The Philadelphia Chamber of Commerce expects some new industry to locate in the Chester-Whitemarsh Valley, 30 miles west of the steel mill site, so as to take advantage of steel from the mill while avoiding competition with its labor market.\textsuperscript{14}

Making the 3-way split, the labor force in agglomerative industries in Bucks County comes to:

- \textbf{Minimum} \[ \frac{1}{3} \times 17,700 = 5,900 \] workers
- \textbf{Maximum} \[ \frac{1}{3} \times 34,300 = 11,400 \] workers

Land requirements for this amount of industry can be calculated from the probable density in workers per acre arrived at by the Philadelphia City Planning Commission.\textsuperscript{15} The metal-consuming industries following the steel mill would be in the "intermediate" classification (as opposed to "intensive" or "extensive") with an average gross density of 18 workers per acre. Applying this density value:

- \textbf{Minimum} \[ \frac{5,900}{18} = 330 \] acres
- \textbf{Maximum} \[ \frac{11,400}{18} = 630 \] acres

As is apparent from Map 5, there are extensive industrial sites available in the area with good rail and highway access along the Reading Railroad and the Pennsylvania Railroad Trenton Cut-off. Sites along the river are scarce and relatively small.
**Total New Population**

The assumption is made here, and defended in the next section, that the entire new labor force working in Bucks County represents a demand for new housing there. The total industrial labor force, as developed above amounts to:

<table>
<thead>
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<th>Minimum</th>
<th>Maximum</th>
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<tbody>
<tr>
<td>U. S. Steel</td>
<td>4,900</td>
<td>4,900</td>
</tr>
<tr>
<td>Agglomerating industries</td>
<td>5,900</td>
<td>11,400</td>
</tr>
<tr>
<td>Total</td>
<td>10,800</td>
<td>16,300</td>
</tr>
</tbody>
</table>

The entire labor force will include service as well as industrial workers. The distinction, as drawn by economist Homer Hoyt\(^6\), is between primary workers - those who produce goods for sale outside the area - and secondary workers, who provide goods and services only inside the area. The industrial labor force represents primary workers. To arrive at the number of secondary workers the ratio is here assumed at 1:1 between secondary and primary workers. This ratio was developed in a 1949 M. I. T. Model Town\(^7\) study on the basis of ratios found in a number of existing industrial towns and used by planners in population estimates. It is recognized that for Bucks County Trenton provides a "downtown" shopping center, but the city's congestion has already given rise to a competing regional shopping center in Princeton, New Jersey. Shopping for neighborhoods and groups of neighborhoods would have to be provided in Bucks County anyway to serve new housing developments, as existing
facilities are largely small and rural. In Bucks County construction workers would probably form a larger part of the secondary labor force than normal, at least for a number of years. The construction force now working on the steel mill is reported at close to 600018; and a considerable part of this force is likely to stay after the mill is completed to work on further industrial plants and on housing developments. Much of the secondary labor force except for construction workers may not come into the area until after the primary labor force has settled. It represents, therefore, a delayed but still a real housing demand.

Applying the 1:1 ratio to obtain the total labor force:

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<tbody>
<tr>
<td>Minimum</td>
<td>2 x 10,800 = 21,600</td>
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<tr>
<td>Maximum</td>
<td>2 x 16,300 = 32,600</td>
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To obtain the total population represented by this labor force it is possible to avoid the difficult question of family size and workers per family by applying a ratio of total population to labor force developed by the Philadelphia City Planning Commission.19 In 1947, the Commission reports, the proportion of labor force to total population in the Philadelphia Metropolitan District was 46.2 per cent. By 1980 it is estimated that the rate will reach 47 per cent. Applying the ratio to the Bucks County area is probably liable to error only on the conservative side, considering the relatively high postwar birthrates and the relatively favorable economic status of the new
The Effective Demand for New Housing

The assumption that the entire new labor force working in Bucks County represents a demand for housing there may appear somewhat drastic, particularly in view of the Steel Corporation's announced intention of hiring 90 per cent of its labor force from within a 30-mile commuting radius. It may be defended, however, on several grounds. First, there are few workers skilled in basic steel manufacturing in the region, the nearest integrated steel works being at Sparrows Point, Maryland. Past experience indicates, according to the ex-Research Director of the United Steelworkers Union,20 that where there is a lack of skilled steelworkers a substantial part of the labor force must be imported from existing steel centers. Second, there is apparently no effective labor surplus in the Trenton-Philadelphia region. In Philadelphia, as a Chamber of Commerce economist put it, "the bottom of the available labor market was scraped" late in 195021; while Trenton is spoken of as having a constant labor shortage since the beginning of World War II.22 The steelworkers hired locally, then, will have to be lured away from their present jobs by higher wages (which may not
be easy, as steel mill work is hard, hot, and dirty\textsuperscript{23}).

These higher wages, together with the expense and trouble of commuting, will give rise to a demand for new housing in the steel mill area. As new workers come in to fill existing jobs, furthermore, a demand will be created for existing houses in the older urban centers which the steelworkers will want to vacate.

It may be argued from four points of view that this housing demand should be met. First, from the viewpoint of the workers in the steel mill and related industries, the necessity of expensive and time-consuming commuting should be avoided and a chance for decent housing - not generally available in the older cities - at a cost consistent with their earnings should be provided. There is a certain callousness to Mr. Fairless' bland assumption that steelworkers will commute 30 miles; it seems too much to expect men to perform steel mill work while spending probably 3 more hours each day traveling to and from work. From the standpoint of the defense mobilization program, second, it would appear that the full efficiency of defense production - for which tax subsidies are being granted - cannot be reached without satisfactory living conditions for the workers. Third, from the viewpoint of the cities of Philadelphia, Trenton, and New Brunswick, the hiring of workers living in these cities for work in Bucks County intensifies their housing problems and handicaps their local industries as workers must be brought in as replacements. Fourth,
from the standpoint of the provision of highway facilities, extensive commuting would give rise to large costs. As an example, assume that a thousand steelworkers will commute by automobile from the Trenton-New Brunswick area in New Jersey. Something close to 500 automobile trips per day to and from the mill would result. At the standard highway lane capacity of 500 cars per hour, or 250 cars per half hour - the period of going to work - two new lanes across the river would be required. A new toll bridge is now being built to connect with a freeway through the center of Trenton; but this is expected to be crowded to capacity as soon as completed. Since the freeway cannot be expanded, a new bridge would have to be built south of Trenton for the traffic from the thousand steelworkers. The cost would run into a number of millions. Similar costs would be incurred in regional highway connections.

