

THE TRENDS

... the great thing in this world is not so much where we stand, as in what direction we are moving.

—OLIVER WENDELL HOLMES

Population Growth. Montgomery and Prince Georges Counties are the fourth and fifth fastest-growing suburban counties in United States metropolitan areas of one million population and more. In the past half-century (1910-1960) the population of the two Counties increased from 68,000 to 698,000, a growth of over 1,000 percent. The increase was fairly modest during the first thirty years of this period, reaching only about 173,000 in 1940. From 1940 on, however, the population has doubled every ten years.

Following the 1940 Census, conditions were exactly right for triggering the sudden outburst; nearly all the available land within the District of Columbia had been developed and occupied, the family automobile had become commonplace, and highway improvements had made commuting practical well out into the country. With the coming of World War II and the expansion of Federal government, the growing population flowed out from the District in all directions. By 1960, thirty-five percent of the metropolitan population had settled in Montgomery and Prince Georges Counties.

As could be expected, the closer-in areas urbanized first, rapidly becoming indistinguishable from the District of Columbia. Then the growth spread farther and farther out, following no particular pattern except what was dictated by the existing roads and sewage facilities.

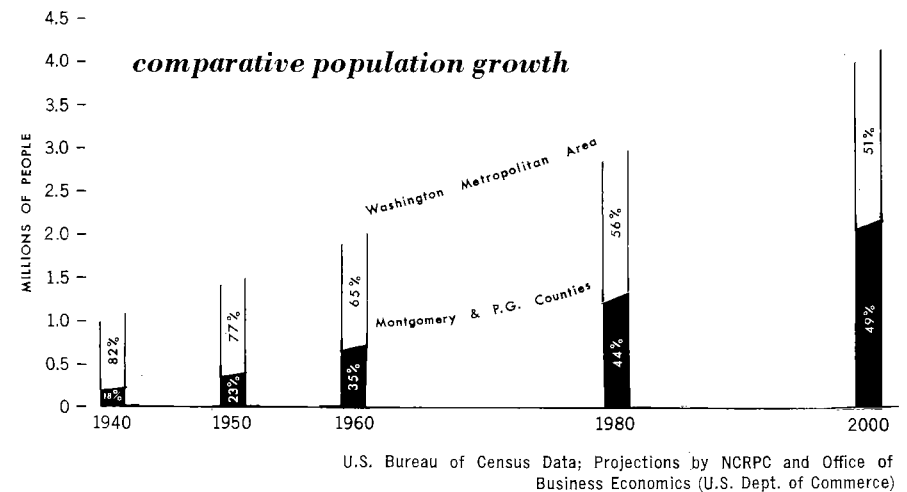
While statistics show that the rate of growth is now slowing down, the growth in total numbers is still very substantial and will continue to be so. By 1980 the Regional District will be host to a population of about 1,435,000—45 percent of the Metropolitan population, and approximately double the number of people in 1960. By the year 2000 the bi-county figure will reach nearly 2,190,000, which is more than the total population of the entire present-day Washington Metropolitan Area.

As mentioned earlier, these figures in themselves are no cause for alarm. There is ample room in the 1,000 square-mile area of the Regional District to house that many people and more. The only problem is where and how they are to be housed. If the question is left entirely to chance, the Regional District is sure to become a congested, formless urban agglomeration where people will continue to reside only because the living environment elsewhere is no better.

Residential Land Use in the Past. Before reaching any conclusions as to how the future population is to be housed, it is important to see how the present-day population is accommodated.

The Regional District is largely an area of detached, single-family houses. In 1960 there were 140,488 such residences, housing 78 percent of the total population. In the same year 40,010 apartment units accounted for 15 percent. The remaining 7 percent were living in row houses, duplexes, or two-family dwellings. Practically all of the apartments and row houses have been built since 1940, and most are in the close-in areas surrounding the District of Columbia.

The great majority of the single-family houses are built on



small lots of 6,000 or 9,000 square feet. There are, however, some enclaves of homes built on larger tracts of land. While these large-lot residences account for only a small percentage of the total population, their existence gives a degree of eye-appeal and variety to some suburban areas—qualities that are sadly missed in other sections, where the rule of minimum construction standards and maximum profits has resulted in cramped monotony.

Many tracts of land easily served by utilities, and offering direct access to the city, were quickly developed to the saturation point. Often in the developers' rush to make maximum profits, inadequate reservations were made for parks, playgrounds, highway expansion, access roads, and other community needs.

Trends in Housing. Two quite divergent trends have become noticeable in the Regional District during the past several years: one, an increased demand for apartments; and two, a tendency to build more expensive houses on larger building sites than the customary 6,000 or 9,000 square-foot lots.

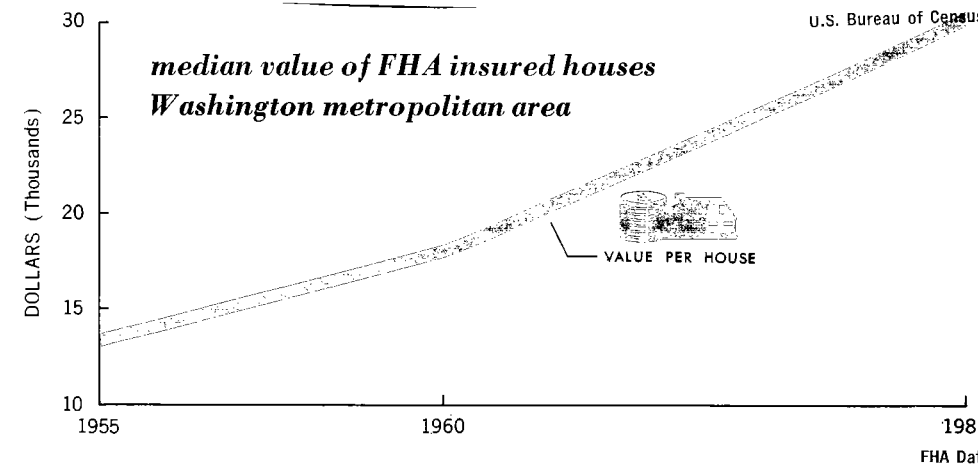
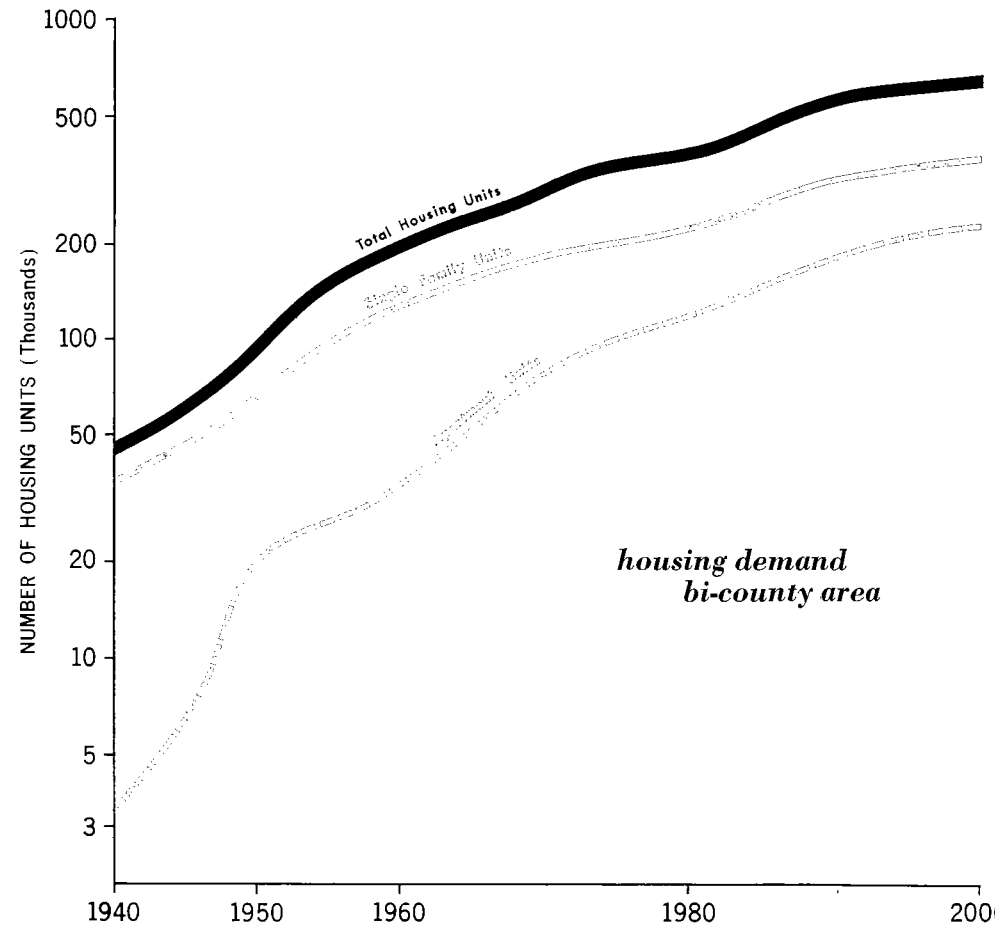
The rising demand for apartments comes mainly from two opposite groups: the fairly old, and the young adults. Greater economic security permits the elderly to move to apartments and live in chore-free, compact quarters of their own. At the other end of the scale, the increasing number of early marriages and the high cost of houses force many young couples to seek moderately-priced apartments until they can afford the houses they will want in later years.

The rapid rise in apartment demand is illustrated by the fact that the number of apartments in Montgomery and Prince Georges Counties increased from 2,034 in 1935 to 48,407 by the end of 1961. In 1961 alone, 5,065 apartment units were built. A relatively high level of apartment construction can be expected to continue in the future.

A corresponding decrease in the percentage of single-family home construction is to be expected, but the total number of houses will continue to increase. Their cost will also increase substantially.

The average purchase price of new homes, under mortgages insured by the Veterans Administration, increased from \$5,940 in 1945 to \$15,325 in 1961.

Another indication of the trend to more expensive housing is to be found by comparing the values of FHA-insured homes in 1955 with those of 1960. In this five-year period the median value of FHA-insured homes in the Washington area rose from \$13,559 to \$17,953. In 1955, 34.7 percent of the houses were valued below \$10,000. In 1960, practically no homes were valued that low.



The proportionate increase in expensive homes—those valued at \$20,000 and above—is particularly noteworthy. In 1955, only 3.3 percent of the houses fell in this category. In 1960, the proportion had risen to 28.2 percent. Assuming that this trend will continue, the median value of houses in the Regional District will be \$30,000 by 1980, and 50 percent of all houses will cost more than that figure.

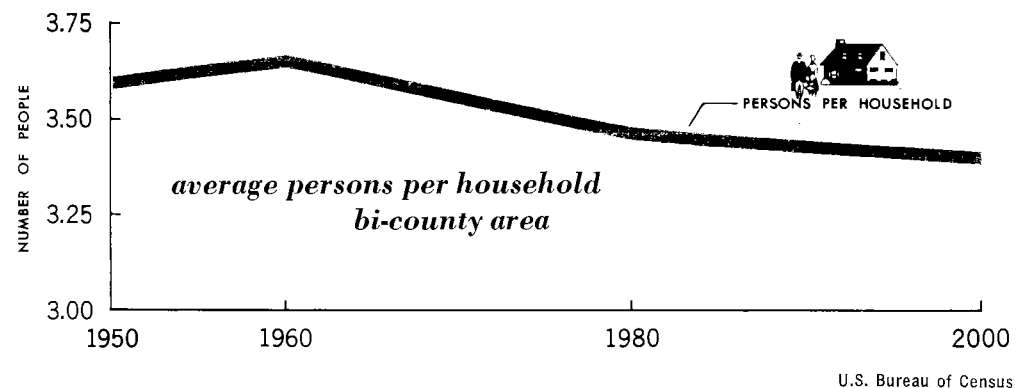
The implications of this changing price structure are obvious. People usually don't build expensive homes on postage-stamp building lots. The houses of the future will require more land. There is certain to be a trend toward more spacious lots than those of 6,000 and 9,000 square-feet that have been standard in the past. This trend should be recognized and provided for today to avoid frozen obsolescence in zoning.

