PLANNING FOR THE FRINGE
AREA OF BRISTOL, VIRGINIA

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Submitted by

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Dear Professor Adams:

In partial fulfillment of the requirements for the degree of Master in City Planning, I submit this thesis entitled "Planning for the Fringe Area of Bristol, Virginia."

Respectfully,

Paul S. Dulaney
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I INTRODUCTION

This is a study of suburban sprawl. A brief examination will be made of the general rural-urban fringe problems which several hundred cities in this country have come to share in common; then the study will focus on the particular sprawl of a specific city. As the basis of a program of planned expansion a survey of the physical, social, and economic characteristics of this city will be presented. From this a suggested plan will be evolved in ideal form. Next, a further stage of the survey will consider the legal, financial, and administrative institutions which influence the plan. Finally, the concluding section will examine the means available for bringing the plan into being, and recommend a program for action. An adjunct of this study is an analysis of a classic accessory of city planning, the greenbelt, and its application at the plan stage.

The urban nucleus of this particular sprawl is Bristol, Tennessee-Virginia. It is a city with a population estimated at 35,000 in 1949 and is still sprawling actively as of that year. It is not satellite to a larger city, though it shares its sphere of influence with two others of comparable size. Bristol's unusual position on a state boundary line, which has been the cause of much administrative complexity, is not
a concern of this study. This thesis, in its effort to develop a practical program for harmonizing suburban and rural types of land use, will concentrate on the Virginia portion of the city; a necessary assumption is that the Tennessee side will have the benefit of planning methods which can result in a co-ordinated plan for the entire city and its environs.
II. THE PROBLEMS

A leading land economist has pointed out that the three most critical land problem areas in the United States each occur in the transition territory between major types of land use.\(^1\) These transition zones are between arable farming and grazing lands, between farming and forest lands, and between built-up cities and farms; land use maladjustment in these three areas is manifest in the "dust-bowl", the "cut-overs", and the "rural-urban fringe". Of these crises the first two are quite clearly the results of blind violation of the natural principles of land use; the ultimate remedies are known though the means are yet far from adequate: the Great Plains country must be put back into grass and left that way, and the forest soil of the cut-over land must be returned to forest cover wherever it proves incapable of supporting farming at subsistence level. It is with the third transition crisis that we are here concerned: the land use maladjustment consequent to urban explosion into the countryside, that to-day prevails on the peripheries of all or most of the 3,413 urban communities in the United States as well as some 13,000 smaller incorporated places.

\(^1\) The Rural-Urban Fringe - G. S. Wehrwein
What are the problems and difficulties of the rural-urban fringe areas? There is one set of problems induced by subdision that is premature and in excess of need that involves economic losses to the community in a variety of ways. There is loss of service of the land, loss of time and labor of the subdivider and his personnel, loss of capital invested on improvements, and the losses due to the disruption of economic relations in the community consequent to speculation. The studies that have been made for metropolitan areas and satellite cities in New York, Michigan, and around Chicago reveal past platting orgies that are wholly out of proportion to actual need and which bear little or not relation to the market. In boom times virtually every developer in every suburban settlement based his sales plans on the reservoir of a million or more potential buyers, and each operator hoped through his own particular combination of imagination and aggressiveness to draw enough of these to populate his own development tract. There is small wonder that the total result was a number of lots aggregating several times the number actually needed, in the case of Chicago enough to meet the demand for thirty years into the future assuming a rate of population increase equal to the rate of the previous thirty years. There has been little research in the field of sub-dision activity around a small independent city (25,000 to 50,000 population) to relate the supply of
subdivided lots to the possible demand; it is improbable that the excesses have been so grotesque, yet it is evident in many places that they have been extensive.

There are other prevalent fringe problems, social as well as economic, and their roots do not necessarily lie in subdivision excess but in such things as the lack of proper administrative jurisdiction, indifference to considerations of location and neighborhood facilities, and the inferior layout of streets. Where development occurs beyond the city limits it suffers frequently from the inability of the rural government to supply essential services, and the city suffers a loss in its tax base. Where uncontrolled development takes place within the corporate limits the city is confronted with a cost of providing utilities that is unduly increased by the scattered location of the various subdivisions. Rural types of land use are given so little consideration that tracts which are inherently best suited for cultivation may be preempted for buildings; when the farmer's lands are taxed more heavily without corresponding benefit to him he cannot afford to compete with the urban type of land use and must move out. There sometimes is practiced a "dumping" of nuisance uses on the rural landscape, uses which are adjuncts to the city but which are not permitted within the city; the unwelcome results are unsightliness and decline of surrounding property values. Almost always there is attenuated ribbon development,
commercial and residential, along the highways which diverge from the city. Such development denies the primary purpose of the highway as a circulation artery: it impedes traffic flow, adds to traffic danger, and is an obstacle and added cost to future highway improvement.

All of these physical and economic maladjustments have their echoes in social implications. The social losses are more difficult to measure but their importance is not thereby diminished. The string of houses along the highway is a long way removed from the ideal living environment; the scattered habitations in the arrested areas cannot support necessary neighborhood facilities; the clustered settlement without municipal services and protection is a potential or actual slum.

These, then, are the common fringe problems, and most of them are experienced by several thousand municipalities in this country. It is pertinent now to examine the Bristol, Virginia fringe in order to determine which of these difficulties are important locally.

First the physical area of the local fringe should be determined. The urban fringe has been defined as the "active expansion sector of the compact economic city".  

2. Elements in the Urban Fringe Pattern - R. B. Andrews
It is more than this, however, for it must certainly include those arrested areas which after a short burst of active expansion have lapsed into a weed-growing status without ever becoming part of the compact economic city. In a study of Portland, Oregon the political boundary of the city is taken as the inner limit of the fringe in the "belief that the principle difficulties in the fringe arise from the attempt to carry on a distinctly urban development without the benefit of recognized political controls and facilities". But in the case of Bristol that inner limit does not apply; that city has "bought" 2.43 square miles of these principle difficulties in its 1942 annexation. Much of this area, notably the West Bristol and Kingtown sections constituted a fringe in full flower at the time of acquisition; seven years later they are still afflicted with most of the "principle difficulties", and consequently, Bristol's fringe problems are largely, for the time being, within the city limits. Any generalized definition of a rural-urban fringe seems to have shortcomings when it is applied to a particular place.

The determination of the area to be considered in this study was made after a field reconnaissance of the Bristol periphery. There exists a fairly well defined edge of

3. Land Use Control in the Urban Fringe of Portland, Oregon - F. Arpke
compacted urbanization; this is taken as the inner limit of the fringe area and is indicated on plate 1. Beyond this line there are some small sections which are filled up with small houses, but these are rural in character and in deficiency of utilities. The sections of arrested development, which are not in an active expansion state, occur outside of this inner limit; they are within the realm of the present study. No definite outer limit has been established but consideration will be given to the furthest development that is accessory to the city and to the character of the land beyond.

Plate 1 shows quite clearly the two settlement clusters which had previously agglomerated outside of the old city limits to the east and west. These were parasitic to the city which offered employment opportunity; they grew under county aegis and paid county taxes. Even now their only urban attributes are the street grids. Sanitary facilities are mostly of the privy type. A third smaller residential cluster, similar to these in character, fans out from Commonwealth Avenue to the north.

In the past four years there has been widespread building activity in the interstitial spaces. The wedge between West Bristol and Commonwealth Avenue was long in a condition of arrested development; it was replatted in 1935 but not until 1946 was there much actual construction. Belated city
attention to recreation needs has now provided a large playfield near the center of this section. The recent West Bristol Heights construction, on and near Randolph Avenue, consists of moderate-priced residential boxes, trim in appearance, unimaginative in design, and monotonously laid out in regimented rows. Fortunately a strip of open land remains adjacent to the industrial district along the Southern Railroad branch to the east.

From the northern edge of the West Bristol Heights sub-division west to the Gate City Pike the sloping land is pocked with a few scattered dwellings; some of it is under cultivation, but more lies fallow or is covered with scrub forest growth. Though Boone, Lewis, and Clark Streets are shown on the map they are not easy to discover on the face of the land; these blocks have a pioneer quality that makes the street names appropriate but the houses lack the solidity of log construction. The soils on these hillsides are inherently poor in some places and are severely damaged by sheet erosion in others.

Along the Gate City Pike there is a ribbon of cheap houses which extends from the end of State Street to the city limits and beyond. Island Road, which skirts the northern periphery of Bristol, has the appearance of a country road except where the urban flow has come through on the low land near Commonwealth Avenue. East of here
Island Road passes through a narrow valley which is screened from the city by a ridge of wooded knobs.

South of these knobs to the edge of the built-up city the area between Commonwealth Avenue and the Lee Highway is developing as a higher income residential section. Sullins College has yielded the land west of Piedmont Street for subdivision; existing houses are mostly out near the city boundary to the west of the Lee Highway: out to Meadow Drive the area is about 95% vacant. In appearance this section presents no problems. Yet it is fully subdivided and is predominately vacant and out of use.

Along the Lee Highway (U.S.11) conditions are surprisingly good. At present this is the most heavily travelled route entering Bristol, but future plans call for by-passing through traffic to the north-west. The road is free from commercial agglomerations for some two miles beyond the corporate limits; in general this is a suburb of larger estates. Just within the city boundary a few lots have been laid out to face on the highway.

Between the Lee Highway and the Norfolk and Western Railroad an extensive subdivision of 100 foot lots has been filling in rapidly with small houses down to the extension of Valley Drive. Southward there is a steep hill which remains unpopulated except for a small shacktown settlement on the bluff overlooking the N. and W. roundhouse. Across the tracks is another bluff, recently acquired by the city
for a park. The remainder of the space between the railroad and Beaver Creek is now zoned for industry to the city line and future residential use is prohibited; the single factory now located here is, with its generous open surroundings, a credit to the nearby residential neighborhoods.

East of Beaver Creek the Old Abingdon Pike is another typical country road except where a new subdivision is now opening up at its intersection with Valley Drive extended. Small houses on 75 and 100 foot lots are materializing here although the subdivision is still about 90% vacant. The soil hereabouts and beyond to the city limits is rated as first class but has been considerably eroded; the flat valley which extends northeastward to the old airport is marked by first and second class soils with widespread sheet erosion and very little intensive cultivation or habitation.