The housing demand cannot be met by existing vacant housing in the area, since there appears to have been no effective housing surplus in the region for a number of years. A Trenton newspaperman reports the housing situation in and around the city as "very tight", and the same impression holds for Philadelphia. The present influx of construction workers for the steel mill has all available housing in the Morrisville area jammed to capacity.

The need for new housing in Bucks County involves also new utilities, schools, and other community facilities.
The present municipalities can absorb only a small part of the number of houses needed without providing completely new facilities. Table 3 summarizes the amount of growth each municipality can absorb within its existing structure. The estimates are based more upon general impressions of each town rather than on specific data. The comments in Table 1 form a background for the estimates. The total population which can be absorbed is predicted at slightly under 6000.

The lack of urban facilities in the region implies that housing developments must be on a large enough scale to provide their own utility systems. Especially controlling in the scale of development is the factor of water supply. Existing municipal water systems are limited mainly to the boroughs, as indicated in Table 1, and are not capable of extension without the building of complete new plants. In the townships, where subdivisions must locate since the boroughs are now built up, wells form the only practical source of water outside of full-scale treatment plants for river water (the water in the Delaware River is polluted and requires considerable treatment). For suburban-type subdivisions with lots ordinarily too small for individual wells in conjunction with cesspools, community wells must be used. Where this is done subdivisions are not adequately profitable with under 200 houses.27

A word of explanation is in order of why the new housing demand is regarded as applying to Bucks County rather than to the section of New Jersey across the Delaware River.
from the steel mill. First, no savings due to utilizing existing community facilities would be likely. The City of Trenton itself is built up to the limit; and the growth that has taken place since the war has been in the form of new suburbs requiring new facilities as they were developed.\textsuperscript{30} The only saving in development cost in comparison with Bucks County would be possibly in land prices. Second, more bridges would be required at great cost across the Delaware River, as discussed above.

The Scattered Development Now in Prospect Will Not Meet the Need

Chapter I and Map 7 have indicated the housing developments for which land has reportedly been bought. In considering how effectively these and similar developments which may follow will meet the housing demand, the crucial role of housing costs must first be recognized. Within a limited range of variation housing prices will have a large effect on the size of the market - the number of workers and their families - which can be accommodated. The average wage to be paid in the steel mill is reported by U. S. Steel\textsuperscript{28} as $1.90 an hour, with a range of from $1.31 to $2.86 without overtime. The average steelworker will receive, then, approximately $4000 a year in regular wages; which by the commonly recommended rule of thumb would enable him to buy a $8000 house. Overtime wages and other wage-earners in his family would increase his range of housing expenditure.
A steelworker at the minimum wage would receive an annual straight wage of $2700, implying a $5400 house. Assuming 25 per cent more in overtime pay and an income of half his straight wage earned by his wife, the family income would be $4700, allowing a $9400 house. Wages in the secondary industries may be expected to be somewhat lower than in the steel mill. The current minimum selling price of two-bedroom houses in Levittown on Long Island and in New Jersey suburbs is close to $9000.\textsuperscript{29} It is apparent, then, that variations around this price will have strong effects in determining how many of the workers will be able to afford new houses.

Even if houses in the steel mill area could be sold at the Levittown rate, then, there would still be some workers unable to afford them—especially those with larger families than can be accommodated by a two-bedroom house. The pattern now developing around Morrisville shows indications of incurring significant added costs. The most striking of these indications, the extensive land speculation in the area, has been discussed above. There is a strong presumption that the present $2000 per acre land price level will inhibit large-scale moderate cost subdivisions or at least raise the price of the houses substantially, especially since a large part of a speculative builder's profit comes from the land increment. As an indication of the extent of land inflation, the large New York real estate development firm of Webb and Knapp has been quoted
recently as regarding $1500 per acre for raw land as "high".31

Also contributing to higher housing costs is the scattered pattern of the development. One of the most significant of these added costs comes from the necessity of building water supply and sewerage systems separately for each of the scattered housing developments. Centralized systems would effect major savings, showing directly in sale prices on new houses. The extra cost of school busses for scattered housing groups can be illustrated. According to Pennsylvania law, children living farther than a half mile from their elementary schools must be given school bus service. At $30 per child per year, a typical figure for Pennsylvania32, this cost corresponds to half the interest and amortization on elementary school buildings (at 6 per cent on $30,000 per 30-pupil classroom).

The cost of scattered development in unnecessary road construction shows up most clearly with respect to McCloskey's proposed 1000-unit development 12 miles from the steel mill. As in the case of the traffic on the Delaware River bridges discussed above, there would be 500 trips per day to and from the steel mill, necessitating one more traffic lane each way on Route 1 (assuming the highway to be at practical capacity now, as is probable). McCloskey's development is perhaps 7 miles farther than necessary from the steel mill. At a conservatively estimated cost of $100,000 per lane per mile,33 the total unnecessary cost would be
\$1,400,00 - or \$1400 for each housing unit. The same type of cost, to varying degrees, will be incurred by roads connecting the other scattered housing developments with the industrial centers and each other.

One of the most serious of the housing costs which are likely to result if present trends continue will have to be borne by the workers and their families over future years in the form of inadequate community facilities and a deteriorating living environment. The local governments in the area have neither the organization nor the financing to adjust to rapid growth, in providing community facilities as needed; and the lack of planning controls in the form of building codes, zoning ordinances, and subdivision regulations is an invitation to unprotected and haphazard growth.

Except for Falls Township, which has a "windfall" tax base in the form of the steel mill, the local municipalities will have to provide expensive roads, utilities, and schools with mainly the new housing as a tax base. Business and industrial development may, however, ease the burden in some cases. The inadequacy of lower-priced suburban homes, most of which send children to school, to meet alone their municipal costs in taxes is widely recognized. The new high school now being built in Lower Makefield Township is being financed by a special State authority since the townships using it cannot float the necessary bonds without exceeding their statutory debt limit.\textsuperscript{34}
The partial lack of planning controls in the region has been discussed in Chapter I. Falls and Bristol Townships, where most of the large-scale development is proposed, have no zoning ordinances, subdivision regulations, or (at least for Falls) building codes. Such a situation opens the way for shoddy construction, inadequate utilities, uncoordinated street layout, mixed land uses with business and industry encroaching on residences, and other aspects of development carrying the seeds of blight and a progressively more unhealthy, unattractive living environment.