A third housing trend is also significant. Average household sizes are decreasing. For the United States as a whole, household size has decreased from 3.42 persons per family in 1950 to 3.29 in 1960. This has been explained by one authority in terms of longer life-spans, greater economic security for the elderly, and younger marriages.¹ Another authority has attributed the decline to a transition from three generation households to two generation households, and a considerable increase in one-person households.²

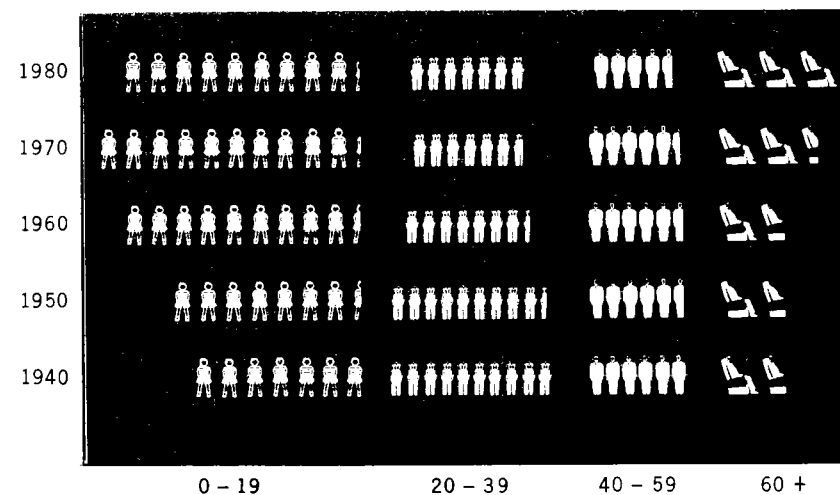
Although this general decline in household size has not shown up yet in statistics for the Regional District, it is very likely to in the next few years. If it does, the number of new households to be planned for will increase faster than the number of people.

¹ Donald J. Bogue, *The Population of the United States*, Glencoe, Illinois: The Free Press, 1959 (pp. 711-712).

² Philip M. Hauser, "The Census of 1960", *Scientific American*, Vol. 205, No. 1, July, 1961. (p. 45).



population by ages - Washington metropolitan area



U.S. Bureau of Census, NCRPC, and NCP.

Residential Land Needs. Taking into account the growing population, the increasing number of households, the greater demand for apartments, and the preference for increased lot sizes, it is estimated that new residential neighborhoods will require 70 square miles of land by 1980 and another 90 square miles by the year 2000.

High Incomes. The Regional District is among the nation's most prosperous areas. Payrolls in the two counties have increased substantially in recent years: from \$97.6 million in 1954 to \$150.5 million in 1958, an increase of more than 54 percent. Although later figures are not available, there is no doubt that this affluent pace is continuing.

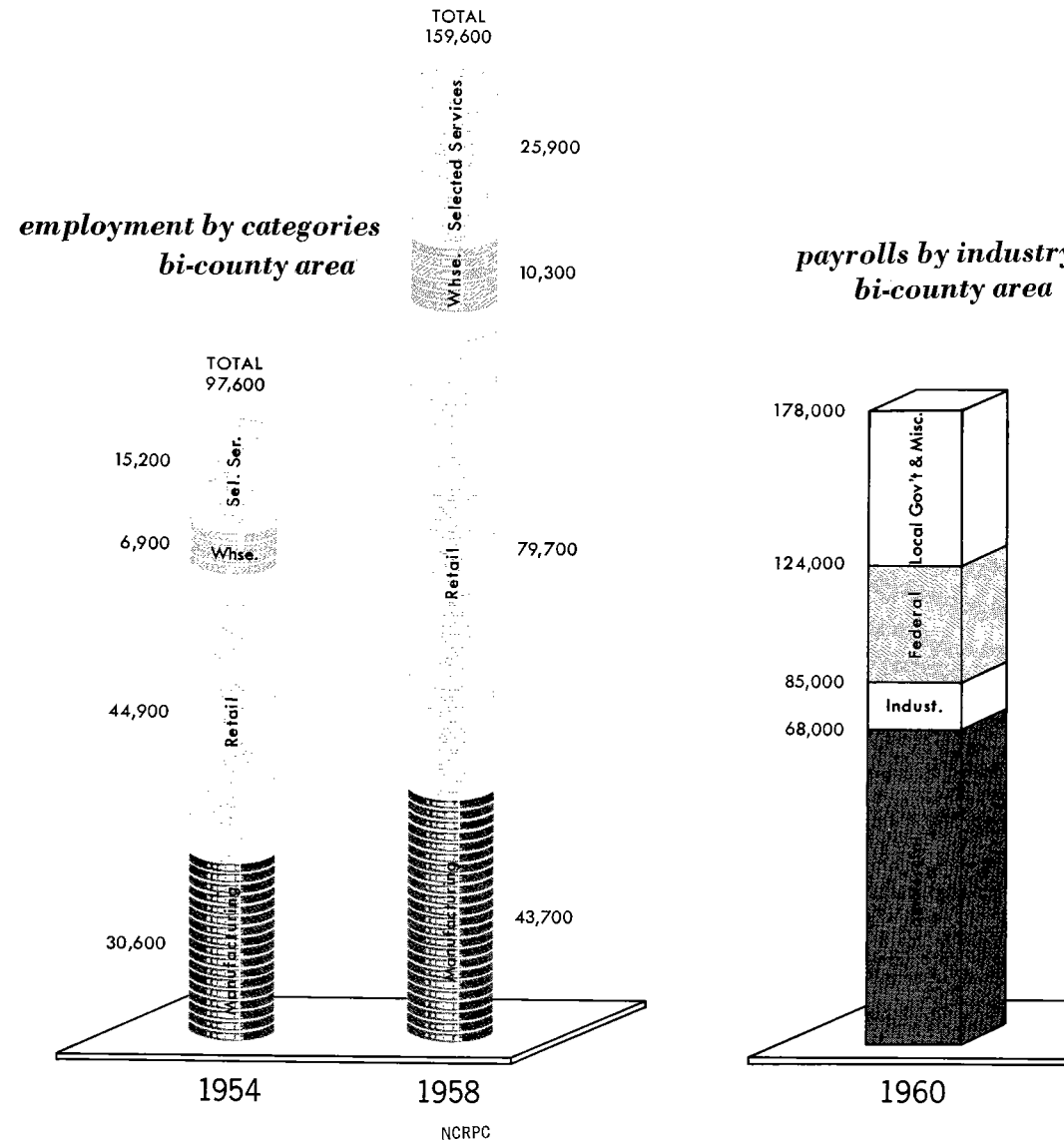
Average annual incomes of families living in the Regional District are estimated at about \$8,400—among the nation's highest. The average family income in the United States as a whole is only \$5,700. This comparison demonstrates that residents of the Regional District enjoy a sizeable income over and above personal expenses for necessities. The area is therefore a prime market for luxury merchandise and services.

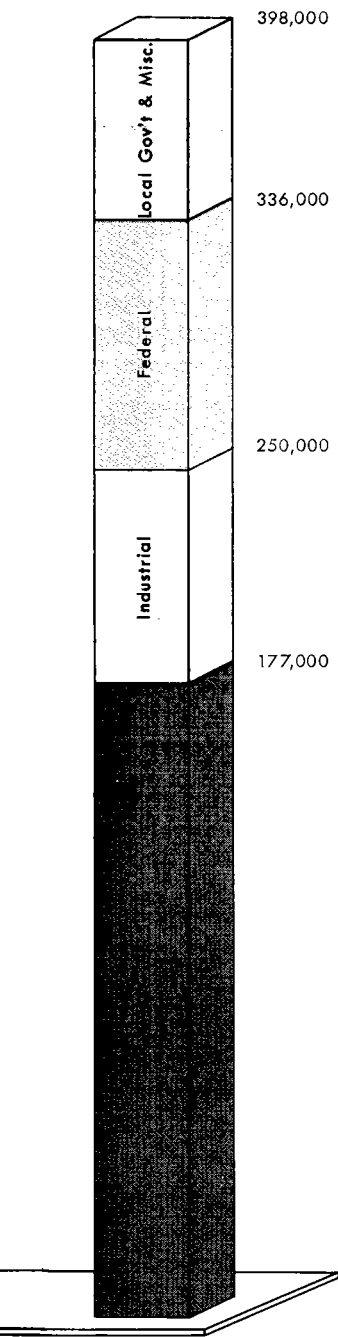
Low Unemployment. The Washington labor market area, including the Regional District, has one of the lowest unemployment rates in the nation: 2.4 percent as of September, 1961. This contrasts sharply with the national unemployment rate of 6.8 percent during the same period.

The reason is found in the nature of the area's economic base. Federal employees accounted for 22 percent of total employment in the Regional District for 1960. State and local governments employed another 10 percent. This means that 32 percent of all workers were on government payrolls. The stability of such employment is well known.

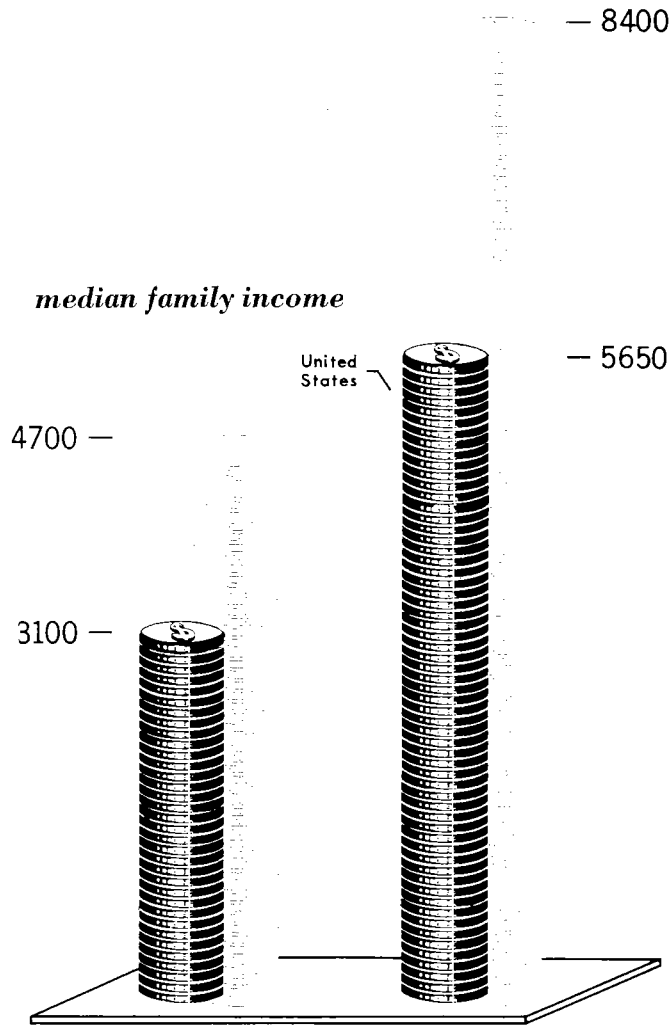
The largest single group of non-government employees in the Regional District (18 percent) are engaged in retail trade—another quite stable type of employment, since expenditures for consumer goods are kept on an even keel by the large stable government employment.