And so concludes a descriptive reconnaissance of the Bristol, Virginia periphery. It has disclosed a preponderance of vacant lots in the subdivisions; in the following section of this study this situation will be examined more thoroughly and in relation to anticipated population growth. The reconnaissance has shown scattered farming and gardening activity in the fringe, not always on the land best suited for cultivation, while other good land lies idle. There is no evidence of dumping of nuisance uses; Bristol's industries are well provided for within the city and with proper planning can be screened from or harmonized with the residential
sections in accordance with the nature of the industry. Ribbon development is a problem along some highways in the Bristol fringe: small houses too close to the road and too close to each other. In the annexation area it is obvious that the former rural government was unable to supply essential services. It is also apparent that the city is having difficulty making good these deficiencies, but it is only fair to point out that the annexation was consummated in 1942 and that war-induced restrictions on construction have intervened. Lastly, considering the scattered locations of the various subdivisions, there can be no doubt that the city is paying for the lack of means of controlling subdivision quantity and location in the increased cost of utilities.
The Region and the City - Economic Background

Situated near the center of the Southern Appalachian region, Bristol is in the central valley and ridge section between the Cumberland coal plateaus to the west and the Blue Ridge mountains to the east. It is between the north and south forks of the Holston River, which together form the northeasternmost reach of the Tennessee River drainage system.

For the purpose of establishing a framework for a more localized study it is useful to examine the extensive area of the larger region. Physiographically the Southern Appalachian region embraces the entire mountain area south of the Mason-Dixon line. Much, but not all, of the area is characterized by rugged terrain and poor agricultural land. In comparison with the United States as a whole the living standard is low: there is a high natural rate of population increase and insufficient economic opportunity within the region. Yet, except in the coal plateau section, there has been spectacular growth in manufacturing during the past thirty years. In the decade after World War I the relative increase in numbers of persons employed in manufacturing was greater than in any other major region of the United States. Moreover, during the depression manufacturing
employment held up far better than over the country as a whole. The trend toward industrialization has continued and has been given further impetus by the T. V. A. program.

This mountainous expanse is far from homogeneous; there is much diversity within it. There is the Appalachian Plateau which stretches westward from Virginia. This is rough country with a low agricultural potential. Manufacturing is insignificant and likely to remain so. But it is underlain by a wealth of coal and has been thickly settled as a result of mining enterprise. During the early thirties the lack of any other considerable field of opportunity was the cause of acute distress not approached anywhere else in the nation.

On the eastern edge of the region there is the Blue Ridge section. As a narrow ridge these mountains stretch down from northern Virginia; they widen out to become the Great Smokies of Eastern Tennessee and western North Carolina. Although there is a plateau section of farming productivity the chief natural resources are forests and scenery. The Blue Ridge country is sparsely settled and much of it is now in national forests.

A third physiographic division of the Southern Appalachians is the Appalachian valley and central ridge section, which lies between the Blue Ridge and the escarpment of the coal plateaus in a narrow ribbon streaming
southwestward from the fertile Shenandoah, down across Tennessee, trailing off into the coastal plain in Alabama. This central valley has, in many places excellent limestone soils which are suited to intensive cultivation.

The Valley of Virginia provided a natural route to the west which was extensively travelled by the early pioneers. Indian possession of the lands deterred permanent settlement until just prior to the Revolutionary War. At about that time a fort and trading post was established on the site of the present city of Bristol. The County of Washington was formed in 1776 with Black's Fort, now Abingdon, serving as county seat and regional center of trade and culture. The future site of Bristol continued in a stockade status, then as a country estate and iron works; not until 1852 did an alert farmer with an eye for speculation visualize a town there. Railroads were then approaching from both directions in the valley. This rural real estate operator bought a tract of one hundred acres where the railroads were surveyed to meet, subdivided it into 1/4 and 1/2 acre lots, and advertised a land sale. Into the deeds he wrote a restriction against the sale of alcoholic liquors, this requirement being considered "necessary for the peace and prosperity of a city". In due time he secured a town charter, founded a bank, and became mayor.
In 1856 the two railroads, later to become the Norfolk and Western and the Southern systems, both reached Bristol. With the completion of this important steel nexus to both the industrial north and the gulf coast Bristol's industrial era was apparently at hand. The interests of the region were not directly involved in the War between the States and the tides of battle flowed mostly around the highlands; yet the region furnished many combatants to the South and it suffered with the rest of the South in some twenty years of stagnation.

Although there was little manufacturing until the nineties, lumbering activity commenced about 1870 in Washington County and continued as an important industry until exhaustion of the best commercial timber in the twenties. There is still timber on the ridge tops and steeper slopes; small scale operators are today cutting away at this to the inevitable detriment of the soil and water table. Following the clearing of the fine hardwood stand through the main valley, stock raising and intensive cultivation have become the main economic activities of the county.

Exploitation of the coal lands along the western boundary of Virginia began on a large scale during the last decade of the century. In 1890 a railroad was driven through from Bristol to this high-grade bituminous area a hundred miles to the west. In this same year Bristol achieved city status
and became independent of Washington County government. During this decade industrial growth was greatly accelerated.

The causative factors of industrial location are important to a planning study; historical examination of these can give the clues to the future industrial prospect for a city and hence to an estimation of future population and economic conditions. Of course the railroad is of prime importance: it provides the access to both the markets and the raw materials. Britols's first industries drew on lumber, coal, and iron. It is interesting that today Bristol's largest concern, the Universal Moulded Products Company, and two other important ones, Columbian Paper Company and the Schieren Tannery are wood products industries; the local forests are gone but these factories draw on the wood resources of other parts of the south. In the southern industrial expansion of recent years the reservoir of labor available at low wages has been a large factor, particularly in the textile industries. Bristol's second largest manufacturer is the Big Jack Overall Company; the Grey Hosiery Company employs several hundred persons, and there is also a weaving mill and a knitting mill in the city. A considerable addition to the Bristol industrial scene, providing further diversification of manufacturing, is the Monroe Calculating Machine Company, which has built a modern plant there since the war, an expansion of their New Jersey
facilities. This is the third largest plant in the city. It was designed for an optimum number of operatives and it is intended that its payroll will remain stabilized with about 500 employees. In this case the labor supply was apparently the major influence in situating in the south; the selection of Bristol as a specific location was brought about by the availability of a tract of large acreage having rail and trucking access. It is questionable if the low wage rates and relative weakness of union organization are given undue weight in the managerial considerations of location when it is a matter of such considerable capital outlay in establishing a substantial modern plant in a new place. These factors are transitory and will be modified with increasing industrialization of the area. Of more importance probably is the quantitative aspect of the labor supply: it is inexhaustible in the predictable future. The managers maintain that they have there good labor, more productive labor, and easily trained skilled labor.

In addition to the manufacturing establishments already mentioned other important ones in the city include a mine car factory, steel and iron works, a drug company, and a plywood concern. There are also some small food processing concerns which draw on local agricultural produce. The picture cannot be completed without mention of the neighboring Tennessee cities of Johnson City and Kingsport. Each of these is about twenty-five miles from Bristol; both are expanding
industrial places which offer labor exchange possibilities as fluctuating conditions may warrant.

The wholesale and retail establishments of Bristol serve an extensive hinterland. On the Tennessee side this trade area is constricted to a radius of about fifteen miles or so by the domains of Johnson City and Kingsport; nor does much in the way of trade come out of the mountainous section to the east. But through a sector from northwest to northeast Bristol commands a tributary hinterland out to some fifty miles. The counties of Washington, Scott, Russell, and Smyth, with a total population of over 120,000 in 1940, constitute the nearer part of this commercial dominion.

The economic relation of Bristol with the rural people is more as a seller than as a buyer. The city's role as a produce market is not large. Burley tobacco, an annual million dollar crop in Washington County, is auctioned at Abingdon and Johnson City. Much livestock is shipped from local points direct to northern buyers, although Bristol does have a stockyard. Abingdon is more important as a dairy product center because of the condensing plant there. Bristol might well better her position by the provision of improved marketing facilities, as this would in turn lead to increasing retail sales. Regardless of this the city, by virtue of its size and consequent greater selection of goods for sale, is an important purveyor to the needs of the farmer. Thus the economy of Bristol is connected to the well-being
of the rural people, and the citizens have a greater stake in the soil than they realize.

The four Virginia counties in the Bristol trade area all normally rank within the first twenty-five of the one hundred counties in the state in total value of farm products sold. Of them Washington is the most important agriculturally, ranking usually about tenth in the state. There is a large subsistence element in the farming; greater than any single cash crop is the estimated value of farm products consumed on the farm. The most important cash crop of Washington County is tobacco; next, in terms of value of agricultural products sold are field crops, then livestock. The raising of livestock for sale and for dairy produce has been increasing. In terms of gross farm income per capita the area ranks low relative to the nation, as does the south in its entirety. However, with a proportion of tenancy of about 25 per cent of all farms, the percentage of owner operated farms is higher than for the United States as a whole.

The City - Population Growth and Characteristics

Appendix I is a competent population study made locally in 1944. This survey points up the difficulties in foreseeing local fluctuations in migrations within a region. One thing is fairly certain: that the high rate of natural increase throughout the Southern Appalachians will continue
and result in a large population surplus for many years in the coal country as well as in the rural areas in general. This will cause a continuing flow of people to places outside of the region; this tide of out-migration will be diminished to the extent that the local cities expand industrially and provide jobs. The appendix lists on page ten both those factors which favor continuation of the past rate of growth in Bristol and the factors which would tend to reduce the future rate. The following facts are presented as a post-war footnote to this appraisal: the Universal Moulded Products Corporation converted its war plant for the manufacture of radio cabinets and continues as the largest industry in Bristol; the other major wartime factory, the shell-loading plant, was not converted and has discontinued operation; a new plant, the Monroe Calculating Machine Company has been established since the war.

There can be no accurate check on the population forecasts shown in Appendix 1 until the 1950 census, and this present study finds no grounds for making other than a slight adjustment in the estimate that is recommended for planning purposes. In view of the present thriving condition of the city the total 1970 forecast for the two Bristols is raised from 48,000 to 50,000. This added increase of 2000 persons is allotted wholly to the Virginia part of the city because: 1) there is a greater area of land there suitable for development, 2) a majority of the industry is on the Virginia side, and 3) in the Tennessee
suburbs now being developed there is a prevalence of more expensive houses and larger lots, and this further reduces the land that is available there for higher density housing.

In the low proportion of foreign-born people and of non-white population, both Bristol and Washington County are characteristic of the Southern Appalachian region. In 1940 the nonwhite percentage was 3.7 for the county and 10.7 for Bristol. This follows the typical regional pattern in regard to the higher percentage of colored people in the city relative to the rural country. Foreign-born population throughout the section is a negligible proportion of the whole. Segregation of residential districts in Bristol and the smaller towns is apt to follow economic lines to perhaps a greater extent than racial lines. Although there are shantytown areas where the poorest of the colored people are found grouped together, there are also districts of well-kept, though inexpensive, houses where non-white families of somewhat better income are interspersed with whites of about the same income level.