An ominous note was sounded with regard to the development of an industrial slum in a recent technological journal dealing with the future of the steel industry: "It would be expected that by the mid-1950's another 'South Chicago' will have sprung up on the flat farmland beyond Trenton, New Jersey". 35

New Towns to Meet the Housing Need

It is submitted that the housing for the new Bucks County labor force can be most economically and most satisfactorily provided in New Towns, planned from the start as integrated communities of 20,000 to 25,000 people. While it is not the purpose of this thesis to defend the New Town theory - this having found fairly wide acceptance among planners - a few indications may be given here of the advantages of New Towns for Bucks County. First, as a negative justification, the unnecessary costs of scattered
development discussed above are avoided. On the positive side, development in the form of an integrated community can combine the advantages of a planned neighborhood environment - houses in groups with central elementary schools, neighborhood shopping centers, and parks, arranged so as to give a feeling of neighborhood unity - with the advantages of centralized community facilities such as central high schools, community shopping, and civic centers. Conformity with a general plan still allows development by stages and variety of planning within the general framework; and planning for a mixture of housing types can give a variety and interest lacking in the usual speculative mass subdivision. The final development can be protected against sprawl or encroachment by greenbelts and park strips.

By locating the New Towns in conjunction with industrial estates planned to accommodate the other industries following the steel mill, a double purpose can be served. Homes can be brought closer to places of work; and a permanent tax base can be provided for carrying municipal expenses.

Possible use in site acquisition of the Defense Housing Bill of 1951 (discussed below in Chapter V) can avoid or minimize the speculative land prices now hampering development. With integrated New Town planning using industrial groups as tax bases, further, private developers might be spared the expense of providing utilities and other community facilities. This would encourage development and lower housing prices.

There will be further discussion in Chapter V of how New Town
plans might be carried out. Chapter IV presents a regional plan based on the development of two New Towns.
Map 8 presents the regional plan for the development following the steel mill. The elements of the plan consist of two New Towns integrated with industrial estates; regional highway circulation; and a regional park. The new industrial, residential, and business development is to be channeled mainly into the New Towns, leaving existing land uses on a regional scale otherwise substantially unchanged.

The New Towns

The total new housing demand was estimated in Chapter III to involve 42,000 to 65,000 people, with about 5000 capable of being absorbed into existing municipal centers. It is proposed in the regional plan to meet this demand with two New Towns planned for an ultimate development of 25,000 people each. The two New Towns, instead of a single town capable of gradual expansion to a population of 50,000 or more, are proposed for reasons of implementation rather than because of a conviction that towns of 25,000 people are more desirable than those with 50,000. As explained above, the housing demand will develop gradually, starting with the workers in the steel mill, continuing to rise as satellite industries move in following the steel mill, and finally bringing in the secondary or service workers. The minimum population estimate is considered the more reliable, with the maximum prediction
doubtful or at least developing only in the more distant future. The demand that can be proved with reasonable certainty to exist now and within the time period of the start of new development is for one New Town of 20,000 to 25,000 people.

The 1951 Defense Housing Bill provides for the acquisition of defense housing sites by the Government, together with Government construction of housing and community facilities also if necessary. The Bill, or similar legislation for site acquisition on the State level, as discussed below in Chapter V offers the best opportunity for implementation of a New Towns plan. The site originally acquired and the community facilities originally installed, then, cannot be on a larger scale than the present provable demand. A New Town of 20,000 to 25,000 people is proposed as a first stage in the plan, therefore, to meet this requirement and remain consistent with New Town theory which considers this size as reasonable from a planning standpoint. The first New Town, according to the plan, will be kept to the scale of the site and facilities originally planned by means of a greenbelt preventing further spread. The second New Town will be started after substantially more proved demand has developed than can be met in New Town No. 1 (not necessarily after New Town No. 1 is entirely completed). Although it is not maintained as a principle in this thesis that a New Town of 25,000 is better than a New Town of 50,000, it is claimed that New Towns should be planned for a definite ultimate size, to be reached over a
definite relatively short period of time such as five to ten years and to be ensured by a greenbelt preventing sprawl beyond the planned limit. Only by this means can the long-range success of New Town planning be ensured.

It should be mentioned here, in connection with the relation of the New Towns shown in the plan and the amount of housing demand, that apart from defense restriction considerations there would be a substantial demand for the New Towns above that caused by the workers in the Bucks County area. This is due to people now working in and around Trenton and Philadelphia who would be attracted by the new housing and suburban environment offered. The strong suburban trend around Trenton since the war has been mentioned above. Since housing during the next ten years appears likely to be under defense controls, however, such as "Regulation X" passed in November, 1950, restricting credit on new houses, the primary justification for the New Towns in Bucks County must be on defense grounds. The steel mill and most of its satellite industries will be defense plants, so the justification is sufficient. The potential commuters' demand may still be cited as reinforcing the defense demand with whatever non-defense housing may be allowed.

New Town Design

Since the overall design of each of the two New Towns as shown on the plan is similar, the design elements discussed in this section apply to both. There are 4 neighbor-
hoods of 5000 people in each Town, plus a fifth section which can be used at first for trailers and temporary housing and later, as the need develops, for expansion space for a fifth neighborhood. Assuming an average family size of 3.5 persons per family (a conservative figure) and a gross residential density including streets of 6 families per acre, each neighborhood contains 1420 families on about 220 acres. Adding 20 acres for parks and church sites, each neighborhood comes to 260 acres. The "neighborhood density", as used in PLANNING THE NEIGHBORHOOD\(^2\), is thus 5.5 families per acre, comparing with the standard of 5.2 for single-family houses in 5000-person neighborhoods. The density allowed for in the plan is slightly higher than the standard to allow a certain amount of mixture of housing types, although it is expected that the housing will be predominantly single family.

A central area, enclosed by three main roads, of 90 acres is allowed for the high school, civic center, and central shopping. Further development of commercial and perhaps small-scale industrial uses may be carried out in the fifth neighborhood, which is reserved for temporary housing and future expansion. Two hundred and eighty acres is allowed within the Town proper for major parks and main road development. Outside of the developed Town area a greenbelt is to be formed, as discussed below under Implementation, by State and County action. The greenbelt should extend for at least half a mile from the edges of the Towns.
New Town Siting

In determining the sites for the two New Towns, the first consideration was the need for integrating the Towns with industrial development, both of the steel mill and its satellite industries. This is considered important on three counts. First, the New Towns will need an industrial tax base for the construction and maintenance of community facilities. Second, it is desirable to bring the place of work as close to the home as feasible. Third, since the new development in Bucks County will be due to industry, the industries should and can effectively share in the responsibility of developing and maintaining the New Towns - not as bosses, as in company towns, but as responsible partners.