Manufacturing employment, the most sensitive to cyclical dips in the economy, accounts for only 5.8 percent of all Regional District employees.





1980
U.S. Bureau of Census



median family income

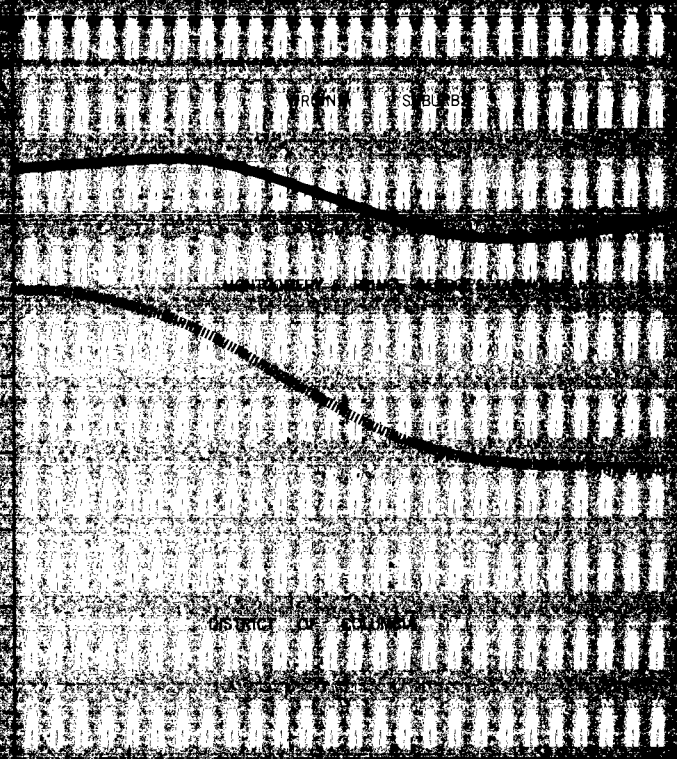
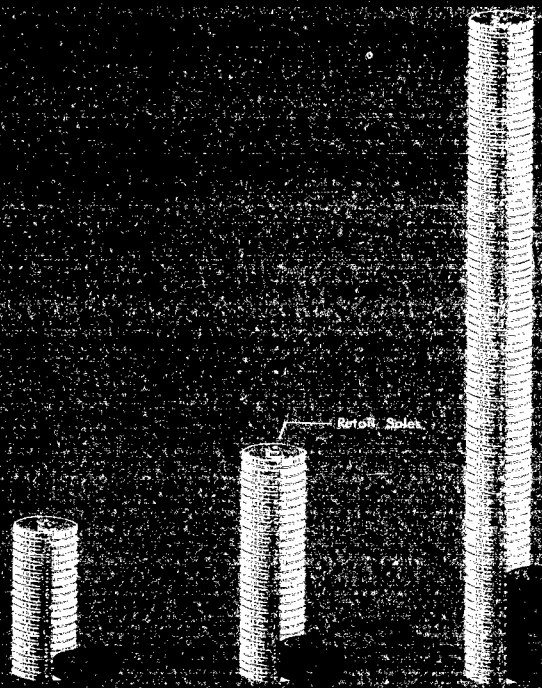
1950 1960
U.S. Bureau of Census

Location of Employment. Forty percent of all jobs in the Washington Area are in downtown Washington. Downtown will grow and continue to be the largest single employment center. But already more than one-third the Federal employment is in the suburbs, along with a similar proportion of other jobs.

Suburban employment, compared to downtown Washington employment is very dispersed. The largest suburban center has only about 15,000 jobs, compared to 380,000 in the downtown center. More than three-quarters of the remaining employment is located in very small centers with less than one thousand jobs apiece. Such dispersal cannot be economically served by public transportation, so the highway system has been overburdened with private cars. If more of the suburban employment were concentrated in centers of at least 10,000, efficient public transportation could be supplied.

Even with downtown expansion, future employment will be located more and more in the suburban parts of the metropolitan area. An efficient location policy is therefore becoming increasingly important. The largest part of future employment will be in offices which can be easily centralized, but small local shopping centers and the increasing demand for industrial parks also need to be recognized.

Government Employment. Federal employment in the Washington Metropolitan Area has risen from a very few thousand in 1900 to about 315,000 in 1960. According to the National Capital Regional Planning Council, this figure may rise to 450,000 by the year 2000. The Maryland suburbs will get an increasing share of this rise.



Commercial Employment. Commerce in the Regional District has been growing at a rapid pace in recent years. Between 1954 and 1958 retail sales increased from \$425 million to \$651 million. Services provided by cleaning shops, laundries, beauty and barber shops, advertising agencies, credit agencies, employment agencies, auto repair garages, hotels, motels, and commercial recreation establishments increased from \$45 million to \$78 million during the same period. If these rates of increase continue, as they are likely to, retail sales will approach \$1.9 billion in 1980 and the commercial services will reach about \$309 million. These are signs of rapidly growing commercial employment.

Industrial Employment. A distinctive feature of the indus-

trial segment of the area's economy is the rapid rise of research and development firms. There were only a handful of these firms a few years ago, but today they constitute an important element in the suburban economy. These firms work in the fields of plastics, automation, electronics, data processing, missile propulsion, laboratory instrumentation, operations analysis, flight simulation, and many other activities of a highly specialized nature.

Such firms find the Washington area especially suited to their operations, since it gives their executive and technical employees the opportunity for face-to-face discussions with their opposite numbers in the governmental agencies, with mutual advantages to both. Furthermore such firms can draw on the



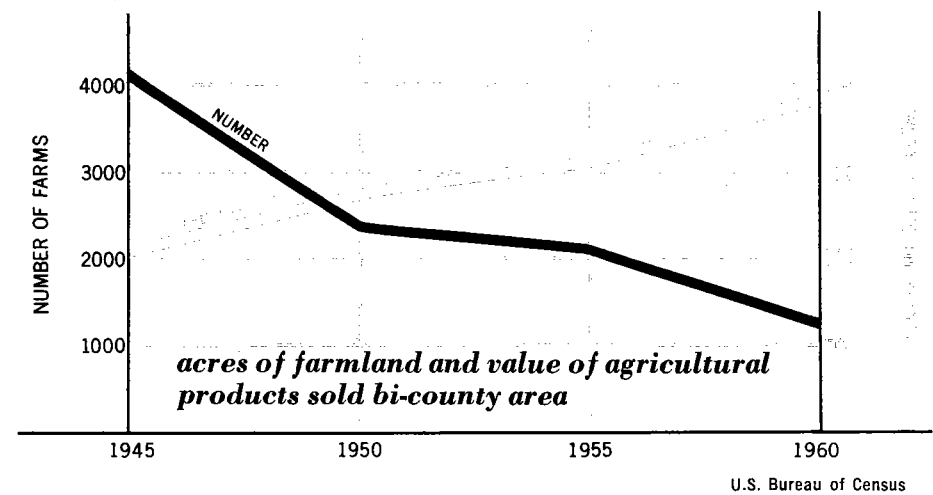
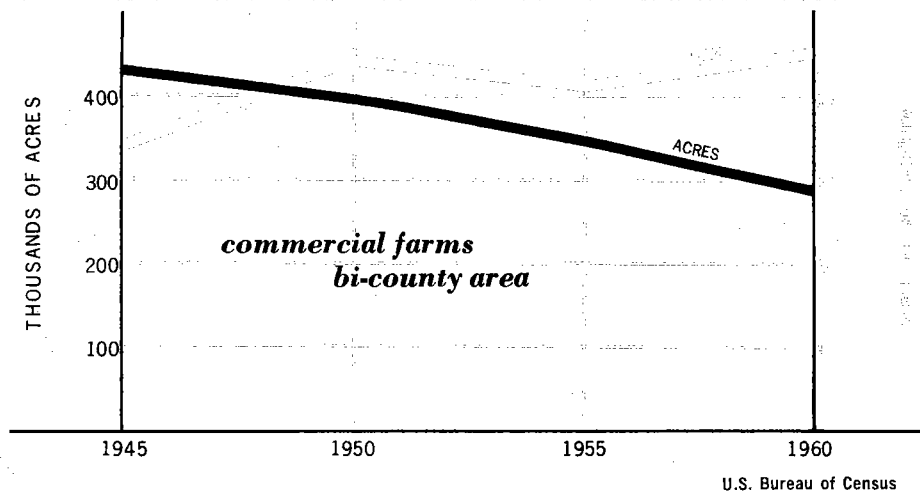
large scientific manpower pool in the Washington area. As of 1960, there were 57 research and development firms in the Regional District, employing 8,806 people.

The value of all manufacturing in the Regional District rose from \$48.5 million in 1954 to \$80.5 million in 1958. The projected value for 1980 is \$290 million. Increasing investment for plant and equipment indicates that manufacturing production and employment will continue to rise.

A report on the economic development of Metropolitan Washington, prepared about four years ago for the Joint Congressional Committee on Washington Metropolitan Problems,

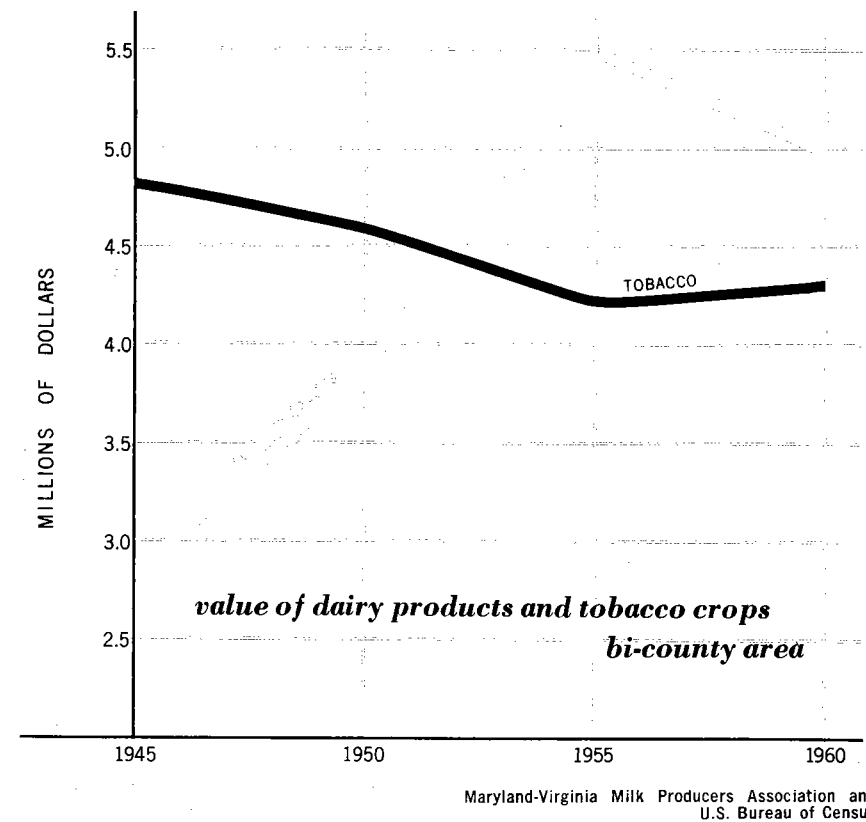
pointed out the relatively small industrial activity compared to the potential of the market area. "Here in the Washington Area is one of the greatest consumer markets in America . . . and it offers a tremendous potential for market-oriented types of industry."* Already at Landover in Prince Georges County there is one of the largest food processing and distributing plants on the East Coast. Consumer industries can be expected to grow at a faster rate than the population in future years until they catch up with the area's potential.