An Appraisal of Land Subdivision in Bristol

A general picture of the existing land use pattern of the Bristol outskirts was presented in the reconnaissance description which defined the local problems. The extent and character of urban type land utilization in 1943 is shown on plate 1 and the population distribution appears on plate 2. The predominant dwelling type in Bristol (to
the complete exclusion of other types in the fringe area) is the detached single-family house. The resultant low density is quite in evidence on plate 2; the two small areas of conspicuously higher density than the rest of the city are public housing projects of three story apartments. The pronounced scattering of dwellings on the periphery is also clearly shown on this map.

An important step in making a plan for the urban periphery is the determination of the quantity of land to be reserved for residential use. As a guide for making this determination an appraisal of past land subdivision in Bristol will be made here. Vacant subdivided land is extensive; it is relevant to relate the supply of vacant lots to the estimated population growth.

Appendix 2 lists chronologically the subdivisions in the fringe which have been recorded since 1900. Since the population forecasts have been made from 1943, the data for vacant lots is also compiled for that year; in the table all subdivisions recorded since 1943 are tabulated as one hundred per cent vacant as of 1943. Thus computed, vacant lots total 1938, which at an estimated local average of 4.5 persons per family, would provide for about 6300 persons in detached houses. On the basis of the population forecast chart in Appendix 1, this increase of 6300 to a total population of 21,200 in Bristol, Virginia will be realized in 1964. If the assumption of an additional 2000 increase between 1943 and
1970 (as surmised previously in this study) is made, then the 21,000 population will be attained in 1961. Thus there is now sufficient vacant subdivided land to take care of anticipated growth for at least twelve years, and this assumes that all of this population increase will be housed in detached single family dwellings and that there will be no increase of residential density in the built-up areas through the use of new multi-family dwellings.

The filling in of these subdivisions which has taken place subsequent to 1943 has been noted, but this can give no clue to the accuracy of the above estimate because there is no way of checking the actual population for 1949 against the forecast for that year. However, to give visualization to the degree and location of this filling in, the approximate percentage of vacant lots in the more recent and the reactivated older subdivisions is given in the end column of the Appendix 2 tabulation. This information is also shown graphically on plate 3, which relates the decade of platting of the various subdivisions to the percentage of 1949 vacancy.

The twelve year estimate of subdivision in advance of need considers only the quantitative aspect of the potential demand for building sites; it does not take into consideration the differential demand from families of various income levels. The extensive section just north of the city between Sullins College and the Lee Highway has a type of development and high cost of land which would preclude as purchasers those people below about the top ten percent in income. A total-
ization of the 1943 vacant lots in this area, including Lee Heights, Spring Garden, Virginia Heights, and Crescent Site subdivisions, reveals that 418, or thirty percent of the total supply of vacant lots were in this high class section. The "filtering down" process might justify a somewhat larger market for high cost lots and homes. However, there is a pronounced prevalence of this same class of development on the Tennessee side of the city and there is a greater number of expensive houses already under construction there. In Virginia the most active filling in during the past few years has been happening in the small house projects such as Columbia Heights and West Bristol Heights, with Virginia Heights and Spring Garden remaining virtually at a standstill. It would seem valid to infer, therefore, that the subdivided vacant land in the highest class sections is sufficient for the demand of this particular market for at least twenty-five years.

Yet it does not necessarily follow from this supposition that there is less than a twelve year backlog of vacant lots in the small house subdivisions. Of the 6300 population increase which theoretically can be accommodated on existing lots a substantial proportion must undoubtedly be of the low-income base. Bristol along with the rest of the country is situated somewhere this side of paradise; there is a large mass of people who cannot afford decent housing.
The "filtering down" process will operate to provide for some of them, but that is a slum-breeding method of provision. The low economic level of a substantial number of the present fringe dwellers is one of the underlying causes of some of the more serious of the fringe problems. The questions of where these families should live and how they can be housed must somehow be solved if a decent living environment is to be created in all sectors of the city's edge. The immediate point to be stressed here is that this large group of people, and others like them who will be drawn toward the city in the years ahead, are not potential buyers of the subdividers' lots and the builders houses; at least they are not potential buyers if the lots and houses are to meet acceptable standards and have city amenities.
IV THE PLAN

"In the first creative stage, ignore the existence of the elaborate illogicalities that are our cities. This gives you a criterion, a backbone, a vision. Then you can take account of what the past has overlaid on these essentials to see which of them you can still use."^4

The Criterion

In the plan phase of this study the criterion is the greenbelt concept. In the garden cities of Ebenezer Howard this scheme of providing spacious open land as a permanent surrounding for an urban area was directed toward: 1) limiting the size of the city to a selected optimum by confining areal growth, 2) making an undefiled rural environment readily accessible to city dwellers, and 3) assuring nearby agricultural land for perishable food supply. In the experimental greenbelt communities built in this country during the thirties by the Resettlement Administration the principle was applied on a smaller scale chiefly for the purpose of providing a pleasant stabilized rural environment for a dormitory suburb. A fourth possible objective of the greenbelt as applied to a particular place might be as an aid in natural resource conservation; this could be valuable as a means of demonstration even though microscopic in

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4. Factors in Community Reclamation - Albert Mayer
relation to the overall national conservation picture.

Which of these purposes should be objectives of the Bristol greenbelt? The maintenance of a well-kept rural landscape at the city's edge rather than a no man's land of unstable conflict between urban and rural land use is hardly debatable. The pushing back for a short distance of the agricultural land which produces perishable food is not commercially detrimental to a small city; however, part-time farming is a significant way of living in the local pattern, and ample acreage of suitable soil should be preserved for this use within a reasonable distance of the city. The conservation aspect of the greenbelt has possibilities in such institutions as community forests and experimental farms; the city man's stake in the land, so obvious from the overall viewpoint of national economy and so little acknowledged on the local scene, should by some means be expressed and demonstrated.

There remains to be considered the first objective of the greenbelt: the limitation of the size of the city to a selected optimum by confining areal growth. In theory, when the population has reached a design limit another city is started at some distance, separated from its urban parent by a permanent agricultural belt several miles wide. This study cannot presume to decide on the "best size" for Bristol; such a decision would be arbitrary, there is as yet no full body of scientific data to support a determination as to precise size. Yet the need is apparent for an
"urban fence" to terminate quite definitely the straggl-
ing feelers of city spread and to guide consolidation of the city appurtenances within. The question is how to designate an effective fence without dictating an ultimate limitation of size for the city.

The Vision

The sketch plan for the Bristol, Virginia fringe is presented on plate 6. It is essentially a recommended land use pattern; the circulation network has been adapted from the master road plan developed by the city planning commission. Time limitations have precluded the collection of survey material adequate for a well crystalized plan. The plan, therefore, should be regarded as preliminary, suggesting the character of desirable development. As such it can furnish the groundwork for an action program.

Recognizing a distinction between development for suburban living for full-time city workers and the part-time farming pattern which cannot support municipal services and thus should not be absorbed into the city, the plan establishes an "urban fence". It is intended that this is to be the limit of the suburban development and that a completely rural landscape is to prevail beyond this fence. An attempt has been made to resolve the question posed above in regard to the location of the urban fence. A tentative fence is proposed on the basis of a population of 25,000 for Bristol, Virginia in 1970; a portion of the greenbelt is designated
as reserve land for possible future residential use. The success of directing the low-income city workers either to the part time farming districts or to an economical type of group housing within the city will modify the demand on suburban residential land. The most important factor cannot be drawn into the plan; it is the continuing re-evaluation of the plan with the passing of time, the adjustments and modifications which need to be made with changing conditions.

It has already been mentioned that the major road plan made by the local planning commission has in general been adopted as the communication network in this sketch plan. The most important highway in this network is the peripheral road to the north of the city; this is one of several proposed locations for the U. S. 11 by-pass, and for the purpose of this study it will be assumed to be the accepted one. It follows closely the existing Island Road. At present both feeder roads into the city and provision for transverse circulation outside of the center of the city are inadequate but these are well provided for by the major road plan.

Existing industrial locations are well established along the railroads and are included in this plan. Present zoning provides for a well distributed pattern of neighborhood shopping centers. The sketch plan is then resolved into a consideration of agricultural, residential, and recreational uses in proper balance.
In the allotments made for agricultural uses the plan considers the nature of the soils with reference to the published soil survey for Washington County, which relates the physical factors of soil character, degree of slope, and condition of erosion, then superimposes them on a map to produce a three factor chart. The soil survey classifies the soils into five categories depending on composition and type of terrain. As a step in the preparation of the sketch plan a simplified presentation of soil conditions on the Bristol periphery has been made; this appears on plate 5. This indicates the areas of the fifth class, suited only for forest growth, those of the fourth class which are generally adaptable for grazing but not for cultivation of crops, and those of the first class which are the best farming lands. The two intermediate classes comprise crop lands ranging from poor to good.

The greenbelt includes the rough knob terrain west of the city and along both sides of the proposed route 11 by-pass to the north; it presumes the consolidation of this land into county or community forest since it is suitable for neither commercial or part time farming. To the east the greenbelt comprises the broad rolling valley north of King's Mill Pike as well as some more ridge land near the state line. The valley land, now under little use, is suitable for dairy farming or perhaps for an experimental farm; much of its soil is in need of repair. Within the greenbelt considerable acreage is reserved for future
residential use: the slopes north of West Bristol and the area to the southeast of the Kingstown district are both suitable sites which are not proving adaptable to successful farming. From the greenbelt proper green wedges are shown extending toward the city in a number of places, notably along the two industrial districts which penetrate the fringe.

A prerequisite to further refinement of the plan would be the preparation of an economic land classification study such as have been made for some other counties in the state by the Virginia Agricultural Experiment Station. A shortcoming of these surveys is that they establish their "urban fence" to coincide with the boundaries of corporate places. This is artificial from the viewpoint of overall optimum land use and it evades the very problem which this study is trying to solve. At this stage our plan has the advantage of an ideal atmosphere and is unconcerned about the "overlaid illogicalities". The many limitations inherent in the existing order are discussed in the concluding sections of this report.
Local Government

Although it is a single city in physical unity, Bristol has had to function under two governments, with a consequent duplication of departments throughout. It is obvious that inefficiencies and waste are inherent in such a setup. This study cannot concern itself with the details of this special complication; it must suffice to observe that the palliatives lie in increased co-operation and in special state legislation to permit as much unification as possible. Quite useful are the basic studies and plans made with the assistance of the Tennessee State Planning Board. These have given a common frame of reference for the two local planning boards, consistency to the two zoning ordinances, and the basis for the organization of a unified sewer system.