For the metal-working industries following the steel mill location in integrated industrial estates planned for efficient plant layout, centralized servicing, and good rail and highway access is considered desirable. In accord with the development schedule of the two New Towns, two such industrial estates are proposed for successive development. In considering the criteria for the estates, the area requirements were indicated in Chapter III. Each site must be about 300 acres in area (for flexibility and future development, about 500 acres for each are shown on the plan), and must allow subdivision into blocks at least 600 x 1000 feet or 600 x 2000 feet. There must be direct access to rail and highway transportation. There should be reasonable proximity to the steel mill, both for steel shipping and to allow
one of the New Towns to share the steel mill's taxes. The
two sites chosen, as shown on Map 8, appear to be the best
on these criteria. The site connected with New Town No. 1
has a direct rail connection to the classification yard; is
on both Routes 1 and 13; and is in Falls Township, the munici-
pality in which the steel mill is located. The site shown
with New Town No. 2 is at the junction of two railroads, the
Reading and the Pennsylvania, and has extensive frontage on
Route 1.

The site for New Town No. 1 itself is as close to the
steel mill as is consistent with the industrial estate and
also as is allowed by the topography. Land to the east of
the Fall Line is so flat as to make drainage difficult; the
slope is well under 1 per cent. All but a small segment of
New Town No. 1 is situated west of, or above, the Fall Line
and in a single drainage basin. The site arrangement shown
in the plan allows, further, integration of the plan with
the attractive small neighborhood center of Fallsington.
The Town is almost entirely within Falls Township.

New Town No. 2 is located north of Route 1 for better
integration with the north-south road axis of Bucks County,
and for orientation toward the metropolitan center of Trenton.
Part of the site drains toward New Town No. 1 and can be fit-
ted into its system; the larger part of the Town is in a
single separate drainage basin. There is convenient proxim-
ity to the Reading Railroad, which provides electrified com-
muter train service to Philadelphia.
For water supply the New Towns will have to construct their own systems, at least within the next 12 years. Probably the best opportunity is in a community well system, as now used in the Langhorne-Newtown area. There is said to be ample groundwater in the area.\textsuperscript{3} A treatment plant for river water might be found as economical. Within 12 years, however, there appears to be a good chance that an aqueduct will be constructed through the area connecting Philadelphia with the proposed new storage dam system on the upper Delaware River. The Interstate Commission on the Delaware River Basin ("Incodel") has recommended either a direct main from the upper Delaware to Philadelphia via a reservoir near Newtown on Neshaminy Creek or a main from the Newtown Reservoir fed from a diversion dam 8 miles above Trenton.\textsuperscript{4} The Incodel report refers to the steel mill and its satellite industries as creating a further need for an upland water supply for Philadelphia because of taste and odor problems. It supports the prediction of industries following the steel mill: "...the construction of the new J. S. Steel plant at Morrisville will undoubtedly result in the establishment of many allied industries in the area on both sides of the river between Trenton and Philadelphia".\textsuperscript{5}

The problem of smoke from the steel mill was taken into consideration to a certain extent in the siting of the New Towns. Since a wind rose for the area was not available (several tries were made to obtain one) the direction of the smoke could not be taken into account. New Town No. 1
is located, however, five miles from the steel mill site, which should afford enough protection. Housing development three miles from the Geneva Steel Mill in Utah is reported as not affected by smoke: "No housewife suffers from Geneva's smoke, because she doesn't live near enough".  

Regional Circulation: Rest of the Plan

Map 9 indicates the highway proposals. The route of the Pennsylvania Turnpike extension is assumed on the basis of knowledge that the bill now passing the Pennsylvania Legislature for the extension provides for connection to the New Jersey Turnpike under construction via Janney, which is shown on the western edge of the map.  

The New Jersey Turnpike parallels Route 130, shown on the east side of the Delaware River, a few miles inland. The Pennsylvania Turnpike extension route shown appears to cut through as little developed area as possible while crossing the Delaware at a comparatively narrow point. The relocation of Route 1 from Langhorne to the existing route in Falls Township is proposed in the State Highway Plan, but its route is not definitely indicated. It appears that it could be located so as to form the industrial site shown here.

An excellent opportunity for a regional park is offered by a lake on the Delaware River between the steel mill site and Tullytown, which is located next to the existing State park of Pennsbury Manor. The existing park consists of a replica of William Penn's summer mansion, built as a relief
project during the Depression of the 1930's at a cost of 1/2 million dollars. There are extensive parking grounds, mostly unused; but no other park facilities outside of the mansion and its landscaped grounds. The lake appears to be natural, although it may have been used at one time as a gravel pit. It is at a higher level than the river, maintained by a small dam and spillway constructed as part of an abandoned gravel processing works. There is advertised canoeing and perhaps swimming in it now, the separation from the river probably keeping it free of pollution. The land on the river side is sandy, and suitable for beach development.

Land use in the rest of the area is to be kept the same as existing on a regional scale, with only minor local variations as small amounts of development resulting from the steel mill take place over the region. In concluding this discussion of the regional plan, it may be mentioned that there are indications that at least within the time range of this plan there will not be development other than that due to the steel mill; and so that this plan, although made in something of a vacuum with respect to the surrounding regions, is probably a complete regional plan. The Philadelphia City Planning Commission, in its 30-year industrial land use plan, foresees expansion in industrial area only around Bristol.\(^9\) This expansion will involve, according to the Commission's report, actually a lowering of employment under the wartime number due to a reduction in industrial density. The 1932
Philadelphia Tri-State Plan indicates no intensive future development for Bucks County. Its population forecast for Bucks County in 1950 was 120,000, underestimating the actual 1950 total of 144,000.
Chapter V IMPLEMENTATION

The primary problem in the implementation of the regional plan presented here is the development of the New Towns. The trend in the area now, as explained above, is toward a scattered pattern of relatively expensive housing developments reaching a limited part of the market formed by the new labor force. In order to channel this and further development into New Towns which will be (as is explained in this chapter) within reach of substantially the entire potential population, more than municipal and County planning action and controls will be needed. This is so both because development into one or two concentrated areas by zoning and subdivision controls would require a major political upheaval in Bucks County and because this procedure would allow the owners of land in the concentrated areas to charge exorbitant land prices. In this chapter two approaches to New Town development for Bucks County are suggested: through the Defense Housing Bill of 1951 and through a private development corporation financed by the U. S. Steel Corporation, or possibly by the Government. A discussion of the role of the County Planning Commission in the development of the regional plan is also included.
Industry and the New Towns

There is an initial advantage for New Town development in Bucks County in that industry will be coming into the area before the New Towns are built - first the steel mill, which has already located, and then the agglomerative industries predicted soon. The New Towns can thus be planned so as to have substantial tax bases from the start for the development of schools, roads, utilities, and other community facilities. It was customary in the 1800's and early 1900's for large industries locating in undeveloped areas to build "company towns" for their workers. This arrangement is now socially obsolete. New Towns with the industries providing a tax base are the logical modern counterpart - factory managers and workers, both living in the Towns, partners in the management of local government; and sharing municipal costs both through wage incomes, business activities, and the profits of plant operation.