* "Statement of Philip Hammer," *Hearings on Washington Metropolitan Area Economic Development*, Joint Committee on Washington Metropolitan Problems, Congress of the United States (85th Congress, 2nd Session), July 8, 9, and 10, 1958 (p. 144).

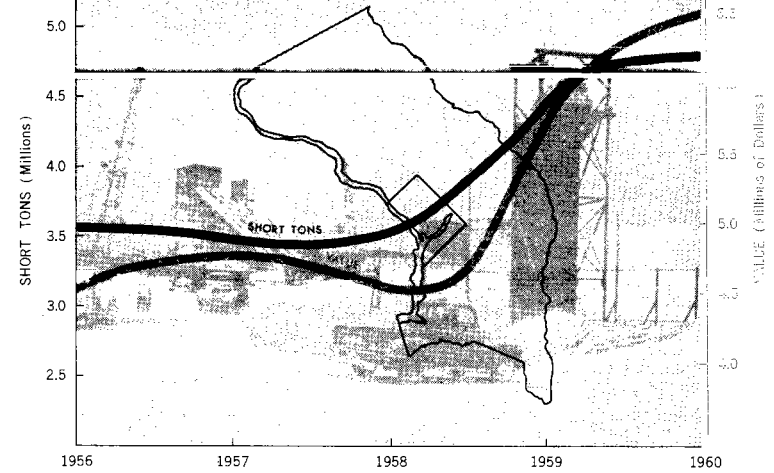
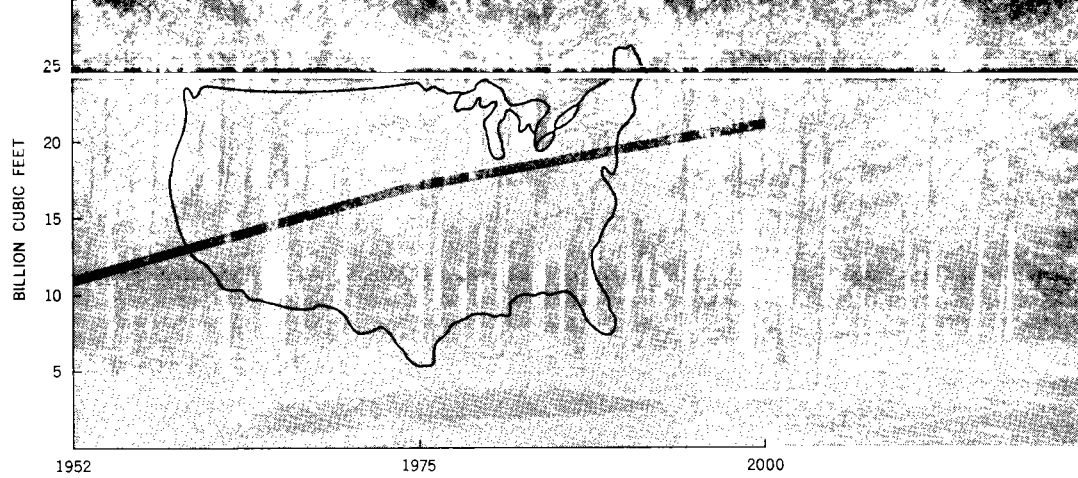


Agricultural Employment. Though accounting for no more than 3 percent of employment, agriculture is still an important segment of the area's economy. The value of produce from Regional District farms in 1959 was slightly over \$17 million—about the same level as for the previous ten years. Taking into consideration the large number of farms that have been swallowed up by suburban developments, and the considerable number that are farmed half-heartedly while waiting to sell out for the 'right price', this means that the remainder—the bona fide productive farms—must be making reasonably good incomes. There is no reason why they should do less well in the future, provided they are given reasonable tax consideration and are otherwise protected from urbanization pressures.

The U. S. Farm Census indicates, for Montgomery and Prince George's Counties, that there were 440,000 acres of farmlands in 1944, and only 294,000 in 1959. There has been a corresponding decline in the number of Class I and Class II commercial farms, from 312 in 1944, to 262 in 1959. Each of these farms, however, is producing over \$20,000 worth of produce per year. In Montgomery County the chief source of farm income is from dairy products, which for 1961 totaled over \$6,000,000. Tobacco is the chief farm product in Prince



demand for forest products



sand and gravel production

Based on U.S. Bureau of Census Data

George's County. Seven million pounds of tobacco were harvested in 1959, having a cash value of \$4.2 million.

There are several other types of farm operations being carried on at the present time, all of which may become increasingly important in the future provided farming is protected and encouraged under the General Plan's program for preservation of the rural wedges. These include livestock raising, nurseries, greenhouses, sod farms, and truck farms (principally peas, beans, and corn).

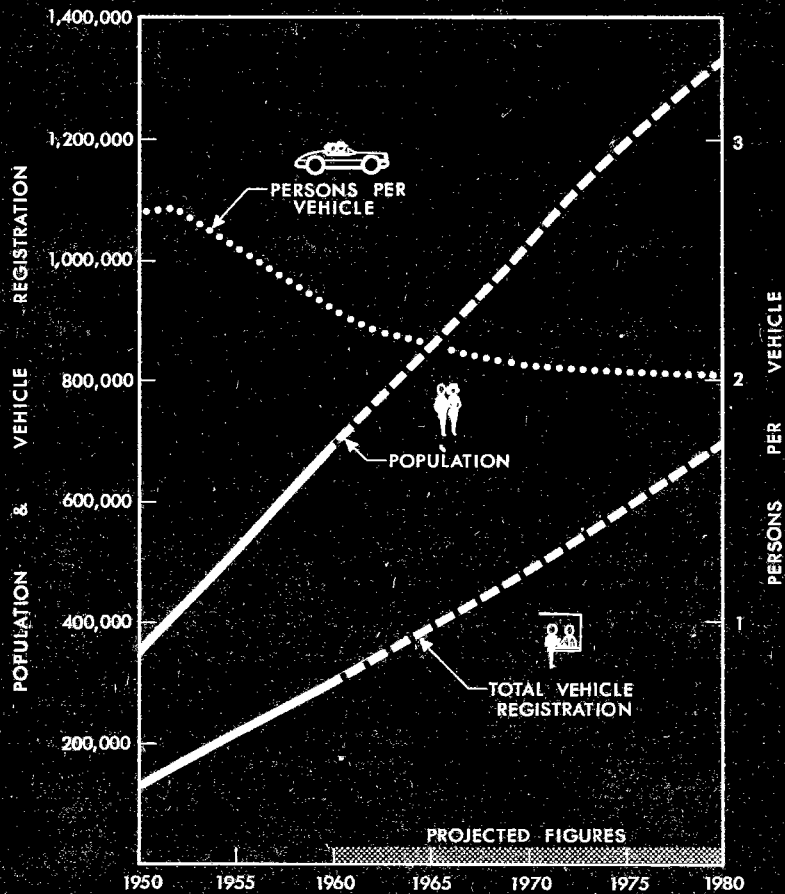
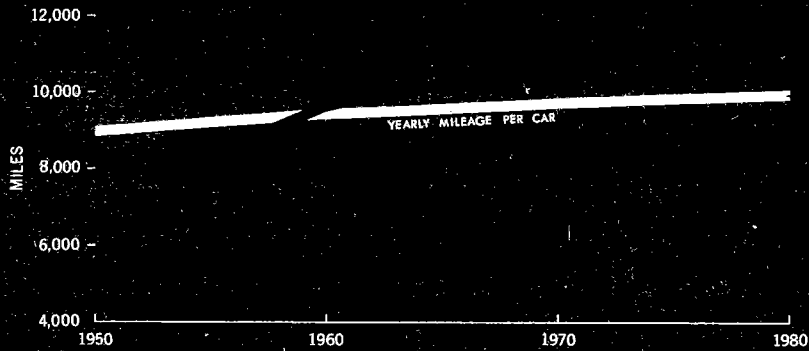
Commercial Use of Natural Resources. In spite of extensive bulldozing for suburban developments, about 35% of the Regional District remains in forests, and much of it is of commercial value. About 18 million board feet of lumber and 4,000 cords of pulpwood are harvested annually, bringing in a return of something over a million dollars each year. For the past several years there has been a noticeable trend against selling timber on a single-shot, clear-cutting basis. Tree farming under sustained yield practices allows the owners of small forests to earn cash by selling off mature trees while at the same time putting their remaining timber in condition to mature faster and bring in continuing profits in the future. The U. S. Forest

Service reports that, with proper management, there was never a better time to make a small forest pay.

Mineral extraction, of sand, gravel, crushed stone, and brick clay has been a small but growing segment of the Regional District's economy in past years. Sand and gravel production, for example, rose from about 3.5 million tons in 1956 to nearly 5 million tons in 1960, while the market value of the product rose from \$4,560,000 to \$6,500,000.

Although employment in these resource industries is not large it is important. There is a steadily rising demand for local building materials, which can be supplied only if urban development is prevented from encroaching on known mineral deposits.

Overall Employment Projections. From the 1960 level of 178,000 jobs in the Regional District, it is estimated that total employment will reach 398,000 by 1980 and about 730,000 by the year 2000. The land needed for all these additional government, industrial and commercial employment centers will be about 15 square miles between now and 1980, and another 30 square miles between 1980 and the year 2000.



LAND FOR TRANSPORTATION

Streets and highways account for about 30 percent of the land area in typical residential subdivisions of the recent past. And now freeways are beginning to cut huge swaths across the landscape, taking even more land for transportation. But this is still only part of the whole picture. Automobile parking lots are just as necessary as streets and highways. Public parking lots in Montgomery County alone occupy more than 40 acres. All this does not seem so bad in outlying subdivisions where there is plenty of space, but it does seem outrageous in closer-in communities where commuting traffic concentrates, demanding more and more space. It is time to wonder whether some of the more congested areas will be able to survive the onslaught.

Is the automobile about to conquer the city, or has it already done so? The situation is getting worse instead of better. Automobile registrations are climbing not only because population is growing but also because two and three car families are becoming typical. And on the average, each car is being driven farther each year than in the preceding year. There is a question whether new highway construction can keep pace with the automobile manufacturers, but if it does, there is the even graver question of whether there will be room in the city for anything other than highways and parking lots. We cannot afford to lose the employment, social, and cultural advances of urban living just because we love our automobiles.

A transportation system based only on highways demands too much land. Thus, a more efficient one, including rail rapid transit, must be devised.