Of importance to this study is the unique relationship between cities and counties in Virginia. First class cities are completely independent administratively from the counties in which they lie, and they normally constitute a separate judicial unit as well. This city-county separation has obvious advantages in the simplification of local administration. The county legislative body, freed from concern with urban matters, is thus enabled to deal with rural problems in a more specialized way. However, where rural and city interests are in conflict there is no local unit of government which comprehends both viewpoints.
Apparently it is the intent of the Virginia statutes that the usual area of conflict, the rural-urban fringe, should be under city administration. The means of bringing this about are more readily available than in most states. Annexation of territory by cities in Virginia is accomplished by court order. An annexation suit is brought by the city against the adjoining county before a special court composed of the circuit judges of the county and city involved and a third judge from another circuit who is appointed by the State Supreme Court. The city requests a definite extension of its corporate limits; the court may award territory as thus defined, or may change the boundaries of the area to be annexed in accordance with its findings, or it may deny the entire proposed annexation. In reaching a decision the court is bound by certain considerations. The proposed area must be contiguous to the city and constitute with the city a reasonably compact body of land; it must be adaptable to municipal improvements, must be urban in character or needed by the city for city development within the reasonably near future. Further, there must be shown a community of interest between the city, and the area proposed for annexation. The court is enjoined to view the proposal from the viewpoint of the state, the city, the county, and the territory to be annexed before declaring the annexation to be "necessary and expedient". 
Although any interested person is entitled to a hearing before the annexation court, the Virginia annexation procedure might be criticized because it does not conform to the home rule doctrine in that the people in the area to be annexed have no vote in the matter. Concerning this, an authority on metropolitan government states his opinion that "while the people of every unit of local government have a right to govern themselves, their right does not carry with it the right to veto such changes in the boundaries of local units as the interests of the larger community require...The greatest enemy to the right of local self-government is the perpetuation of situations in which local units are unable to supply the services and facilities essential to modern living." 5

Toward the end of protecting the interests of the county and of the annexation area, the municipality, after approval by the court of the annexation, must fulfill certain requirements. It must assume a just proportion of county debts and compensate the county for utility investments, for schools, and for other public buildings. It may not increase the tax rate already existing in the annexation area for five years, and must, for the same period of time, expend for public improvements within the area an amount not less than the total taxes and fees collected therein; an alternate allowed

5. Progress in Metropolitan Integration - Thomas H. Reed
in lieu of this last requirement in a public improvement program for the area, the scope of which is based on a percentage of the assessed valuation of real estate.

To summarize the planning implications of these two special attributes of local government in Virginia; city-county separation emphasizes the specialized characteristics desirable in urban and rural administration; the annexation policy implicitly recognizes that suburban growth should be within the administrative province of the city.

Since 1920 Bristol, Virginia has operated under the council-manager form of government. The city council is composed of five men elected at large, and they select one of their number to serve as mayor. The council appoints the city manager, a few other city officials, the school board, and the city planning commission. The Commissioner of Revenue and the City Treasurer are elective offices, while the Judge of the Corporation Court is appointed by the state legislature. The Department of Public Works and the police and fire departments are under the city manager, who appoints the personnel associated with these departments.

Although the county manager form of government has been authorized for Virginia counties since 1932, this plan has been adopted by only a few counties and these are in other parts of the state. Farming regions are traditionally conservative and reluctant to make changes in their established institutions. Washington County still operates under
the usual, rather uncoordinated form of county government. The governing body is the board of supervisors, elected as the representatives of seven administrative districts. These districts, which also correspond to the school districts, are rather obsolete affairs. They were originally determined as areas of more or less equal population, but they now show considerable variation in this respect.

Having made the manager or executive plan of government available to any county which votes it in, the state has taken further steps toward increasing efficiency in the administration of rural services. Single counties are frequently unable to support adequately certain essential services: two or more counties may now jointly operate these. Washington County has thereby an arrangement with adjoining Smyth County for the operation of a combined health department. Virginia was one of the first states to consolidate all road construction and repair under the state highway department, which maintains a service yard and engineer's office in each county. The removal of this office from county jurisdiction has served to eliminate waste and simplify accounting.

**Taxation and Revenue**

Any planning study must take into consideration the sources of local government revenue, expenditures, tax rates, and the extent and location of tax delinquent land. In
Bristol, as in other cities, the largest single item of revenue is the real estate tax; in the past two years it has yielded approximately 27 percent of the total municipal revenue and in the current fiscal year it is estimated to furnish more than 31 percent. If all state contributions and shared taxes are lumped together the revenue received from the state will amount to almost as much this year, or 29 percent of the whole; state aid for education accounts for almost half of this. The remaining 40 percent of city revenue is derived from a variety of sources, with water rent and licenses and fees each yielding about 10 percent of the total.

Since 1930, expenditures for education have averaged about one third of all municipal outlay. Examination of the current budget and the records for the past two years and comparison of these with the annual disbursements made during the 1931-1940 decade reveals, in terms of percentage of total expenditures, that the salient changes have been a relative increase in expenditures for both schools and public works and a reduction in the relative outlay for debt service, which formerly ran as high as 37 percent.
The following is a summary of appropriations allotted to each department for the 1948-1949 fiscal year:

<table>
<thead>
<tr>
<th>Department</th>
<th>Percent of Total</th>
<th>Approximate Expenditures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education</td>
<td>36</td>
<td>$339,000</td>
</tr>
<tr>
<td>Public Works</td>
<td>24</td>
<td>226,000</td>
</tr>
<tr>
<td>Debt Service</td>
<td>13</td>
<td>120,000</td>
</tr>
<tr>
<td>Welfare</td>
<td>10</td>
<td>97,000</td>
</tr>
<tr>
<td>Police and Fire</td>
<td>9</td>
<td>91,000</td>
</tr>
<tr>
<td>General Government</td>
<td>6</td>
<td>56,000</td>
</tr>
<tr>
<td>All others</td>
<td>2</td>
<td>21,000</td>
</tr>
</tbody>
</table>

The city budget for the fiscal year 1948-49 requires an increase in revenue of more than ten percent or nearly $100,000 over the previous year; about two-thirds of this increase is calculated to come from real estate tax, with the aid of an increase in the tax rate from $2.60 to $2.85 per hundred dollars of valuation. In Washington County there is a wide variation in the tax rates because the effects of the different levies made by the magisterial districts and the towns are superimposed on the basic county tax rate. Accordingly, in 1946, the rates ranged from $2.10 to $4.50 within the county, the Goodson District adjoining Bristol having a rate of $3.00. Comparison of the Bristol city rates with the rural rates makes it evident that the assessment standards are substantially different.
Data assembled by the state Department of Taxation in 1942 indicated a ratio of assessed value to sales value of 20.2 percent in Washington County and 53.7 percent in Bristol. Adjustment for these ratios reveals an actual real estate tax in Bristol almost two and one half times as great as that prevailing just beyond the corporate limits.

Real estate tax delinquency does not present a serious problem for either Bristol, Virginia or Washington County. In 1942 the year-end delinquency was 6.7 percent for Bristol and 2.6 percent for the county. However, the long-run delinquency for the ten year period from 1933 to 1942 was trivial: the county realized 99.4 percent of all levies and Bristol collected 103.9 percent (including penalties and interest). An organized land policy for a city should include a program for the acquisition and use of tax forfeited land and such a program would require the accurate mapping of tax delinquent lots. As the statistics just presented do not indicate that this program for Bristol would bulk large in the overall land planning picture, the mapping of these lots has not been attempted in this study.

Planning Legislation

If one had to judge by the apparent planlessness of the typical unkempt Virginia city one would not be aware that there were any statutes on the books to give the cities control over their physical structures or direction to their own growth. In actuality there is considerable planning
enabling legislation available to these cities and counties and most of them have made a beginning toward putting it to use. There is provision for zoning by cities, towns and counties; there is provision for subdivision control by municipalities both within their limits and beyond; and there is provision for planning on a regional basis. In the following paragraphs there will be made an examination of those instruments for planning which have been adopted by the Bristol, Virginia council and those which are available by state legislation but are not yet in use locally.

The city planning commission, constituted of five members appointed by the council, has been in existence for about ten years. A zoning ordinance was adopted in 1942. The fringe area within the city limits is predominantly in residential use zones, being about equally divided between the classifications of R-1 (single family) and R-2 (two family) zones. The zoning map appears as plate 4. There is no provision for multi-family dwellings in the city outside of the built-up area. The original map shows three neighborhood shopping districts within the fringe and later amendments have provided four additional ones. One of these (at Valley Drive and the Lee Highway) has been nullified by a court decision holding that a deed restriction for residential use only cannot be overridden by a zoning ordinance permitting a "lower" use. Future industrial use was limited by the original map to a strip of vacant land along
the Southern Railroad branch on the edge of West Bristol heights. The arrival of the Monroe Calculating Machine company on the Bristol scene in 1946 was followed by the rezoning of the area between the Norfolk and Western tracks and Beaver Creek for industry, providing in addition some 45 acres of reserve industrial land extending from the Monroe plant to the city line.

This land was taken from residential use by the rezoning, and it is bordered at present on two sides by residential districts; it is now zoned M-2 (heavy industry). The new plant there actually enhances the neighborhood; it is attractive in appearance and it provides the amenity of open space in the extensive recreation ground maintained for the plant workers. This is not an accidental circumstance, as the board of zoning appeals has discretionary control over the type of industry permitted. In effect, any use beyond those accepted for M-1 (light industry) is a special use requiring individual consideration by the board. Residential use is altogether excluded from this zone.

In 1936 the state legislature authorized the appointment of a county planning commission by the board of supervisors of any county. The creation of the planning commission is not mandatory, but when one has been appointed it is "the function and duty" of the commission to make and adopt a master plan. A county zoning enabling act was passed in 1938 permitting zoning "for the purpose of promoting health,
safety, order, prosperity, the conservation of natural resources, and the general welfare". The statute is broadly worded and would seem to allow ordinances of the character of those in effect in Wisconsin and other states according to the individual needs of the county. Area within incorporated towns is excluded but provision is made for co-ordination with the zoning ordinances of such towns and also of adjacent cities and counties. There is nothing in the act to require that a zoning ordinance be related to a master plan, or to make the existence of a master plan prerequisite to the adoption of a zoning ordinance. Nine Virginia counties have adopted comprehensive zoning and a tenth has in effect strip zoning along primary highways. Washington County is not among the ten.

The Washington County planning commission has no master plan. A proposed highway zoning ordinance, which would have required setbacks and provided use zones along primary roads, was recently rejected by the county board of supervisors. Since the inception of a planning commission the board of supervisors has followed the practice of appointing the board of directors of a county development organization to the commission en masse rather than making a selection of individual citizens.

The basis for subdivision control as it has heretofore been applied in Bristol has been the city charter. This instrument requires approval by the council of all plats before they may be recorded. In theory this gives the
council considerable discretion in the matter of qualitative standards. The weakness of this system is that councils are subject to political pressure; the Bristol suburban landscape attests that any standards referred to have not always been of the highest order. At present the proposed plats are referred to the planning commission and the city engineer before approval. The planning commission advises as to conformity with the zoning ordinance in regard to minimum lot size; the engineer analyses the layout in terms of economy and practicability of utilities and may ask for a replat on that basis.