There are examples of former company towns in which control has now passed to the residents, while the industries continue to bear most of the municipal expenses. In Aliquippa, Pennsylvania, a Pittsburgh region steel town of about 30,000 people, the Jones and Laughlin Steel Company once "dominated the lives of the workers" by its control of the town. Ownership and control is now in the hands of the townspeople, and there are reportedly good relations and co-
operation between the town and the steel company. Jones and Laughlin pays two-thirds of the town's tax bill, from which a model public recreation system has been built.

New Town No. 1 as shown on the plan is located in the same municipality, Falls Township, as the U. S. Steel mill. It therefore automatically has the steel mill as a tax base. All that would be necessary in the legal municipal structure is for Falls to incorporate as a First Class Township, as its neighbor, Bristol Township, has done; the experience of Lower Merion Township in Montgomery County, a large and wealthy suburban area next to Philadelphia, has shown that full urban services can be provided under this form of organization. Incorporation as a borough or city would be difficult under Pennsylvania law, which apparently requires relatively dense initial development over the entire area.

The cost of the steel mill has been reported at from $400,000,000 to $550,000,000, with the higher figure reported more recently and probably more reliable. The Bucks County Assessor's office estimates that the tax assessment on the steel mill - on which the County has final authority - will be about $82,000,000. This compares, incidentally, with the total present assessed valuation in all of Bucks County of $90,000,000. The present tax rate in Falls Township is 49 mills. At half this rate, the return from the steel mill would be $1,804,000. Increasing the operating budget by the ratio of population increase in Falls Township
for the New Town from the present $45,000 to $450,000, and subtracting this from the steel mill tax, there is still left $1,354,000 per year for public capital improvements. Capitalized at 5 per cent on 40-year amortization, there is about $18,000,000 available for the capital improvements. As estimated in George Gatter's M. I. T. thesis, Falls Township could construct all the roads, schools, utilities, and other community facilities in New Town No. 1 for $13,500,000.

The industrial estate forming a part of the New Town No. 1 site would also contribute taxes, as well as providing a source of revenue for the possible private development corporation described below. New Town No. 2 would not have the steel mill as a tax base, but would have to rely on the industry group in its industrial estate. Overlapping Township boundaries as it does, also, it would have to incorporate probably as a separate borough or city. It is anticipated, however, that once New Town No. 1 is well under way to provide an example, the initiation of New Town No. 2 will be enough easier to overcome these obstacles.

It is recognized that steel and its allied industries are particularly susceptible to the effects of business cycles, since they produce durable consumer goods. Although the critical international situation appears likely to prevent a depression for some years, there is a possibility of an eventual crash which would undermine the economic base of the New Towns. The effect would not be significantly more
serious, however, than with a scattered development pattern.

In connection with the use of the new industries as a tax base, it may be explained that the Borough of Morrisville cannot under present laws, expect to expand its boundaries so as to include new industries and so to form the nucleus for a New Town. Annexation of Township land requires a majority vote of all lawful voters; and Township residents are not likely to let Morrisville share their tax windfalls. Morrisville has tried unsuccessfully for several years to annex a section of Lower Makefield Township. Expansion of Morrisville to form a New Town would not be desirable from a design viewpoint, its business district being cramped and not centrally located.

New Town Initiation under the 1951 Defense Housing Bill:

It has been suggested in Chapter III that the Government, having granted a substantial tax concession to U. S. Steel for reasons of the defense program, has a responsibility in the housing of the defense workers brought into the area. Before discussing the means by which this responsibility may be carried out through the 1951 Defense Housing Bill, it may be pointed out that the Government has already some control over new housing in its credit restriction order. "Regulation X", issued in October, 1950, limits the amount of mortgages as compared to the prices of new houses - as for example, requiring a $1900 down payment for an individual on a $9000 house and $2350 for an operative
The controls can be lifted in defense areas by the Defense Production Authority through regional Federal Housing Administration offices. So far apparently only an area in South Carolina has been decontrolled. In releasing the controls in the future, the Government has established a policy of consulting and following so far as possible local planning agencies and plans. Selective credit relaxation could help to some extent into channeling housing from the steel mill into Bucks County New Towns, although this would be only a very partial measure. Regulation X has apparently not impeded housebuilding very extensively in 1951. There is some possibility of further controls this year.

The following discussion of the 1951 Defense Housing Bill is based on the version submitted to the House of Representatives on January 12, 1951. There have been some changes since then, but since the bill has not yet come up for a final vote, the final form cannot be predicted. The chances for the passage of the Bill are recognized as not very promising; but there is some chance, and it is maintained very definitely here that it should be passed.

In general, the Bill sets up a system of controls and Government aid which can make sure that sufficient defense housing and community facilities are provided. Special mortgage insurance is extended for private housing which is
offered for sale or rent under a specified price level ranging around $9000 per unit. In the event that sufficient private development does not take place at this price range, provision is made for the construction of housing directly by the Government. This would presumably include also the provision of lower-cost housing for those workers not able to afford houses at the $9000 level. In the event that local communities are unable to finance the necessary schools, utilities, and other community facilities serving the defense housing groups, the Bill allows the Government to extend loans or direct grants.

The Bill provides a specific opportunity for New Town development. In "isolated or relatively isolated areas", where there would be "speculation or uneconomic use of land resources which would impair the efficiency of defense activities", the bill allows the direct acquisition of housing sites - with the housing itself to be built either by private enterprise, where available, or by the Government. There is no guarantee that the provision would be construed by the administrator to apply to Bucks County, but a good case could be made for it. Five main advantages to the Government in using the Bill to set up a New Town may be cited:

1. Land is made available to builders at a non-speculative price.
2. The cost of private housing is thus reduced and so public defense housing can be kept to a minimum.
3. Since community facilities are to be concentrated instead of scattered, as described in the preceding section, they are more economical and so will cost the Government less.

4. A decent community environment can be provided, since the site will be planned from the beginning.

5. As much public defense housing as must be provided can be mixed with private developments so as to avoid "housing project" segregation.

The procedure in the development of New Town No. 1 under the Bill would involve (after coordination with Regulation X) the acquisition of the site; the drawing of a site plan with close consultation with Falls Township and the Bucks County and State Planning Commissions; arrangement with Falls Township on the financing of public facilities; sale of land to private developers or cooperative groups such as a Steelworkers' Union organization which might effect development economies; and the construction of the necessary public defense housing. The cost could be kept to the amount of site acquisition - 2000 acres at $1500 would be $3,000,000 - plus planning and public defense housing construction. The cost of some community facilities could be offset by land sales; although Falls Township would be expected to provide most of the public facilities and the Government to take most of the loss on land values. It might even be desirable for the Government to give land to private developers with
the provision that the cost of the housing be kept under a certain amount.