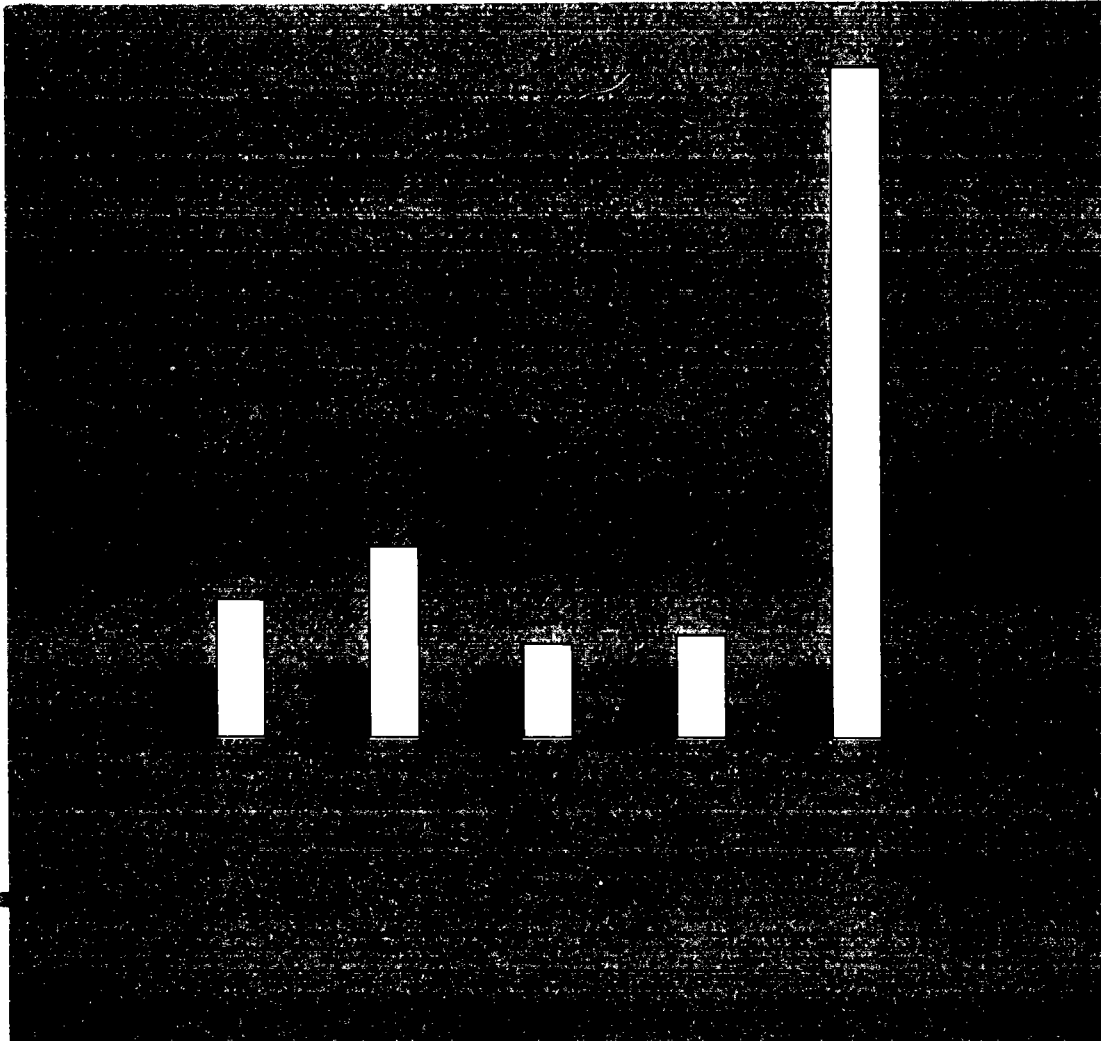
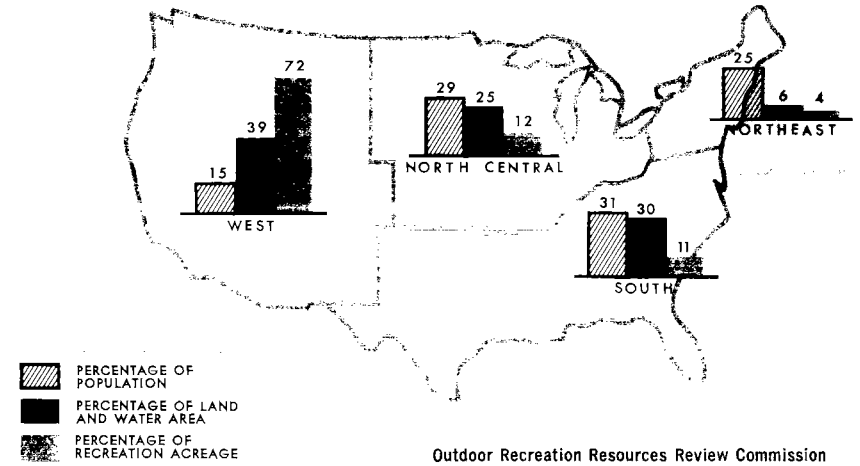
LAND FOR CONSERVATION AND RECREATION

The need for protecting mineral deposits and maintaining a rural environment so that agriculture and forestry can prosper

has already been indicated. In the past, land for these uses has been drastically reduced, out of proportion to need, by the intrusion of urban uses scattered aimlessly here and there through the countryside, encouraging speculators to buy out farmers long before the land was needed for urban uses. Such practices have wasted land by allowing it to lie idle, and at the same time have created pressures for far-flung and unnecessary sewer and water facilities. To avoid these unfortunate circumstances in the future, rural areas should be kept rural and mineral deposits wherever they occur should be protected for future use.

However, these are by no means the only conservation needs. Other important ones are soil conservation, the conservation of water resources, and the conservation of open space for outdoor recreation. These conservation needs are closely related to each other and to the conservation of mineral, agricultural, and other rural resources. The same land can be, and sometimes has been, used for more than one of these purposes. Multiple-use land management in effect multiplies the amount of open land available while at the same time increasing the owner's return from his land holdings.

Water Supply. The foresightedness of the State and local authorities who organized the Washington Suburban Sanitary Commission in 1918 cannot be praised too highly. The WSSC, which was set up to construct and operate the water supply and sewage disposal facilities for the Maryland suburbs, is an excellent example of advance planning for future needs in the field of water resources. This advance planning has enabled WSSC for many years to maintain a pollution-free, reasonably-priced source of drinking water from its reservoirs on the Patuxent River, and to prevent contamination from entering the many small streams in the Regional District that flow into the Patuxent and the Potomac watersheds.



However, as suburban developments have mushroomed far out into the countryside, water supply and pollution control problems have been magnified beyond anything foreseen by the founders of the WSSC. The Patuxent is no longer capable of supplying the domestic water needs of present-day populations, and the WSSC had to tap the Potomac River in 1961 to provide a supplemental water supply for the Maryland suburbs. Larger withdrawals from the Potomac are in prospect for the future, and eventually this will become the major water supply source for the area.

But even the Potomac is not inexhaustible. Population trends and the growing per capita use of water in the Regional District and elsewhere throughout the Washington area demonstrate that normal water demands will exceed the Potomac's minimum dependable flow by about 1975. The Army Corps of Engineers has developed a series of alternate plans for storing and regulating the flows of the Potomac, and one of these plans will probably be adopted within the next year or so.

The District Engineer for the Corps has recommended construction of nine large dams and about 400 small dams, plus the reservation of sites for seven other large dams on the Potomac River and its tributaries within the next ten years. The largest of these dams on the Potomac would be in Montgomery County near the mouth of Seneca Creek and would require about 19,000 acres of County land. Some land for small dams would also be needed in Montgomery County. Two water supply dams on the Patuxent River have already required about 2,480 acres and another 3,360 acres will be purchased along this river for watershed protection and recreation. Regardless of which plan for development of the Potomac River is adopted water supply and watershed protection measures will require large amounts of land in the Regional District.

Sewage Disposal. For many years the sewer system of the WSSC has been conveying the Regional District's water-borne wastes to the District of Columbia's sewage treatment plant for disposal. Supplementary means of waste disposal will soon be needed as the Maryland suburban area continues to extend beyond the geographical limits of service by the D.C. treatment plant. Development in several Prince George's County watersheds eventually will have to be served by additional permanent sewage treatment plants located on the Potomac and Patuxent Rivers south of Washington. But until the limited access trunk sewers and permanent plants at these locations can be justified, small populations upstream can be adequately served by temporary oxidation ponds.

The recent trend towards these "oxidation ponds"—or sewage lagoons—is worthy of note here, since they may be called upon to solve temporary waste disposal problems developing in several outlying areas of the Regional District. They are simply wide, shallow ponds scooped out of the earth for the containment of domestic sewage. The sewage settles to the bottom of the pond, where it is made harmless by the action of algae. A surprisingly clear liquid remains at the top. The chlorinated outflow from these ponds compares favorably with the quality of discharges from modern sewage treatment plants.

The Corps of Engineers' plans for dams in the Potomac River Basin play as important a part in pollution control as in water supply. In fact twice as much water must be stored in dams to dilute and flush away sewage as to supply water for our homes and businesses. This is doubly important on the Potomac River along the shores of the District of Columbia and lower Prince George's County because the tide keeps trying to push the sewage back up-stream. Even the best treatment plants do not remove the need for diluting and carrying off wastes.

Other Benefits from Dams. By stopping the rampaging waters that follow big storms and spring thaws, dams play an important role in flood prevention and erosion control. But recreation is perhaps the most dramatic benefit from dams, large and small. The President's Outdoor Recreation Resources Review Commission has found that "water is a magnet. Wherever they live, people show a strong urge for water-oriented recreation."¹ ORRRC also found that "Since World War II, there has been increasing recreation use of reservoirs. The availability of water recreation in areas that previously had little answered a tremendous need, and this is particularly significant because these reservoirs were not built for recreation. . . . In future planning for water impoundment projects, the recreational potential should be considered from the start."² Indeed, dams are some of the best examples of multiple-use resource development. This has been proven time and time again in the past, and there is no reason why it should not be proven again in the Regional District.

The Maryland State Economic Development Commission recently had a study prepared for it showing the economic benefits which could be derived from the construction of a major dam on the Potomac.³ This report makes it clear that recreation can

be a very big business and a major dam could be a great economic asset as well as an asset in many other respects.

Recreation Trends. "The demand is surging. Whatever the measuring rod—visits to Federal and State recreation areas, fishing license holders, the number of outboard motors in use—it is clear that Americans are seeking the outdoors as never before. And this is only a foretaste of what is to come."⁴ "The measure of the problem:" according to the ORRRC is that, "outdoor recreation activity, already a major part of American life, will triple by the year 2000."⁵ Outdoor recreation in all its forms is a tremendous user of land. Public parks in the Regional District have been and will continue to be expanded to meet the growing demand. Expansions already planned will increase the present 10 square miles of parkland to more than 60 square miles. In addition there will be plenty of need for private recreation land.

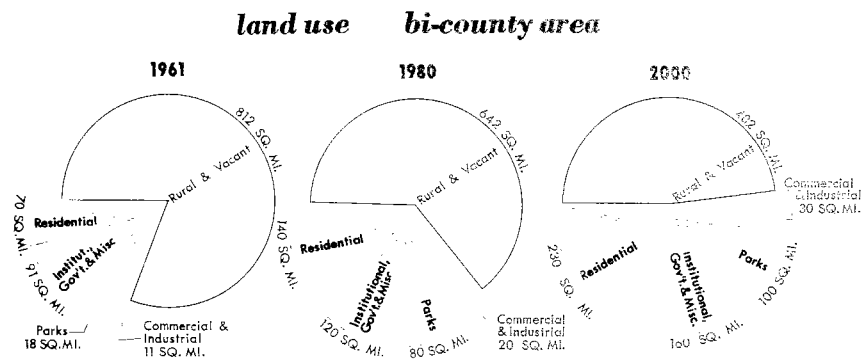
¹ *Outdoor Recreation for America*, p. 27.

² *Ibid.*

³ Harry G. Clement, *River Bend: Its Potential Economic Significance for Maryland*, a report prepared by Chesochi and Company, Annapolis, Maryland, for the Maryland Department of Economic Development, November, 1961.