Subdivision control by ordinance is permitted to towns and cities over the territory within their boundaries and also beyond the corporate limits to a distance which varies according to the size of the municipality. This extraterritorial control is not effective until approval by the county board of supervisors.

Early in 1949 the Bristol, Virginia planning commission prepared a preliminary draft for such an ordinance "to regulate and assure the orderly subdivision and development of land within the corporate limits of the city...and within a distance of three miles therefrom." The requirements concerning submittal of preliminary and final plats, standards for lots, and street layout are similar to the usual ordinance. Where neither water nor sewer connections are provided the minimum lot size permitted is 20,000
square feet; if either water or sewer connections are provided, but not both, the minimum allowable lot size is 10,000 square feet. However, within the city limits, it is proposed to require the subdivider to install all utilities, sidewalks, surfaced streets, and accessories in accordance with accepted city standards. As of May 1949 this proposed ordinance has not yet been submitted to either the city council or the county board of supervisors.

Since the 1944 Virginia has provided for the creation of regional planning commissions. The act grants authority to the governing bodies of adjacent political subdivisions to form such a commission. The boundaries of any region so formed would necessarily follow county lines. The State Planning Board has published a "Suggested Plan for Regional organization and Planning". Suggesting that Russell, Scott, Smyth, and Washington Counties and Bristol city would appear to form a logical region, the board has tentatively designated this group as Region 25 and has published a pamphlet of a survey nature to provide a starting point for regional organization. Local action would be necessary to bring such an organization into being. Some advantages advanced for the regional commission are that it would make practicable the employment of a technical staff without excessive cost to any political subdivision for the assistance of local planning commissions; further, that it would provide a closer working arrangement between municipalities and surrounding counties, and co-ordinate the programs of the indi-
individual political units.

Locally, in Bristol and Washington County, there has been no action directed toward achieving a regional organization under this legislation. However, many of the same advantages have been available through the local assistance program of the Tennessee State Planning Commission. The ease with which this system has worked in the case of Bristol is noteworthy in view of the usual frustrations which are caused by state boundary lines. The staff of the regional office in Johnson City has assisted in making the basic studies for the Bristols and in the preparation of zoning and subdivision control ordinances for those cities as well as Abingdon in Washington County. This assistance has been especially valuable in unifying the work of the two Bristol planning commissions. For this help contributions are made by the Virginia municipalities to the Tennessee State Planning Commission. The Tennessee Valley Authority must also be mentioned here for it has had a vitalizing effect on local planning throughout the area and its technicians have co-operated with the state commission in the basic planning which has been done for the Bristol community.

Community Organizations

Of significance in a rural land use program are certain institutions whose position is favorable for instigating planning methods at the grass roots. The county agent is a
person of importance in the farming community; he is a man of technical training who is respected and listened to by the farmers. His activities in carrying out the state agricultural extension program are mostly concerned with improving farming practice on the individual farm, but his station as a source of instruction marks him as a key in the promotion of broader programs.

The soil conservation district scheme is an unusual government technique whereby zoning on a small scale for land use improvement is initiated and administered by the farmers themselves. Its shortcomings are due to its loose relationship with kindred Department of Agriculture programs, notably that benefit payments, supposedly to reward the application of conservation measures, are unrelated to the district setup and are made through another bureau within the department. In Washington County there is no organization of soil conservation districts, nor can there be under existing conditions. Before the Congress established the Soil Conservation Service in 1935 the Tennessee Valley Authority had already inaugurated its own soil conservation program in co-operation with the extension services of the Tennessee Valley states, and they have continued to carry on this program, which is based on technical advisory assistance to farmers and promotion of demonstration farms.

Non-governmental rural organizations too have a place in the planning program. A few miles across the line in Tennessee farmers in the Holston Valley community recently
became concerned about the possibility of detrimental and haphazard commercial intrusion following on the completion of the T.V.A. dam nearby. Through their community association these people enlisted the assistance of the regional office of the Tennessee State Planning Commission. A zoning ordinance has been drafted which would restrict the division of the large farms, provide setbacks along highways, and confine commercial use to certain districts. This ordinance will be presented to the next session of the County Court. Its chances of approval are excellent because it has been carefully presented to the citizens of the community at a series of meetings and they are almost unanimously behind it. It is "their" program. Just up the valley in Washington County another community will be confronted with similar problems when the basin is flooded. These people have been invited to the Holston Valley meetings; the idea may spread and a movement for protection by zoning instigated there by the people. In contrast to this approach, when the Washington County highway zoning ordinance was presented to the board of supervisors, they felt that it was something being slapped on them from above, that the rights of their constituents were being infringed upon, and they rejected the ordinance.
Program effectuation is the crucial and most difficult chapter of planning. This is true of all urban planning, and it might be expected to be even more difficult when the plan involves, as here, an effort to reconcile urban types of land use with rural interests in a unified program. The possibilities for achieving and stabilizing the recommended land use pattern lie in the co-ordinated use of these tools: 1) public ownership, 2) the police power, 3) education and technology, 4) taxation, and 5) state and national programs. In this concluding chapter the potentialities of each of these instruments will be examined for the purpose of determining to what extent each should be applied.

Public Ownership

The greenbelt theory was predicated on public or single ownership of all the land involved. Many are convinced that extensive public ownership is the only real remedy for city chaos. The need for enabling legislation to simplify land purchase by local government units has been stressed so that municipalities may acquire "over a period of years for city planning purposes and for prevention of speculation as much land as may be required to give them effective control of their destinies."6 The city of

6. Public Ownership and Control of Urban and Suburban Land - W.D. Heydecker
Stockholm has its destiny in hand to-day because foresighted and civic minded leaders saw to the acquisition of large land reserves on the periphery of the city fifty years ago. In this country there are two main barriers to municipal ownership of land reserves: public opinion and the financial straits of the cities.

But a good case can be made to show that the supposed barrier of public opinion is largely fictitious. Is it not conceivable that what is essentially public indifference has been injected with the virus of prejudice by certain minority interests that have a selfish concern opposed to community ownership? These interests contend that municipal ownership is not in keeping with the "American Way". Yet a probe into the history of our cities discloses that this attribute of the "American Way" legend is a recently acquired one. The archetype of American democracy is the colonial New England town. The tradition of common land ownership inherent in the management of those towns was carried over to a later day, and during the nineteenth century many of our cities possessed land reserves acquired by grant. How many cities and towns can show cases in their past of such ownership fully accepted by public opinion of the day? And subsequent dissipation of these holdings for short term profit? In 1872 Bristol actually went into the real estate business. The town acquired a tract of land, comprising about a third of the
total area within the town limits, subdivided it, and sold the lots. This was done eighty years ago to the end of collecting some quick cash; why should not it be done today to the end of diverting speculative profits to the long run benefit of the whole community? If the full picture of the precedents and the potentialities of municipal land ownership were presented to the public, there would perhaps be no barrier of opinion against it, and whatever may be needed in the way of enabling legislation would follow as a matter of course.

Whether or not the barrier of public opinion is a falsely constructed bugbear, there can be little doubt that the obstacle posed by the inability of the cities to foot the bill is one of stern reality. Faced with steadily increasing costs of government, most cities are hard put to provide the usual services from the revenue resources which are available. Until there is a general overhauling of the municipal tax revenue system nothing much can be expected in the way of acquisition of land reserves by local government units without state or federal financial assistance. It is being attempted in rare instances: in California, San Mateo County has set up a land acquisition fund from recurrent annual tax levies; Kingsford, Michigan is attempting to reduce suburban scatter by exchanging lots, using as barter a backlog of lots acquired by tax forfeiture; the end result of this program is
intended to be a consolidated municipal reserve of the vacated areas which could be used as a greenbelt.

Bristol, Virginia operates on a hand-to-mouth budget. The lack of a long range capital improvement program not only precludes a rational schedule of land acquisition, but also tends to make other planning efforts ineffectual. As tax delinquency is not a serious problem in Bristol, a program there for bidding in foreclosed lots and consolidating them by trade or by sale in purchase would be extremely slow in materializing something resembling a greenbelt; yet a thorough analysis of this prospect would be worthwhile as part of the groundwork for the comparison of all possible schemes. Though Washington County tax delinquent lands are also a very small percentage of the whole (2.6 percent of the total assessment in 1942) it is believed that a careful scrutiny of the tax books will disclose that most of this delinquency occurs on knob land, where occasional farmers have had a brief fling at trying to grow corn on forty percent slopes or stony ridge tops. Here might be the foundation for a county forestry program. Northern Wisconsin counties have become heir to large tracts of forest land, mostly through tax forfeiture, and they are encouraged to manage them by a small annual per acre payment from the state. Since 1940 Virginia has had enabling legislation which authorizes the purchase by counties, cities, and towns of land for community
forests and makes available nursery stock and technical assistance through the state conservation commission. Community forests have long been a reality in many parts of the country, but the Virginia municipalities and counties will apparently need some further incentive in the way of financial aid before they become the proud and willing owners of forest land.

Control Under the Police Power

That the quality of the physical layout of subdivisions can be improved by ordinance has been demonstrated, but this instrument does not get at the heart of the matter. Some means of regulating the quantity and location of building lots is needed to really solve the problem. The application of the public utility concept, whereby a certificate of convenience and necessity would be required of the subdivider, would be the most direct means of attack, but the legal basis of public interest in suburban land has not been unequivocally established. In the meantime the requirement that the subdivider provide all utilities and surfaced streets should serve as a check on the quantity of subdivided land and remove some of the speculative element. As the city takes over the maintenance of those items it must enforce a standard of quality in the original installations. The cost of utilities will be prorated among the lots and passed directly to each purchaser; and this is as it should be.
Can the city guide or regulate the location of subdivisions? Potentially under the public utility concept or perhaps by the evolution of suitable tax measures, and more immediately there are possibilities in the extension of zoning, but there seems to be no way to do this effectively under existing mechanisms. Within the city limits of Bristol this is now rather an academic question for subdivisions in the furthest corners of the city have already been recorded.

The problem of zoning in regard to suburban areas was once stated as "how to bridge the gap between the most intensive use for which provision is made in Wisconsin rural zoning ordinances and the least intensive use characteristic of developed urban centers." Since this statement was made there have been many efforts to bridge this gap and fancier and more complicated zoning ordinances creating a variety of exotic sounding use districts have gone down on paper. As the ordinances become more variegated and profligate in the conjuring up of use districts is there not more likelihood of their being considered arbitrary by the courts? Rural zoning had its inception in crisis; the northern Wisconsin counties used this invention in a most simple and direct manner to achieve a well-defined end. The problems were special, but the approach is worthy of emulation. The various areas were classified according to the best future land use and

7. Land Reserves for American Cities - H.S. Buttenheim and P.H. Cornick
to the type of public program most likely to bring about and stabilize this land use; then zoning was fitted into the picture and two, or at most three, use districts were designated.