For New Town No. 2, and for New Town No. 1, if the 1951 Defense Housing Bill does not pass, the possibility may be suggested of State site acquisition under legislation using the land acquisition provisions of redevelopment legislation as a precedent. Present redevelopment legislation in Pennsylvania as in other states provides for the acquisition of raw land in conjunction with slum clearance in central cities. Although the Pennsylvania law was not available to the writer, it is unlikely that it allows acquisition of land by a city authority of municipal boundaries. Extension of the legislation might allow the City of Philadelphia to acquire the site for New Town No. 2, if it was apparent that substantial numbers of Philadelphia slum dwellers would move there to work in its industries.

The greenbelts could be maintained by acquisition as a part of the Town sites and then leasing for agricultural use. Part of the greenbelts would be suitable for park use. Government site acquisition could be supplemented here by the taking of land by the State for use as a State park. The State Planning Board in Pennsylvania can exercise eminent domain powers for this purpose.17
New Town Initiation by Private Enterprise

The conclusion of the financial study of New Town No. 1 made by George Gatter is that while the development of the Town would not be an attractive investment through normal investment channels, the U. S. Steel Corporation would stand to gain a great deal by investing in a private development corporation. The outlay for U. S. Steel would not exceed $3,000,000, and would be returned at the end of 3 years with a $1,500,000 increment. 96 per cent of the new labor force in the area could be housed, and probably all of the steel workers. Housing costs are assumed to be kept down by such means as prefabrication of some units and the minimizing of land value increment profits. The Steel Corporation would benefit three ways:

1. Housing would be provided for its workers, but not in a "company town" since U. S. Steel's role would be only as the investor in an independently controlled development corporation.
2. The investment, even if not as profitable as Mr. Gatter's rough estimate indicates, would still produce a fair return.
3. Gunnison Homes, a subsidiary of U. S. Steel producing steel prefabricated houses, could be given a substantial boost.

It should be repeated that this analysis assumes provision of utilities and community facilities by Falls Township.
Another possibility for the financing of the venture might be the Government through the Reconstruction Finance Corporation. The cost to the Government would be lower under this arrangement than with direct operation under the 1951 Defense Housing Bill, and could - according to Mr. Gatter's figures - be entirely returned. The political implementation of the project would be difficult, however, as the uneven history of the R. F. C. has indicated.

Two assumptions are necessary in planning New Town implementation by a private development corporation: that the $3,000,000 can be obtained from U. S. Steel or the Government; and that a competent development group can be formed quickly to carry out the project. Both assumptions are difficult to justify. It is felt, however, that this arrangement would be better economically and socially than direct Government development.

The County Planning Commission

The Bucks County Planning Commission is the basic planning agency concerned with the development of the region considered in this study. The implementation of the plan depends to a considerable extent on the effectiveness of the Commission in carrying out its proper functions. The Commission has been formed, although not yet with a permanent staff, and is allowed a reasonably comprehensive scope of action under Pennsylvania law. A list of functions follows,
with their application to the regional plan:

1. Collaboration with the Federal Government or a private development corporation in planning the New Towns; planning for coordination with County roads and other public works.

2. Advising municipalities on zoning and subdivision regulations; and the actual exercise of these controls in second class townships, allowed by law. These powers can be used to prevent extensive development outside of the New Towns, supplementary to Government credit and housing materials controls. There appears to be a definite recognition by local officials in Bucks County of the costs of growth, as well as an apprehension of undesirable social change by many residents. It should be possible, then, to put in zoning controls to prevent mass subdivisions outside of the New Towns.

3. Advising municipalities on public works. This may be important in the development of centralized utilities systems for the New Towns, where the water and sewer lines may have to be coordinated across municipal boundaries.

4. Maintenance of a planning staff for at-cost planning consultant service to municipalities. This is not provided for specifically in the enabling legislation, but should be permissible.
Planning guidance for Falls Township would undoubtedly have to come first from the County Planning Commission staff, plus guidance by the County Government on changing the local government organization to an urban basis.

5. Advisory relations with the State Planning Board, which is authorized by law to contribute up to 50 per cent of the cost of local plans. The State may thus provide staff planners for initial New Town planning. If a four-county Regional Planning Commission is set up, as is now contemplated in the Philadelphia area, the Bucks County Planning Commission would also maintain close relations with this agency.

6. Development and maintenance of a County Master Plan. Although completion of the Master Plan would probably require two or more years, studies should be undertaken on its elements immediately with special reference to the New Towns. Elements to be studied would include broad land use, population distribution, County public facilities, and resource conservation and development.

The effectiveness of the County Planning Commission in obtaining County action in the implementation of the regional plan will depend not only on its own competence but on the strength of the County government. The organi-
zation of the Bucks County government is, together with most other county governments over the nation, a relic of earlier rural times. In neighboring Montgomery County, which has a comparable government, the voters elect three Commissioners plus twelve independent officials and a Budget Control Board, the Commissioners having charge of eleven departments and nine semi-independent Boards. The executive authority is divided, the legislative authority is not clearly separated and defined, and control by party politics is fostered. There is a need for an investigation of such more modern forms of organization as the County Manager plan - which is recommended as the best - so that the Bucks County government can meet the responsibilities of the added revenue and County growth brought by the steel mill.

Conclusion

The plan presented in this thesis is recognized as an ideal plan with probably little likelihood of being carried into effect. This is partly to be expected since the study is a student problem with no official standing. More important, the plan is based on the improbable assumption that there can be a sudden growth of planning leadership and responsibility in this area in which there has been little exercised so far. It is felt, however, that the situation in Bucks County requires drastic action. There is
little point in studying the largely indeterminate sprawl pattern of development which will take place if New Towns are not undertaken, other than to state that there should be local and regional planning guidance. This thesis has attempted to establish the need for New Towns in Bucks County, to set up a physical plan for their development, and to indicate opportunities for implementation which can be taken by planners and public leaders. The purpose will have been accomplished if some contribution has been made to knowledge of the problems and possibilities of New Town development as applied to a currently significant area.
Chapter I

1. The term "New Town" is used in the generally employed planning sense of a new community built according to a basic development plan under unified control. Industry is brought into the plan to make the community as self-sufficient in employment as possible; the design is generally worked out on the basis of neighborhood units; and a greenbelt may be used to keep the town from spreading beyond a predetermined size.