⁴ *Ibid.*, p. 35

⁵ *Ibid.*, p. 47



Note: See Summary Statistical table in appendix for Planning Area Analyses

CHAPTER

15

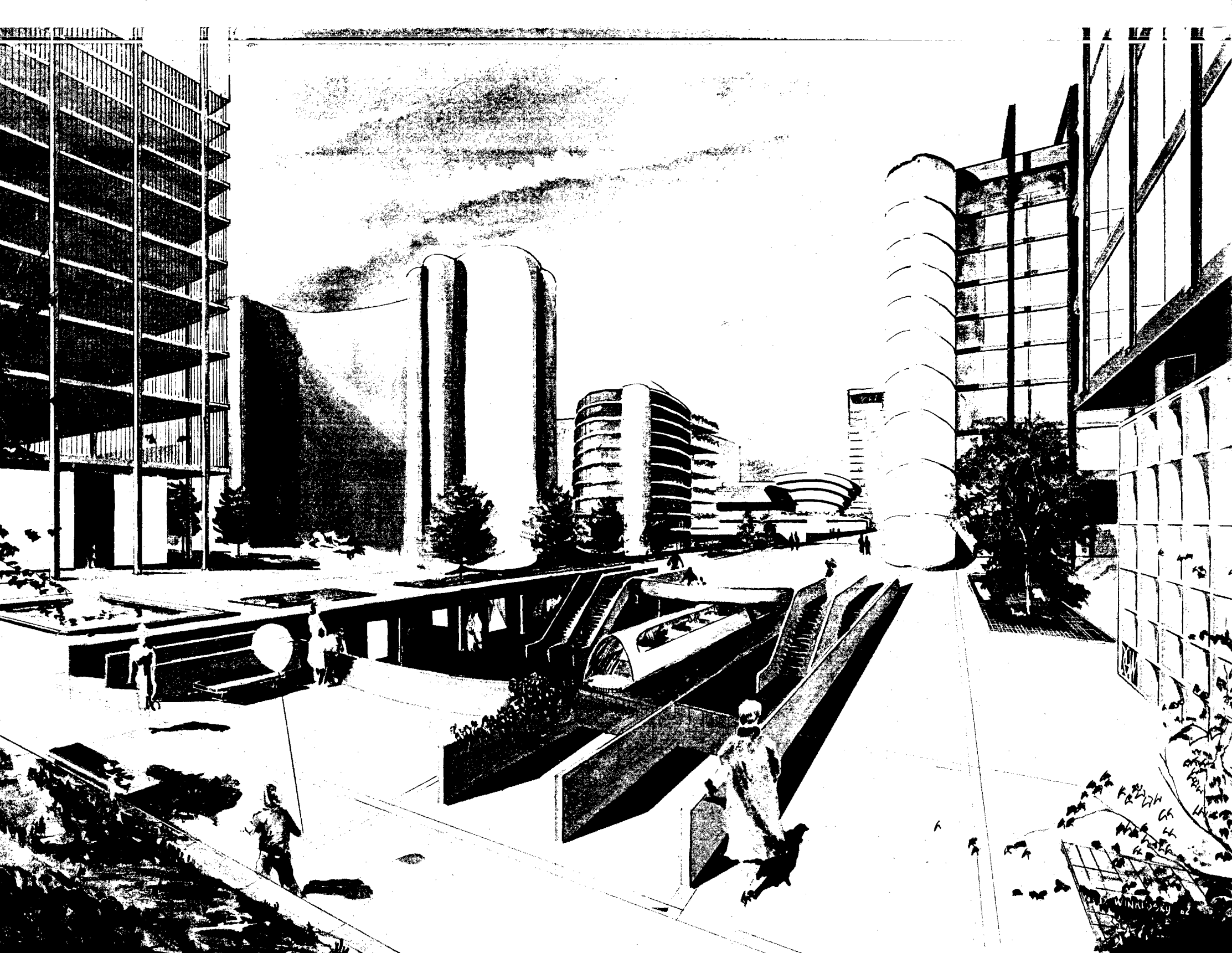
THE ALTERNATIVES

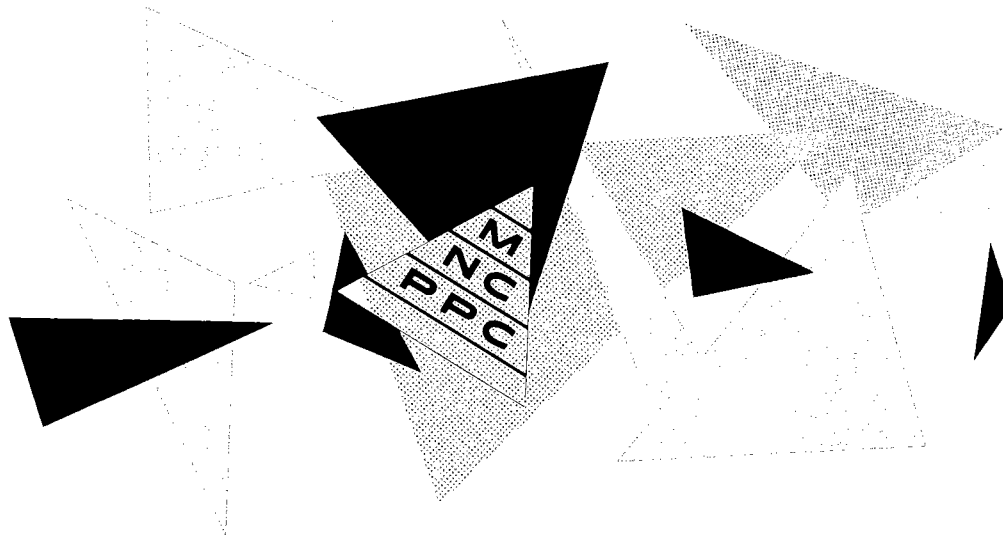
Choose always the way that seems the best, however rough it may be; custom will soon render it easy and agreeable.

—PYTHAGORAS

The general conclusion to be learned from the trends reviewed in Chapter 14 show that the Regional District is growing rapidly in all respects; and so are its needs. And plan for the area must satisfy these needs.

Not only the trends, but also the goals described in Chapter 1, provide the yardstick for judging the desirability and adequacy of alternative plans for development of the Regional District. It is the purpose of this Chapter to present and analyze the four major patterns in which this development could take place. The corridor pattern was finally chosen as the basis for this General Plan, but only after careful comparison with the three alternative patterns known as Sprawl, Average Density, and Satellite.





SPRAWL PATTERN

Under the sprawl pattern of development, new growth would follow its present trend of expanding outward in all directions at low densities, seeking always the lowest priced land. Sprawl takes place naturally in the absence of energetic and coordinated public policies to guide new growth. The problems that have been created by sprawl in the past would be magnified in the future if this pattern is allowed to continue.

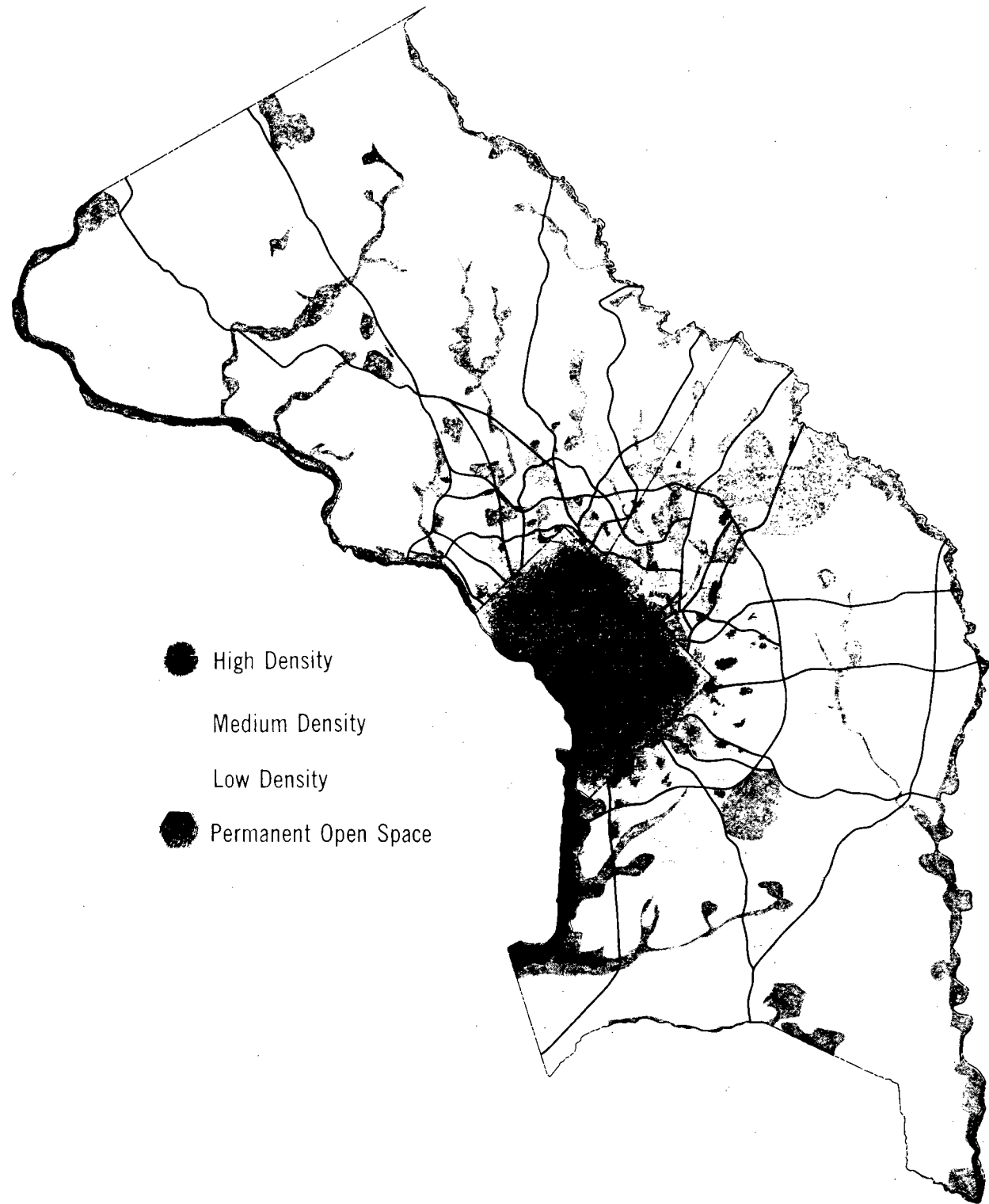
Sprawl is characterized by scattered urban development, "septic villages" without adequate public facilities, unpredictable demands for service which can only be met by catching-up after a period of inadequacy, increased costs for public services, and the dominance of private automobiles. As a result taxes continue to go up; rush-hour traffic gets worse; public transportation is too slow and infrequent; living environments become inconvenient and less pleasing than they should be. Knowing what development will occur at any particular time and location is impossible.