Washington County has special problems, too, and they must be afforded individual consideration. Whatever is done within the corporate limits, Bristol will continue to fray at the edges and unravel her workers' houses into the countryside until the people of the county realize their share in the problem and do something about it. County zoning is an indispensible part of a program for bringing order to the fringe area. Until it is effected, additional controls within the city will only accelerate the jumping over of city-spawned agglomeration into the unrestricted sections beyond the city limits. Today lots twenty-five feet wide are being laid out and sold along the Gate City highway outside of the city. In Virginia, counties traditionally oppose the annexation suits of the municipalities because, when they lose territory, they suffer diminution of their tax base; yet they allow the sprawl to begin again and that in turn must lead someday to another annexation. It is the writer's contention that foresight, timely action, and bold legal measures by the county can put an end to this process. As long as Bristol has room to grow within its limits its growth should be confined therein.
The idea of extra-territorial subdivision regulations, now under contemplation in Bristol, is not compatible with the results of the plan phase of this study. The proposition herein entertained is that, due to the unique separation of city and county and to the facility of annexation, conditions in Virginia are unusually opportune for attaining compact urban development within the city and preserving distinct rural character beyond; and that the main problem, not yet met squarely by any of the cities, is to stabilize this desirable balance. However, the acceptance of an ordinance to regulate future subdivisions outside of the city, condones the continued suburbanizing of the countryside. There is the further problem of getting county acceptance of this control in view of the county attitude toward annexation mentioned above, because regulation by the city would emphasize the prospect of future inclusion of these areas within the city. Lastly, the only feature of subdivision regulations that might restrict to some extent the quantity of subdivided lots will be lacking outside of the corporation limits because the city cannot require installation of utilities by the subdivider throughout such an extensive area; if the city presumed to make such requirements it would eventually be faced with unreasonable demands for the extension of its trunk lines.
The formulation of a zoning ordinance for Washington County would require as groundwork an amount of technical research that is beyond the scope of this study, but enough problems have been examined herein to warrant some tentative suggestions concerning the type of use districts necessary. Subject to the disclosure of more widespread abuse of land than is now evident in the rural sections, the supposition is made that the county agricultural program is the most desirable means of dealing with local agricultural land use maladjustments; therefore, it is proposed that an unrestricted use district should comprise the entire county with the exception of that part within two miles of Bristol and those lands bordering on primary highways. The belt contiguous to Bristol should be zoned as farming land and a minimum tract size of ten acres is necessary to the achievement of the greenbelt plan. Although the attitude of the courts toward such a lot size restriction has not been definitely established, there are now ordinances in effect elsewhere which establish minimum lot areas as high as ten acres. It is proposed that along highways setback lines be imposed and that use districts be designated for roadside business, and that future commercial use and all advertising be prohibited outside of these districts; provision for expansion of these zones under economic necessity could be made. Whether a

8. The Districting Plan of Orange County, California
   L. D. Tilton
ten acre minimum lot size restriction along highways would have judicial support is not known. Residential service directly from a main highway is a parasitic use of a public utility, it is not in accord with the intended use of the highway, and it is not conducive to public safety. In consideration of these factors some way should be found of restricting it, whether by zoning or by regulations promulgated by the state highway department limiting access to the highway.

**Education and Technology**

Education as an element in a planning program cannot be completely isolated from the other planning instruments because it is so essential to the acceptance and successful application of all of them. Certain phases of the total program such as the county agricultural activities depend entirely on education and the application of science and technology to effect improvement in land utilization and to promote natural resource conservation. The role of education in presenting the case for municipal land ownership has already been suggested. Its role is equally vital to the effectuation of the police power controls, in creating an atmosphere favorable for the acceptance of county zoning to the end that the ordinance will be administered to accomplish the desired results. In a broad sense it is also important to the planning idea that the people should know more about their local government and take more of an interest in it than they now do.
Taxation

Taxation is theoretically acceptable as a control device and is considered defensible when it promotes the general welfare, when it is the best means of achieving the objectives sought, and when the resulting social gains exceed the loss in revenues which it causes.\(^9\)

Regulatory taxation has not been widely used; it has its drawbacks when applied to limit the quantity of subdividing in that it is an inflexible tool, that where there might be a definite need for a subdivision of a particular income group it would be unfair to increase the costs of home ownership to that group by taxation.\(^10\) But taxation need not always be a limiting device; it may be a stimulative one. Thus Wisconsin levies a reduced tax on lands where timber is in the growing stage in order to encourage reforestation measures on privately owned land. Taxation policy cannot be made at the local level; so in Bristol and Washington County taxation will continue within its confines as solely a fiscal instrument unless a change is made on a state-wide basis. With the information at hand there seems to be no cause for recommending a specific policy for the use of regulatory taxation as a planning measure except to suggest a reduced tax on timber land in active growth for the encouragement of sustained yield forestry within the county.

---

10. Seventy Years of Real Estate Subdivision in the Region of Chicago - Helen C. Manchow
State and National Programs

The programs of the higher levels of government are interrelated with the other planning instruments discussed in this section. The programs of the Tennessee Valley Authority, the Soil Conservation Service, the Virginia Agricultural Experiment Station, and the State Department of Conservation have been previously discussed. Of particular importance to the Bristol plan is the federal public housing program. It has been shown that subdivision regulation and zoning, while serving to enhance and protect the other residential sections and the farm lands, still will not reach the core of the worst fringe problem: the difficulty in realizing decent living accommodations and environment for the low income group. There appears to be no real solution short of subsidy. There is no collected data which can serve to approximate the amount of public housing that is needed, but it is obviously a substantial amount, doubtless far in excess of what can actually be realized locally under current legislation. There is real need for a kind of housing that is different from the apartment type which has always predominated in urban public housing projects. Many of the city workers have subsistence gardens, which do not bring them income but which serve to reduce cash outlay. Group housing similar to that built in the southwest during the thirties by the Farm Security Administration would be adaptable to the local way of living. Housing of that type placed on the
edge of the greenbelt reserve would result in a wholesome and pleasant environment.

**Summary of Recommendations**

The foregoing appraisal of planning implements has indicated the possible applications of each in achieving and stabilizing a pattern of best land use on the periphery of Bristol, Virginia. It is the conclusion of this study that the city-county relationship and the facility of territorial annexation by cities in Virginia provides an adequate framework for the stoppage of suburban sprawl by the use of a permanent greenbelt around the city. It is a further conclusion that, to be of fullest planning use, the annexation must be effected in advance of development and that it must include all built-up appurtenances of the city. Though defined by court order, the present corporate limits of Bristol appear to be somewhat arbitrary; they do not follow natural boundary lines and they do not include all urban spill. The nature of the administrative division imposes separate responsibilities on the governments of Bristol and of Washington County in the process of program effectuation; close co-operation between the planning commissions of the two government units is of course essential to success. As steps in the program for translating the plan into actuality the following recommendations are made:
1) That a long range capital improvement program be drafted for Bristol toward the end of visualizing the financial possibilities for land acquisition and to relate this and all other proposed improvements in a schedule of priority.

2) That a project of mapping tax delinquent lands be initiated by both city and county, showing location and state of delinquency as the basis for a possible program for acquiring land reserves.

3) That there be considered in the long range plan the establishment of a community forest under municipal ownership using such assistance as is now made available by the state.

4) That the city adopt subdivision regulations to be effective within the city limits, setting forth qualitative standards and requiring complete installation of utilities and streets by the subdivider or a bond to insure reimbursement to the city for the installation of these.

5) That the proposed scheme of extra-territorial subdivision be withheld until full consideration is given by the county to zoning as a means of limiting an otherwise endless process of suburbanization.
6) That studies be initiated preliminary to drafting a county zoning ordinance aimed toward restricting disordered development along the primary highways and toward achieving, in correlation with a purchase program, a permanent green belt surround for Bristol.

7) That, in the formulation of a county zoning ordinance, assistance be solicited first from residents of the county magisterial district adjacent to Bristol, with a view toward stimulating interest and backing in the area most directly concerned.

8) That the zoning ordinance now in effect in Bristol, Virginia be revised to the extent of defining the residential use zones in terms of density rather than in terms of dwelling types.

9) That the city government should indulge in self-education by making a thorough financial analysis of the 1942 annexation area similar to the study made of the fringe areas of Modesto, California; that, subsequent to such analysis, a more rational corporation limit should be sought.

10) That the city government should indulge in the education of the citizen by making a parallel study and presentation of the economic and social
aspects of residence within the city compared with residence outside from the viewpoint of the individual tax payer.

11) That the agricultural programs of the Department of Agriculture, the Tennessee Valley Authority, and the state extension service be relied upon for encouraging the voluntary improvement of rural land utilization and promotion of soil conservation without resort to zoning controls for this purpose.

12) That the local housing authority initiate an analysis of housing conditions in Bristol with a view to determining the amount of public housing needed, and that the fullest participation be exercised in the federal public housing program.
LEGEND

Percent of Vacant Lots

- 0 - 25
- 26 - 50
- 50 - 75
- 76 - 100

Figures refer to subdivisions listed in Appendix 2.

PLATE 3
Overlay
Vi
L'AGEND

Class 1 Soil
best crop land

Class 2 and 3 Soil
fair to good crop land

Class 4 Soil
suitable for grazing and forest use

Class 5 Soil
suitable for forest use only

Built-up City
APPENDIX 1

POPULATION AND ECONOMIC DEVELOPMENT

BRISTOL, TENNESSEE-VIRGINIA AREA

Prepared Jointly by

BRISTOL TENNESSEE PLANNING COMMISSION, JUNE 7, 1944
BRISTOL VIRGINIA PLANNING COMMISSION, JULY 12, 1944

Assisted by

UPPER EAST TENNESSEE OFFICE
TENNESSEE STATE PLANNING COMMISSION

January 1944.
Appendix 1

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V. Population Trends--1900-1970--Bristol, Tennessee-Virginia
A. Population Trends, 1900-1940

The following computations and observations relating to the period 1900-1940 are based on U.S. census data, and apply to the incorporated areas alone. The corporate limits remained unchanged from 1900 to 1940, and therefore the bases for comparisons by decades are identical. The corporate limits of Bristol, Tennessee, embrace essentially all of the population that is urban in spacing and character; by 1940, urban settlement had spilled over the corporate limits to the north and west of Bristol, Virginia.