Chapter II

1. TRENTON EVENING TIMES (December 28, 1949).


3. Ibid., p. 236.


6. Isard and Capron, op. cit.


12. Interview with a Lower Makefield Township official, March 6, 1951

13. Mullaney, op. cit., p. 27.

14. Interview with Mr. Simon K. Moyer, Bucks County Commissioner, Doylestown, March 8, 1951.

15. Interview with Mr. David Longmaid, Director, Montgomery County Planning Commission, Norristown, Pennsylvania, March 28, 1951.

16. See Footnote 12.

17. Interview with Mr. Harrison H. Carver, Chairman of the Falls Township Board of Supervisors, March 2, 1951.

18. Interview with Mr. Greenewalt, Bucks County Agricultural Extension Agent, Doylestown, March 8, 1951.

19. TRENTON EVENING TIMES (January 4, 1950).

20. See Footnote 12.


22. See Footnote 18.

23. Interview with Mr. Charles Ford, Director of District 7, United Steelworkers Union, Philadelphia, March 28, 1951.

24. Interview with Mr. John Dyer, Assistant Chief Assessor of Bucks County, Doylestown, March 8, 1951.

25. See Footnote 15.

26. Interview with William H. Howell, Morrisville Borough Secretary, March 14, 1951.


28. See Footnote 23.

29. See Footnote 8.

31. Interview with Mr. Robert Bailey, Chairman of the Morrisville Planning Board, March 13, 1951.

32. See Footnote 12.

33. Interview with Mr. Austin, Public Relations Department of U. S. Steel Corp., New York, February 13, 1951.

34. See Footnote 12.

35. See Footnote 17.

36. See Footnote 12.

Chapter III


2. Doctoral thesis by John Cumberland, Harvard University, 1951; not yet published.

3. Industry groups as defined by IRON AGE magazine (Revised Basic Marketing Data, Vol. 3, 1949): miscellaneous fabricated metal products; metal stamping, coating, and engraving; agricultural machinery and tractors (none predicted); railroad equipment (none predicted); general industrial machinery (none predicted); Shipbuilding and repairing; motor vehicles and equipment; heating apparatus and plumbers' supplies; electrical machinery and apparatus.
4. Interview with Mr. Austin, Public Relations Department of U. S. Steel Corp., New York, February 13, 1951.

5. See Footnote 1.

6. Interview with Mr. Charles Ford, Director of District 7, United Steelworkers Union, Philadelphia, March 28, 1951.

7. Interview with Mr. Lou Calvenelli, staff member of the Mercer County Planning Board, Trenton, March 6, 1951.


9. See Footnote 1.


11. Interview with Mr. Joseph Scanlon, former Research Director of the United Steelworkers Union and now at M. I. T., March 30, 1951.


13. Interview with the secretary of the Mercer County Industrial Development Commission, Trenton, March 6, 1951.


17. Model Town problem, City and Regional Planning design course, M. I. T., Fall 1949.


19. See Footnote 15.

20. See Footnote 11.


22. Interview with Mr. James S. Y. Lawrence of the Trenton Times, Trenton, March 6, 1951.

23. See Footnote 11.

24. Interview with Herbert Smith, Chief of the New Jersey State Planning Section, Trenton, March 6, 1951.

25. See Footnote 22.


27. Interview with Professor Henry Paynter of the M. I. T. Civil Engineering Department, April, 1951.

28. See Footnote 4.


31. Quoted by Mr. George Gatter of M. I. T.

32. Interview with Mr. David Longmaid, Director, Montgomery County Planning Commission, Norristown, Pennsylvania, March 28, 1951.
33. Based on estimates given by Professor Bone in the Transportation Engineering course at M. I. T., Spring Term, 1950.

34. Interview with a Lower Makefield Township official, March 6, 1951.


Chapter IV


2. American Public Health Association, Committee on the Hygiene of Housing, PLANNING THE NEIGHBORHOOD (1948), Table 14, Title III, sec. 301.

3. Interview with Mr. Palmer of the Stockham Realty Company, Morrisville, March, 1951.


5. Ibid., pp. 1-2.


11. "Comparative County Data", PENNSYLVANIA PLANNING, vol. 10, no. 5 (August 1950), Table I.
Chapter V


2. Interview with Mr. David Longmaid, Director, Montgomery County Planning Commission, Norristown, Pennsylvania, March 28, 1951.