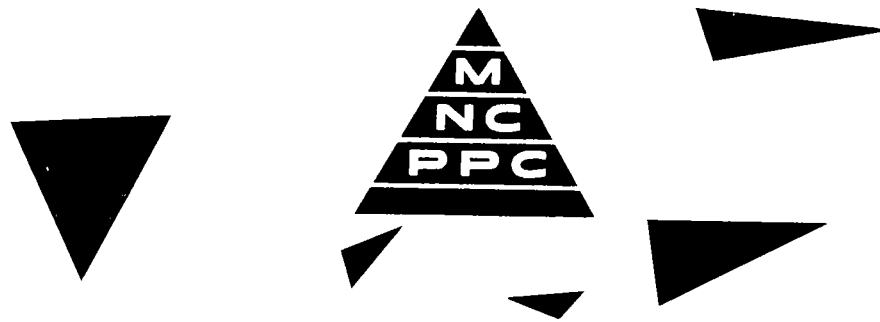
Sprawl takes place in a series of hops, skips, and jumps leaving large amounts of undeveloped land between fully developed subdivisions. Emphasis at first is on single-family housing

occupying low cost land, but the value of by-passed land rises, often to the point where it is no longer available for single-family use. Real estate taxes based upon the vacant condition of land, instead of its value for uses allowed under existing zoning, encourage landowners to hold on and seek more intensive zoning later. The inflated price of by-passed land is very often used to justify zoning changes contrary to public plans and the established character of the neighborhood. In this way individual land owners play the dominant role in determining the location of shopping centers, employment centers, and apartment projects. Community-wide planning tends to give way to individual initiative and the largely unrestricted forces of the real estate market. Thus the community ends up with development contrary to the convenient and harmonious plan it set out to follow. Sprawl is largely the result of permissive and even passive planning—planning by reaction rather than by initiation of positive public policies.

More than anything else, past experience with sprawl demonstrates that a more compact and stable form of development is necessary to satisfy the goals that should guide future development in the Regional District.

sprawl pattern





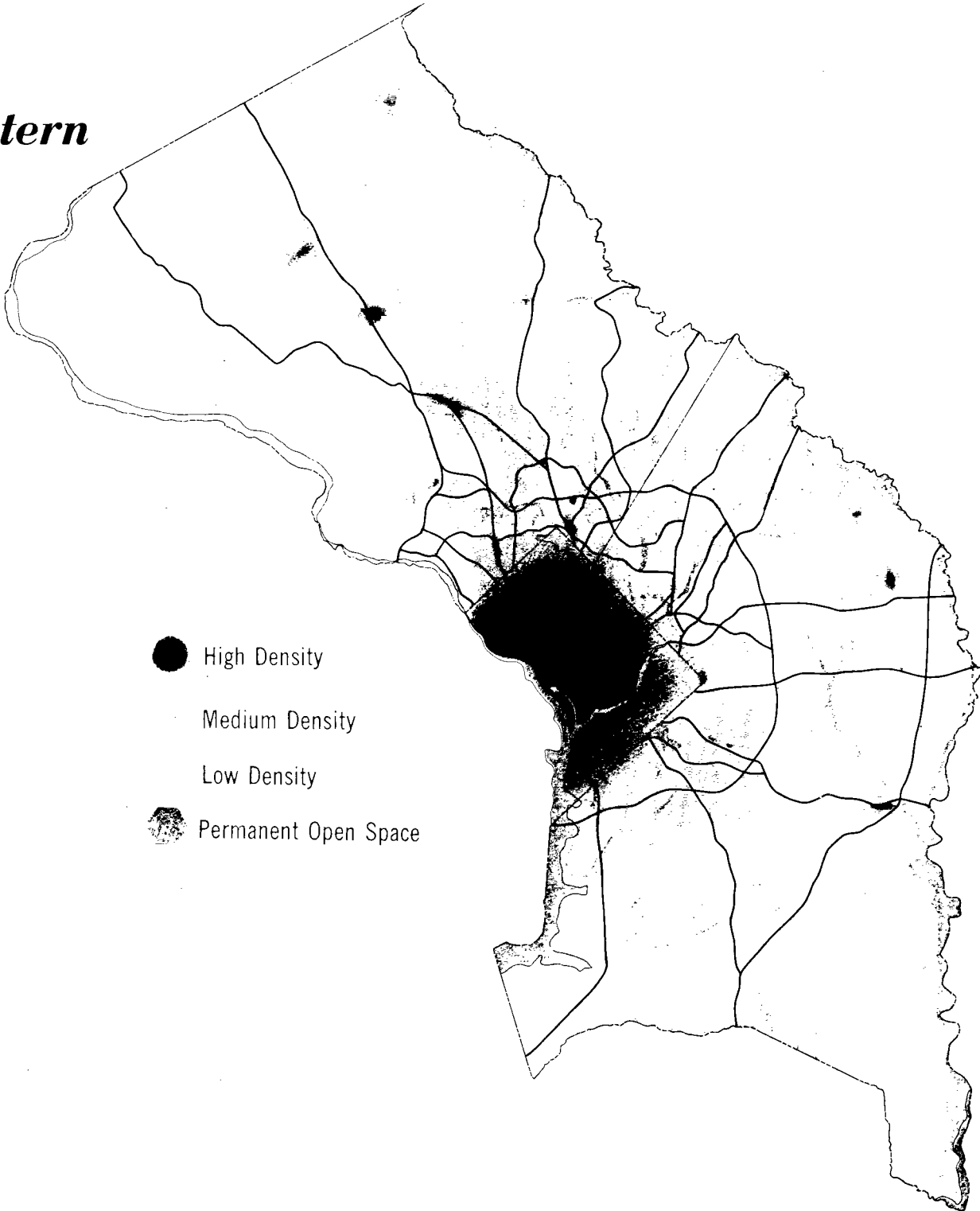
In 1960 the Commission published and held public hearings on *A Preliminary Master Plan of Residential Land Use*. Although this plan was not adopted, it has been used as the basis for the average density development pattern. The term “average density” refers to the way in which the *Residential Land Use Plan* proposed various average residential densities for all parts of the Regional District, neighborhood by neighborhood, consistent with the need for urban land, the existing character of development, and topographic conditions influencing extensions of the gravity sewer system.

As an alternative to unlimited sprawl the average density development pattern might be characterized as controlled sprawl. The 1960 plan showed for the first time that much of the rural land in Montgomery and Prince George’s Counties would not be needed for urbanization many years hence, even with a continuation of suburban building for relatively low numbers of families per acre. It attempted to set a pattern of urban concentration

which would protect the rural areas from scattered urbanization; and it proposed that the natural tendency toward uniform and monotonous expansion of the suburbs be broken up and given variety by alternating areas of high and low densities. Limited use of rapid transit was proposed, but highway transportation was primarily relied upon. Although urban residences were clustered most heavily along major radial freeway and highway routes, there were for the most part no clear boundaries separating urban and rural areas. Finally, Germantown and Levittown were proposed as separate towns of moderate size outside the solidly urbanized area.

The average density development pattern is therefore an evolutionary stage between uncontrolled sprawl and the highly compact satellite and corridor patterns. It shows moderate urban concentration in a fuzzy corridor pattern with two rudimentary satellite cities beyond.

average density pattern





SATELLITE PATTERNS

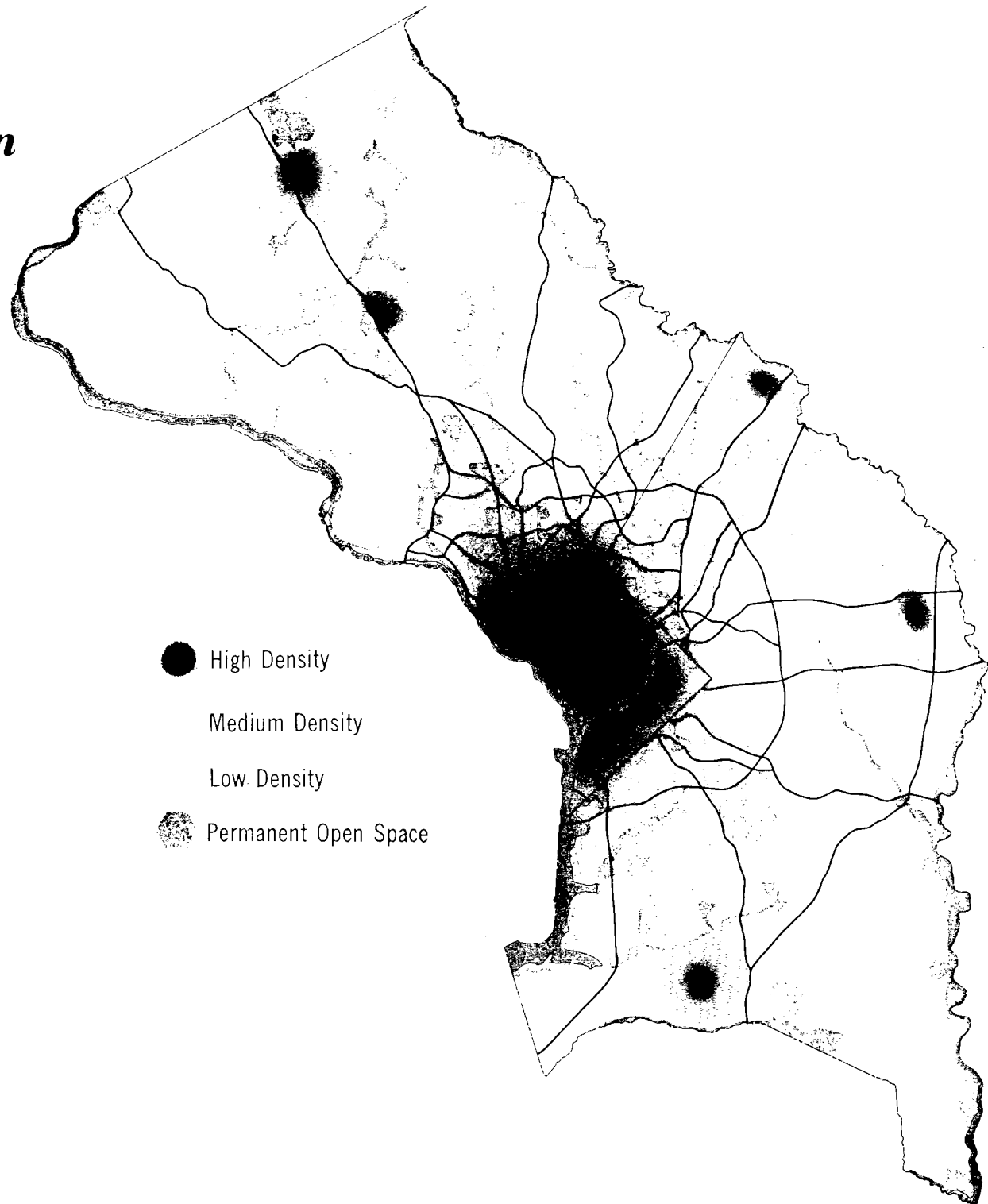
A satellite pattern of development would put much of the new urban growth into brand new cities some distance outside the presently urbanized area and separated from it by permanently rural country-side. The advantage of this pattern is that it would prevent the ceaseless urban expansion that so often engulfs everything in its path and leaves little if any large-scale open space within easy range of most urbanites. Occupants of a satellite city would have the further advantage of not feeling so lost in the mass; they would be encouraged to develop a feeling of identity with their separate satellite communities.