The composite city (Bristol, Virginia plus Bristol, Tennessee) increased by 140 per cent from a population of 9,850 in 1900 to 23,772 people in 1940. This amounts to an average 25 per cent increase per decade. Actually, though population growth over the 40-year period has been consistently comparable in the two Bristol (averaging 28.6 per cent for Bristol, Tennessee, and 20.0 per cent for Bristol, Virginia, compounded decennially), it has varied widely during the individual decades. Growth during the decades 1900-10 and 1920-30 was approximately three times the rate of growth during the decades 1910-20 and 1930-40. These population changes and the relationship between the two cities at 10-year intervals are shown in Table I.
TABLE I
Population Changes 1900-1940 by Decades
Bristol, Tennessee-Virginia

A. Total and Per Cent of Total in Each City

<table>
<thead>
<tr>
<th>Date</th>
<th>Population</th>
<th>% of Area</th>
<th>Population</th>
<th>% of Area</th>
<th>Population</th>
<th>% of Area</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Bristol, Tenn.</td>
<td></td>
<td>Bristol, Va.</td>
<td></td>
<td>Total</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Population</td>
<td>% of Area</td>
<td>Population</td>
<td>% of Area</td>
<td>Population</td>
<td>% of Area</td>
</tr>
<tr>
<td>1900</td>
<td>5,271</td>
<td>53.5</td>
<td>4,579</td>
<td>46.5</td>
<td>9,850</td>
<td>100.0</td>
</tr>
<tr>
<td>1910</td>
<td>7,148</td>
<td>53.4</td>
<td>6,247</td>
<td>46.6</td>
<td>13,395</td>
<td>100.0</td>
</tr>
<tr>
<td>1920</td>
<td>8,047</td>
<td>54.5</td>
<td>6,789</td>
<td>45.5</td>
<td>14,836</td>
<td>100.0</td>
</tr>
<tr>
<td>1930</td>
<td>12,005</td>
<td>57.6</td>
<td>8,840</td>
<td>42.4</td>
<td>20,845</td>
<td>100.0</td>
</tr>
<tr>
<td>1940</td>
<td>14,004</td>
<td>58.9</td>
<td>9,768</td>
<td>41.1</td>
<td>23,772</td>
<td>100.0</td>
</tr>
</tbody>
</table>

B. Decennial Increases

<table>
<thead>
<tr>
<th>Decade</th>
<th>Numerical Increase</th>
<th>Per Cent Increase</th>
<th>Numerical Increase</th>
<th>Per Cent Increase</th>
<th>Numerical Increase</th>
<th>Per Cent Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>1900-10</td>
<td>1,877</td>
<td>35.6</td>
<td>1,669</td>
<td>30.4</td>
<td>3,545</td>
<td>36.0</td>
</tr>
<tr>
<td>1910-20</td>
<td>899</td>
<td>12.6</td>
<td>1,822</td>
<td>7.7</td>
<td>1,381</td>
<td>10.2</td>
</tr>
<tr>
<td>1920-30</td>
<td>3,958</td>
<td>18.4</td>
<td>2,111</td>
<td>31.4</td>
<td>6,069</td>
<td>41.1</td>
</tr>
<tr>
<td>1930-40</td>
<td>1,999</td>
<td>16.6</td>
<td>928</td>
<td>10.5</td>
<td>2,927</td>
<td>14.0</td>
</tr>
<tr>
<td>Average:</td>
<td>2,183</td>
<td>23.6</td>
<td>1,297</td>
<td>20.0</td>
<td>3,480</td>
<td>25.3</td>
</tr>
</tbody>
</table>
Appendix 1

Natural Increase Factors in the Population Trends

It is impossible to determine exactly the extent to which the foregoing increases were affected by natural factors—excess of births over deaths—and by the semi-economic factors of local emigration and immigration caused by good or poor employment possibilities.

In the first place, accurate long term records of births and deaths are not available. The average annual birth rate for Bristol, Virginia has been high in the years for which data are at hand, as is shown by the following tabulation:

**TABLE II**

Births and Deaths, With Rates Per 1,000 Total Population for Bristol, Virginia

<table>
<thead>
<tr>
<th>Year</th>
<th>Births</th>
<th>Rate Per 1,000</th>
<th>Deaths</th>
<th>Rate Per 1,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>1920</td>
<td>203</td>
<td>30.17</td>
<td>105</td>
<td>15.60</td>
</tr>
<tr>
<td>1925</td>
<td>188</td>
<td>26.85</td>
<td>99</td>
<td>14.14</td>
</tr>
<tr>
<td>1930</td>
<td>297</td>
<td>35.60</td>
<td>161</td>
<td>18.21</td>
</tr>
<tr>
<td>1940</td>
<td>392</td>
<td>40.1</td>
<td>183</td>
<td>16.7</td>
</tr>
</tbody>
</table>

Comparable data are not so readily available for Bristol, Tennessee as for Bristol, Virginia, which is an independent city. In 1940, however, there were 203 births in Bristol, Tennessee, giving a rate of 14.5 per 1,000 (under the U. S. average of 17.9) and 106 deaths giving a rate of 7.6 per 1,000. Some clue as to the reason for the discrepancy in birth rates as between the two cities may be gathered from the statement in Agricultural-Industrial Survey of Washington Co., Va. (TVA-CWA, 1936): "A partial explanation for the higher rates in Bristol (Va.) is found in the presence of a hospital which, though located on the Virginia side of this urban center..."
serves sections of both Virginia and of Tennessee." This assumption is further substantiated by the fact that in 1940 the birth rate for Washington County, Virginia, as quoted by the census, was 2.1 per 1,000 population, in contrast to the 4.0 rate for Bristol, Virginia.

During the decade 1920-30 there was a net immigration into the Bristerls. During the decade 1930-40 there was much turnover in population, with much emigration during the first half of the period. There was probably a net immigration during the period, although the 1930-40 increase could have been accounted for by natural increase if the 1940 excess of births over deaths had been applicable throughout the decade.

Economic Conditions Related to Population Behavior

The economic bases underlying population growth have undergone change and fluctuations in value in past decades. Perhaps the most striking and abrupt single change was the removal from Bristol of the offices and some shops of the Norfolk and Western Railroad. Other changes have been more gradual, but in many cases, even more far-reaching.

Early in the century, the Bristerls were bustling with activity, furnishing construction materials, rolling stock, machinery, and other supplies to the expanding coal-mining areas in southwestern Virginia. Active population growth took place under such circumstances, as is to be expected. With the slackening of expansion, and the settling down to maintenance and operations in the coal fields, these lines of business slackened considerably during the 1910-20 decade.

For a time Bristol shared in the vigorous exploitation of near-by timber resources. As the resources diminished the local plants made some adjustments toward a lower-volume consumption and toward products having a higher
Appendix 1

Labor investment, such as finished dimension lumber, millwork, and veneers, A furniture factory used some of the better woods, and a paper mill used low-grade and cull cuts and species. Other manufacturing in 1930 included production of thread, underwear, dresses, overalls, drugs, hosiery, paper boxes, foodstuffs, mine cars, and iron and steel products. It is of significance that the majority of the plants were in the so-called women's industries group, and produced consumers' goods. A reasonable balance between male and female workers existed at the end of the decade 1920-30--a decade of strong population growth. All other employment outnumbered employment in manufacturing by approximately 2-1/3 to 1; the figures were about 4,600 persons employed and 1,369 persons engaged in manufacturing, respectively.

With the coming of the depression the heavier industries of the Bristols became largely inactive. The furniture plant, employing some 250 men, was closed. Iron and steel, machinery, and building materials were not in demand. The need for subsistence income brought more women into the labor market. In his study for the Urbanism Committee of the National Resources Committee, Paul E. Ryan states that in 1932, the ratio in manufacturing was 65 women to 35 men. Under such circumstances, male labor was a drug on the market and wages dropped to low levels. Most of the jobs open to women represented only the most elementary of skills and were mostly low-pay. The effects of this situation on the community were detrimental, varied and far-reaching. Residential construction stopped, for there were few unhoused families with the means to undertake ownership, and new rental quarters were not built because of the lack of prospective tenants with incomes sufficient to rent new quarters. Males migrated or commuted in search of economic opportunity.
Appendix 1

By 1936 male employment had increased somewhat (55 males to 15 females in industry) but the principal activities were in relatively low-pay industries, for textiles and clothing manufacture accounted for 2 out of 3 industrial employees. By 1940 the male-female ratios had gone further toward a state of balance, being in the neighborhood of 60:40 in favor of males. Nevertheless, under such circumstances it is not surprising that the population increase from 1930 to 1940 was small. By 1940, manufacturing employment totaled 2,540 workers, 10.7 per cent of the population. Total gainful employment was 8,884, 37.6 per cent of the population. These figures compare with national urban averages in that year of 10.8 per cent and 37.3 per cent, respectively.

B. Population Changes 1940-43

Annexation

On July 1, 1942, Bristol, Virginia annexed certain territories along its north and west boundaries. These territories comprise some 2,413 square miles inhabited by some 3,800 people. Since this area was not enumerated separately, it is impossible to trace its population growth.

Effect of the War

During the three-year period the war industry development has increased the economic base of the community at a greater-than-normal rate. Two major new employers on the Virginia side, National Fireworks (shell loading) and Universal

1/ This increase in the population of Bristol occasioned by the annexation is of a statistical nature and should not be used in computing rates of population increase (though properly, these trends should be recorded and forecast for a single urban area, irrespective of city limits, if figures for that area were available.) Nevertheless, the increase must of course be included in the base from which future population is projected.
Appendix 1

Moulded Products (laminate plastic-plywood aircraft parts), together employed in July 1943, approximately 4,000 persons, of which about 60 per cent were men. Many of these were in-migrants, or, having transferred from other local employment, have been replaced by in-migrants.

The communities have experienced several waves of in-migration since 1940. A moderate influx was noted around the first of 1942 when work was begun on the South Holston Dam. When that project was deferred, most of this personnel was transferred out of the locality. In midsummer 1942, work was under way on the shell loading plant in the outskirts of Bristol, Virginia, and many in-migrant construction workers were on the job. Work was begun at the same time on the Holston Ordnance Works at Kingsport and the overflow of in-migrant construction workers from that project sought any available shelter in Bristol. Even before these construction workers had finished with their job, recruitment was under way in the manning of the major new war plants. Other plants in Bristol had begun to supply war materials, some by supplying commodities almost identical with their normal product, some by varying degrees of physical conversion, and some small new organizations were using existing buildings.

This in-migration led to a demand for new housing. Little had been done prior to the time when priorities regulations were placed in effect. Two slum-clearance projects had been filled largely through undoubling of families from overcrowded places; thus, with the former residences still largely occupied, equivalent demolition was delayed.
Appendix 1

Indices of 1940-43 Population Change

Housing. During the period 1940 through 1942, the net change in the number of privately built dwelling units was negligible. By the end of 1943, however, 264 new units of war housing had been built. The 101 vacancies existing in 1940 had been filled, and some new apartments had been created. These units are estimated to house some 1,500 newcomers. Slum clearance projects for both white and Negro occupancy had been built, and equivalent demolition was not completed due to the housing shortage.