6. Interview with Mr. John Dyer, Assistant Chief Assessor of Bucks County, Doylestown, March 8, 1951.


11. See Footnote 2.


14. Ibid., Title II, sec. 201-203

15. Ibid., Title II, sec. 204.

16. Ibid., Title III, sec. 301.
EXISTING CIRCULATION

MAJOR HIGHWAYS

NOW PLANNED

D. K. BOORMAN  M. I. T.
PRESENT GROWTH TRENDS
HIGHWAY CIRCULATION PLAN

SECONDARY HIGHWAY

MAJOR HIGHWAY

TURNPIKE

D. K. BOORMAN M. I. T.
<table>
<thead>
<tr>
<th>NAME AND TYPE OF GOVERNMENT</th>
<th>1950 POPULATION</th>
<th>CHARACTER</th>
<th>WATER AND SANITAGE</th>
<th>PLANNING, ZONING, BUILDING CONTROLS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upper Makefield Township</td>
<td>1,407</td>
<td>Rural; some estate and wealthy large-lot development.</td>
<td>Individual</td>
<td>Restrictive zoning ordinance: 2 residence zones, frontages 200 ft. and 100 ft.</td>
</tr>
<tr>
<td>Yardley Borough</td>
<td>1,943</td>
<td>Older frame houses mostly for commuters; congested neighborhood shopping.</td>
<td>Private water company; from wells. No sewerage.</td>
<td>None reported*</td>
</tr>
<tr>
<td>Lower Makefield Township</td>
<td>3,217</td>
<td>Rural, with growing wealthy suburban-commuter development near river.</td>
<td>A small section served by water from Morrisville. No sewerage.</td>
<td>Zoning: 2 residence zones, 75 ft. and 50 ft. frontages.</td>
</tr>
<tr>
<td>Morrisville Borough</td>
<td>6,770</td>
<td>Combined industrial, commercial, suburban development - all on relatively small scale. Congested central shopping; one semi-slum section, one wealthy subdivision. New small-house development; but space for only 300 more.</td>
<td>Municipal water system now at capacity; from river. Sewerage about to be constructed.</td>
<td>Zoning ordinance; active Planning Board working on improvements from expected revenue following the steel mill.</td>
</tr>
<tr>
<td>Falls Township</td>
<td>2,364</td>
<td>Rural - flat, open farmland. Small, picturesque neighborhood at Fallsington.</td>
<td>Individual</td>
<td>None</td>
</tr>
<tr>
<td>Tullytown Borough</td>
<td>648</td>
<td>Squalid &quot;ghost town&quot;, extinct since the closing of a W. W. I govt. arsenal.</td>
<td>Individual</td>
<td>None</td>
</tr>
<tr>
<td>Bristol Township (First Class)</td>
<td>12,117</td>
<td>Rural, except for large W. W. II aircraft plant and war housing, and some new small-house development.</td>
<td>A small section served by water and sewers from Bristol.</td>
<td>No zoning, may have building code. New Planning Council formed.</td>
</tr>
<tr>
<td>Pennsalem Township</td>
<td>11,372</td>
<td>Rural except for strip of industry, residence, and some commuter development along river.</td>
<td>None reported*</td>
<td>None reported*</td>
</tr>
<tr>
<td>Hulmeville Borough</td>
<td>859</td>
<td>Older rural non-farm houses</td>
<td>None</td>
<td>None reported*</td>
</tr>
<tr>
<td>Pennell Borough</td>
<td>1,100</td>
<td>Local industry; highway shopping center; lower-income housing.</td>
<td>Municipal water from wells; no sewerage.</td>
<td>None reported*</td>
</tr>
<tr>
<td>Langhorne Manor Borough</td>
<td>781</td>
<td>Wealthy large-lot houses; commuting to Philadelphia.</td>
<td>Municipal water from wells; no sewerage.</td>
<td>Zoning ordinance</td>
</tr>
<tr>
<td>Langhorne Borough</td>
<td>1,574</td>
<td>Middle-class to wealthy houses; commuting to Philadelphia.</td>
<td>Municipal water from wells; no sewerage.</td>
<td>Zoning ordinance</td>
</tr>
<tr>
<td>Middletown Township</td>
<td>4,971</td>
<td>Rural; scattered suburban houses.</td>
<td>Individual</td>
<td>Building code</td>
</tr>
<tr>
<td>Newtown Borough</td>
<td>2,085</td>
<td>Pleasant older small regional shopping center.</td>
<td>Municipal water from wells; no sewerage.</td>
<td>Zoning ordinance</td>
</tr>
<tr>
<td>Newtown Township</td>
<td>1,012</td>
<td>Rural</td>
<td>Individual</td>
<td>None reported*</td>
</tr>
</tbody>
</table>

* Indicates not likely on basis of incomplete data.
## Table 2

**Estimates of New Population in Bucks County representing demand for new housing**

<table>
<thead>
<tr>
<th></th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steel mill labor force (announced)</td>
<td>4,900</td>
<td>4,900</td>
</tr>
<tr>
<td>Labor force in agglomerating industries following the steel mill into Bucks County</td>
<td>5,900</td>
<td>11,400</td>
</tr>
<tr>
<td>Total new industrial labor force</td>
<td>10,800</td>
<td>16,300</td>
</tr>
<tr>
<td>New service workers (ratio 1:1)</td>
<td>10,800</td>
<td>15,300</td>
</tr>
<tr>
<td>Total new labor force</td>
<td>21,600</td>
<td>32,600</td>
</tr>
<tr>
<td>Total Population (ratio 47 per cent)</td>
<td>46,000</td>
<td>69,000</td>
</tr>
</tbody>
</table>

Note:
Sources and derivations are given in the text.
<table>
<thead>
<tr>
<th>Municipality</th>
<th>1940 Population</th>
<th>1950 Population</th>
<th>Increase</th>
<th>Per Cent Increase</th>
<th>Estimated Growth Capacity Per Cent Over 1950</th>
<th>Growth Numerical</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upper Makefield Twp.</td>
<td>950</td>
<td>1,407</td>
<td>457</td>
<td>45</td>
<td>20</td>
<td>280</td>
</tr>
<tr>
<td>Yardley Boro</td>
<td>1,459</td>
<td>1,943</td>
<td>484</td>
<td>33</td>
<td>--</td>
<td></td>
</tr>
<tr>
<td>Lower Makefield Twp.</td>
<td>1,841</td>
<td>3,217</td>
<td>1,376</td>
<td>75</td>
<td>20</td>
<td>640</td>
</tr>
<tr>
<td>Morrisville Boro</td>
<td>5,493</td>
<td>6,770</td>
<td>1,277</td>
<td>23</td>
<td>15</td>
<td>1,020</td>
</tr>
<tr>
<td>Falls Twp.</td>
<td>2,364</td>
<td>3,538</td>
<td>1,174</td>
<td>50</td>
<td>10</td>
<td>350</td>
</tr>
<tr>
<td>Tullytown Boro</td>
<td>562</td>
<td>648</td>
<td>86</td>
<td>15</td>
<td>--</td>
<td></td>
</tr>
<tr>
<td>Bristol Twp.</td>
<td>5,857</td>
<td>12,117</td>
<td>6,260</td>
<td>107</td>
<td>10</td>
<td>1,220</td>
</tr>
<tr>
<td>Bristol Boro</td>
<td>11,895</td>
<td>12,690</td>
<td>795</td>
<td>7</td>
<td>--</td>
<td></td>
</tr>
<tr>
<td>Bensalem Twp.</td>
<td>7,276</td>
<td>11,372</td>
<td>4,096</td>
<td>55</td>
<td>10</td>
<td>1,140</td>
</tr>
<tr>
<td>Hulmeville Boro</td>
<td>694</td>
<td>859</td>
<td>165</td>
<td>24</td>
<td>10</td>
<td>90</td>
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<tr>
<td>Pennsau Boro</td>
<td>921</td>
<td>1,100</td>
<td>179</td>
<td>19</td>
<td>10</td>
<td>110</td>
</tr>
<tr>
<td>Langhorne Manor Boro</td>
<td>477</td>
<td>781</td>
<td>304</td>
<td>64</td>
<td>10</td>
<td>80</td>
</tr>
<tr>
<td>Langhorne Boro</td>
<td>1,221</td>
<td>1,574</td>
<td>353</td>
<td>29</td>
<td>10</td>
<td>160</td>
</tr>
<tr>
<td>Middletown Twp.</td>
<td>3,136</td>
<td>4,971</td>
<td>1,835</td>
<td>58</td>
<td>10</td>
<td>500</td>
</tr>
<tr>
<td>Newtown Boro</td>
<td>2,009</td>
<td>2,036</td>
<td>77</td>
<td>4</td>
<td>5</td>
<td>100</td>
</tr>
<tr>
<td>Newtown Twp.</td>
<td>816</td>
<td>1,012</td>
<td>96</td>
<td>12</td>
<td>10</td>
<td>100</td>
</tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5,790</td>
</tr>
</tbody>
</table>