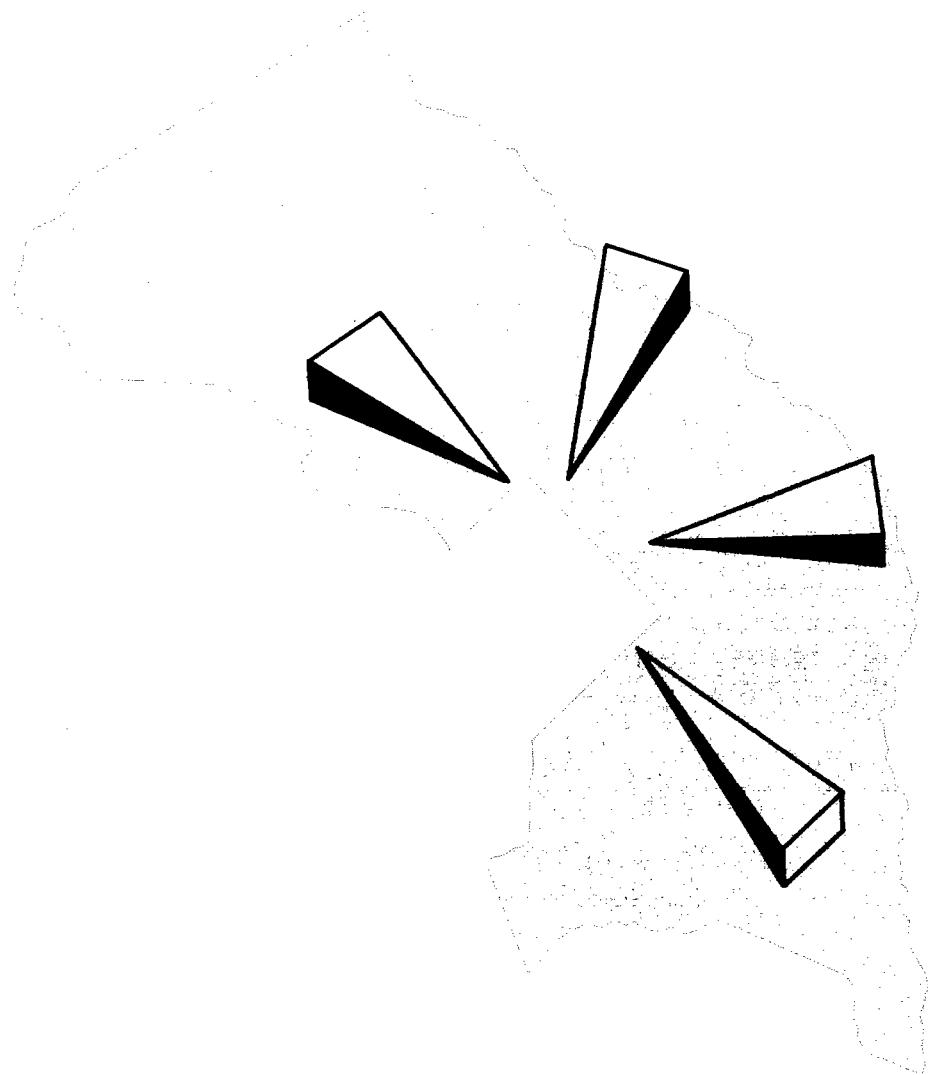
The specific satellite pattern shown here for the Regional District has five new cities of about 100,000 persons each. These new cities would have important advantages of unified and pleasant community design providing wide ranges of living en-

vironments and job opportunities. But they would still be considerably dependent upon the central city of Washington. Therefore, an efficient system of transportation including both freeways and rapid transit would be required. Recognizing this, the proposed satellites were located along the four radial freeway and rapid transit routes.

The Satellite pattern's biggest advantage, large expanses of open space on all sides, is also its biggest disadvantage. It increases the length of travel to the central city and it presents insurmountable problems of open space protection. The pressures for urbanization along the radial transportation routes between the satellites and the central city would be extremely difficult to withstand short of large scale public land purchasing.

satellite pattern





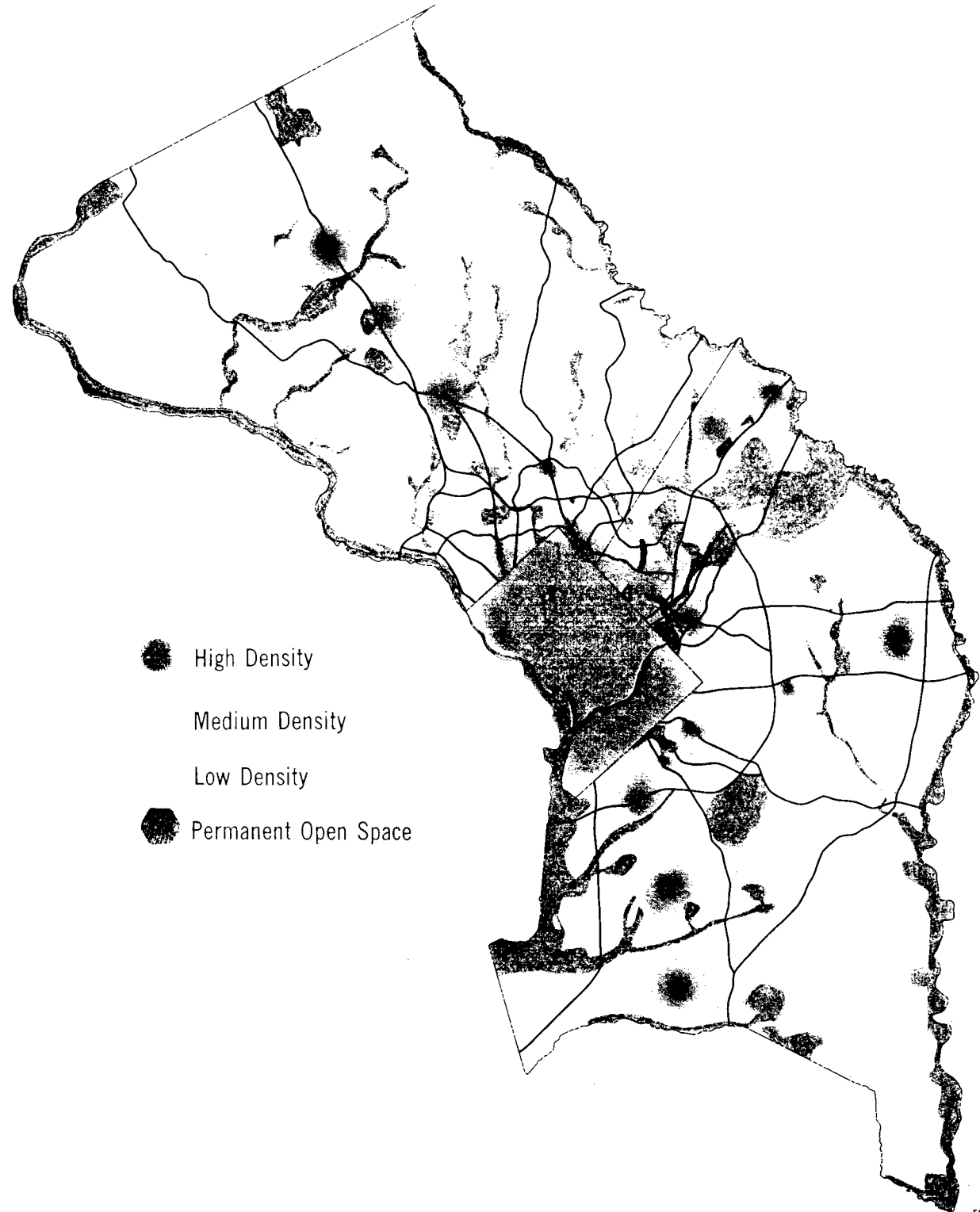
CORRIDOR PATTERN:

Like the satellite pattern, the corridor plan concentrates new urbanization in well defined areas separated from the rural countryside. The chief difference is that the corridor pattern pulls the satellites closer together along the four major transportation routes. In this way, the corridor pattern retains the advantages of concentrated and well organized urbanization without trying to retain large open spaces along the corridor axis between centers of population. Thus, transportation to the central city is facilitated while implementation problems are reduced.

The new corridor cities with about 100,000 people each will provide convenient services, pleasant living conditions and wide ranges of choice among housing types and job opportunities. Additional services and choices will be available along the radial transportation routes centering on downtown Washington where the greatest number of employment, business and social opportunities concentrate. The need for circumferential travel between corridors will be restricted largely to limited access beltways.

Efficient rapid transit depends upon relatively few highly traveled routes supported by closeness of residences and businesses to its stations, frequent service, fast and comfortable equipment. It is only under these conditions, found in the corridor pattern and to a somewhat lesser extent in the satellite pattern, that rapid transit will be attractive to a large enough number of people so that the insatiable need for highways and freeways can be brought under control.

corridor pattern



- High Density
- Medium Density
- Low Density
- Permanent Open Space

In weighing the advantages and disadvantages of these four alternative patterns of development it is best to compare them directly with each other in terms of whether they would help or hinder achievement of the goals set forth in Chapter 1.

The aimless, scattered pattern of sprawl, with its extravagant leap-frogging and overemphasis on larger and larger residential lots, obviously hinders the efficient use of land. The average density pattern might be called neutral in achieving the goal of efficient land use, since it reduces aimless scattering, but it does not encourage and could not accommodate high density commercial and residential areas such as those which would be built in the cores of new corridor or satellite cities. Both the satellite and corridor patterns make positive contributions toward achieving the efficient use of land.

The sprawl pattern, with its traditional over-zoning and leap-frogging, is diametrically opposed to the achievement of this goal. The satellite pattern is not haphazard, but in its effort to separate new cities from the old, it contains both an element of leap-frogging, and a built-in threat of unplanned urbanization in the open space along the connecting transportation routes. The average density and corridor patterns extend previously developed areas in sequence and would therefore assist orderly conversion. Break-throughs of unplanned development into rural areas are least likely to occur in these two patterns.

Sprawl's haphazard invasion of rural areas disrupts the rural environment and intrudes upon activities such as quarrying which become obnoxious in close quarters. Septic villages and disruption of storm run-off may occur under sprawl with too little warning for adequate watershed protection measures to be taken. Thus, both the lack of predictability and the wasteful use of land contribute to the tendency of sprawl to work against natural resource protection. By contrast, the concentration of urban uses and their predictable locations are characteristics of the other three patterns quite advantageous to conservation and rural development programs.

Again the scattered pattern of sprawl works against the goal. An urban house, even a whole urban subdivision, may spring up almost anywhere under the sprawl pattern. Houses may line the rural highways giving the impression that an area is heavily developed while in reality only a small proportion is actually urbanized. The average density pattern would cut up open space into relatively small and unusable pieces by alternating large and small lot areas instead of consolidating residential areas and separating them from rural areas. Satellite and corridor patterns propose preservation of the largest possible rural open spaces within easy reach of most urban areas.

All four patterns of development would allow expansions of public park systems. But since an adequate expansion of outdoor recreation opportunities must rely to a great extent on private rural land, it must rely upon the protection and enhancement of rural areas. Here again sprawl is least adequate; average density is somewhere between; satellite and corridor patterns are most adequate.

FACILITATE THE ORDERLY AND EFFICIENT ARRANGEMENT OF PUBLIC UTILITIES AND SERVICES.

The following text is extremely faint and illegible, appearing to be a list of items or a detailed report related to the first heading.

PROVIDE AN EFFICIENT SYSTEM OF TRANSPORTATION INCLUDING RAPID TRANSIT.

The following text is extremely faint and illegible, appearing to be a list of items or a detailed report related to the second heading.

ENCOURAGE GREATER VARIETY OF LIVING ENVIRONMENTS.

INVITE IMAGINATIVE URBAN DESIGN.

ASSURE IMPLEMENTATION OF THE PLAN:

Summarizing the advantages and disadvantages of the four alternative development patterns in terms of the ten goals, the corridor pattern rates highest overall, with satellite second, average density third, and sprawl a poor fourth. The satellite pattern would have rated nearly as high as the corridor except that it was more expensive and harder to implement. The average density pattern has several advantages but they are offset by disadvantages. Sprawl's only advantage is its ease of implementation.