Ration book registration, March 1943. The ration book registration does not yield indisputable indices of population growth, but does suggest the trends in civilian population. In Bristol, Virginia, approximately 15,100 number 2 ration books were issued in February 1943, but late in the year only a small number had been surrendered to local boards by those entering the armed services. The census has estimated, largely on the basis of the book number 2 registration, that Bristol, Virginia had a civilian population of 16,958 as of March 1, 1943. This figure indicates a gross increase of 49 per cent since 1940, but included the annexed population.

Similar data are not available for Bristol, Tennessee, since no differentiation was made between the registration in the city and in the adjoining parts of Sullivan County. Sullivan County is estimated by the Census Bureau to have experienced a gain of 18.1 per cent from April 1940 to March 1943.

1940-43 population estimate. From the above figures and from business and utility records, it is estimated that the population of the two Bravstols at the end of 1943 was approximately 50,000. Deducting the 3,800 added to Bristol, Virginia by annexation, the remaining population of 26,200 indicated an increase of about 2,400 over the 1940 figures for comparable areas.

Appendix 1

On the basis of war housing construction figures, assumptions concerning the filling of units vacant in 1940, and estimates of doubling up, renting of rooms, creation of apartments in existing structures, and occupancy of units spared by delaying the equivalent demolition program, it is possible to estimate the population increases in the two cities.

TABLE III
Population Changes 1940-1943

<table>
<thead>
<tr>
<th>Place</th>
<th>1940 Population</th>
<th>Increase Via New Housing</th>
<th>Other Increase /</th>
<th>Estimated 1943 Population</th>
<th>Per Cent of Area Total</th>
<th>Per Cent Increase for the 3-Year Period</th>
<th>Equivalent % Per Decade Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bristol, Tennessee</td>
<td>14,004</td>
<td>530</td>
<td>570</td>
<td>15,100</td>
<td>57.6</td>
<td>7.8</td>
<td>26.0</td>
</tr>
<tr>
<td>Bristol, Virginia</td>
<td>9,768</td>
<td>490</td>
<td>840</td>
<td>11,100</td>
<td>42.4</td>
<td>13.6</td>
<td>15.3</td>
</tr>
<tr>
<td>Total</td>
<td>23,772</td>
<td>1,020</td>
<td>1,410</td>
<td>26,200</td>
<td>100.0</td>
<td>10.2</td>
<td>34.0</td>
</tr>
</tbody>
</table>

a/ Via doubling up, renting rooms, and utilizing quarters vacant in 1940.

b/ Excluding annexed population of approximately 3,800.

These figures do not, of course, include the 2,800-odd persons who have gone from the two Bristols to the armed services in the three-year period. Even the estimated net increases listed above, however, constitute a three-year rate of growth 1-1/3 times the average for the 1900-1940 decades.
Appendix 1

Chapter Appendix A: Future Population of Bristol, Tennessee-Virginia

Purpose of Estimate

Orderly planning for both public and private services to the area require some sort of estimate of future population. It is realized that estimates forecasting the population of a specific locality like the Bristol over a period of 25 to 30 years cannot pretend to accuracy or certitude. For a larger, essentially self-contained area like the United States, natural increase factors are predominant and permit fairly accurate estimates. For a small area, local economic activity and the accompanying emigration or immigration becomes the determinant, and this is subject to unpredictable fluctuation. Therefore the alternative growth possibilities are appraised herewith, and should be checked periodically in the light of decennial census and other information.

Prospects for Population Growth

Various economic factors can be listed as favoring or retarding population growth, though their quantitative effect cannot be accurately determined.

Factors favoring continuation of 1900-40 rate of growth:

- Sustained growth for past 40 years without stimulation of artificial boom.
- Excess of births over deaths (1.25 times national average in 1940).
- Rapid wartime development.

Prospects for continued operation of a major new war-induced industry (Universal Moulded Products Corporation).

General trend toward urbanization in Tennessee Valley. The per cent of population that was urban increased by 220 per cent from 1890 to 1940, while for the nation the
Appendix 1

The percentage gain in urban population was 567% times that of the nation. Furthermore, urban growth since 1900 has been twice as rapid in the upper half of the Valley as in the lower half.

Availability of low-cost public power.

Factors which would tend to reduce the future rate of growth:

- Difficulty of converting shell-loading plant.
- National decline in urban growth rates (urban population increases over previous census were, in 1910 21.0 per cent; 1920, 14.9 per cent; 1930, 16.1 per cent; 1940, 7.2 per cent).
- Difficulties of lack of active local capital.
- Excessive cost of local government, due to overlapping.
- Failure of persons in the armed services to return to the area.
- Continuation of abnormal proportion of females in industry, and the accompanying unbalance between sexes in total population.
- Scattering of urban growth beyond city limits.
- Emigration of residents currently commuting to employment elsewhere.

Estimate of Growth—1940-70

Growth estimates start with a 1940 population of 27,572, which is the 1940 census figure plus the estimated 3,800 added by annexation in 1942. Maximum and minimum estimates are given, since no single estimate can be given with certainty (see Table IV and Plate I—Graph of Population Increase).

One estimate assumes that the average 1900-40 rate of growth (25 per cent per decade) will be maintained through 1970. This would result in a 1970 population of about 54,000. It is possible, of course, that the population may be more than this, but for present purposes this may be considered the maximum predictable figure. Following the same procedure, and applying
Appendix 1

to each city the rate obtaining from 1900-1940, the 54,000 total population would be divided: 29,500 in Bristol, Tennessee, and 24,500 in Bristol, Virginia. This division, however, is even more speculative than is the total suggested for the whole community.

A second and minimum estimate envisions a decennial increase of population equal to the numerical average added per decade 1900-1940. This number (3,500) would, in each successive decade, represent a successively smaller percentage increase. Under this scheme of estimate the 1970 population would be in the neighborhood of 38,000, of which 20,500 probably would be in Tennessee's Bristol, and 17,500 in Virginia's Bristol.

It is probable that the increase in population may reasonably be expected to lie somewhere between the above extremes. The selection of a single figure is not greatly significant, but will be useful for reference in the development of land use and services plans for the community. The planning commissions have therefore adopted the following estimates for planning purposes, and recommend that they be used by official and private organizations whenever future population estimates are required.

### Table IV

Population Forecasts 1950-1970

<table>
<thead>
<tr>
<th></th>
<th>1950</th>
<th>1960</th>
<th>1970</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Population</td>
<td>% of Total</td>
<td>% Increase</td>
</tr>
<tr>
<td>Bristol, Tenn.</td>
<td>17,500</td>
<td>51</td>
<td>25</td>
</tr>
<tr>
<td>Bristol, Va.</td>
<td>17,000</td>
<td>49</td>
<td>25</td>
</tr>
<tr>
<td>Total</td>
<td>34,500</td>
<td>100</td>
<td>25</td>
</tr>
</tbody>
</table>
Appendix 1

The decennial increases of 25 per cent, 20 per cent, and 15 per cent are arbitrary but have their bases in fact. The 25 per cent rate for the decade 1940-50 is likely to be obtained, for thus far the cities have increased at a 34 per cent rate, exclusive of annexation. The declining rates after 1950 are in keeping with the declining birth rates and the declining rate of urbanization noted in various parts of the country. The total figure for 1970 approximates the mid point between the maximum and minimum estimates stated earlier.
Appendix 1

PLATE I
POPULATION TREND 1900-1970
BRISTOL, TENN.-VIRGINIA

1970 POPULATION
1/Maximum Estimate-50,000
2/Minimum Estimate-40,000
RECOMMENDED ESTIMATE-45,000

1940 Estimate-30,000

TOTAL

BRISTOL, TENN.
Rec. Est.-25,000

BRISTOL, VA.
Rec. Est.-25,000

(Annexation)

1/Continuation of 1900-1910 average rate
2/Continuation of 1900-1940 average numerical increase

Bristol, Tenn. & Va. Municipal Planning Commissions
January 1940
### APPENDIX 2

**SUBDIVIDED LOTS AND EXTENT OF VACANCY**

<table>
<thead>
<tr>
<th>Subdivision</th>
<th>Date</th>
<th>Recorded Lots</th>
<th>Estimated Vacancy</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Bristol Home Co.</td>
<td>1900</td>
<td>16</td>
<td>0</td>
</tr>
<tr>
<td>2 Fulkerson</td>
<td>1904</td>
<td>280*</td>
<td>160</td>
</tr>
<tr>
<td>3 Reynolds</td>
<td>1918</td>
<td>12*</td>
<td>6</td>
</tr>
<tr>
<td>4 Spring Addition</td>
<td>1923</td>
<td>23</td>
<td>8</td>
</tr>
<tr>
<td>5 Lee Heights</td>
<td>1923</td>
<td>124</td>
<td>85</td>
</tr>
<tr>
<td>6 Mountain View</td>
<td>1923</td>
<td>50*</td>
<td>20</td>
</tr>
<tr>
<td>7 City View</td>
<td>1925</td>
<td>73</td>
<td>55</td>
</tr>
<tr>
<td>8 Euclid Avenue</td>
<td>1927</td>
<td>30*</td>
<td>24</td>
</tr>
<tr>
<td>9 Highland Park</td>
<td>1927</td>
<td>100*</td>
<td>25</td>
</tr>
<tr>
<td>10 W. Bristol Hts.</td>
<td>1935</td>
<td>340</td>
<td>300</td>
</tr>
<tr>
<td>11 Virginia Hts.</td>
<td>1935</td>
<td>263</td>
<td>200</td>
</tr>
<tr>
<td>12 Shepard</td>
<td>1943</td>
<td>26</td>
<td>22</td>
</tr>
<tr>
<td>13 Columbia Hts.</td>
<td>1944</td>
<td>85</td>
<td>85</td>
</tr>
<tr>
<td>14 Jefferson Park</td>
<td>1946</td>
<td>61</td>
<td>61</td>
</tr>
<tr>
<td>15 Indian River</td>
<td>1946</td>
<td>74</td>
<td>74</td>
</tr>
<tr>
<td>16 Crescent Sites</td>
<td>1946</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>17 Cantwell</td>
<td>1946</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>18 Jenny Sharrett</td>
<td>1946</td>
<td>25*</td>
<td>25</td>
</tr>
<tr>
<td>19 Spring Garden</td>
<td>1946</td>
<td>113</td>
<td>113</td>
</tr>
<tr>
<td>20 Duff Addition</td>
<td>1946</td>
<td>21</td>
<td>21</td>
</tr>
<tr>
<td>21 Holston Homes</td>
<td>1946</td>
<td>33</td>
<td>33</td>
</tr>
<tr>
<td>22 Sourbeer</td>
<td>1946</td>
<td>61</td>
<td>61</td>
</tr>
</tbody>
</table>

* estimated
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