

The Committee recommends that the method of acquisition of highway right-of-way by a highway department be simplified to permit the immediate occupancy of such land

The Committee is of the opinion that properly conducted highway transport surveys will give the requisite information upon which to base the acquisition of the necessary rights-of-way on various parts of the highway system to provide facilities for potential traffic

TYPE OF PAVEMENT BASED ON TRAFFIC REQUIREMENTS

The selection of surface type on any highway cannot be necessarily based on its designation as a primary, secondary or tertiary route, due to the fact that this designation is based on the value of the route to the State as a whole, rather than on the character and volume of the present and potential traffic using such route.

The Committee is of the opinion that the type of surface is a question of economic design and that this problem should be reported by the Committee on that subject, rather than by the Committee on Highway Traffic Analysis

POPULATION AND HIGHWAY TRAFFIC

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A comprehensive plan of highway development must consider not only the present population and its distribution but also the trend of population and industrial development

The city of Chicago, the economic center of Cook County, Ill, included in 1920 approximately 20 per cent of the land area and 88.5 per cent of the population of the county. As distance from the city increases, population and industrial development as well as highway traffic decreases

The location of the city on Lake Michigan has limited the trend of population and industrial development to three directions, north, west and south. The development in these directions is indicated by the expansion of the area of the city from a small section located in the vicinity of the present "Loop" district to its present area of over 200 square miles. In spite of this great increase in area, population and industrial development have expanded beyond the political limits of the city, and in an economic sense, the city includes a large number of cities and villages which are contiguous to the city proper

In 1920 there were 74 incorporated cities and villages, exclusive of Chicago, in Cook County. Three of these cities and villages had a population in excess of 25,000 persons, eight a population in excess of 10,000, and 14 a population in excess of 5,000. Of the 74 cities and vil-

lages, 50 are located within 5 miles of the city of Chicago, and these, in 1920, had a total population of 260,140, 84.5 per cent of the population of the 74 villages and cities, and 74.0 per cent of the total population of the county, exclusive of the city of Chicago.

The large number of cities and villages surrounding the city intensifies the problem of providing highway service in this area. The growth of these cities and villages has made necessary the provision of direct highway routes between them and Chicago. At the same time, their development has produced congestion centers for local traffic on the principal thoroughfares of the county. The incorporation of these cities and villages has created a large number of separate jurisdictions and increased the difficulty of planning and construction of a unified and balanced highway system in the county.

During the decade 1910 to 1920 the population of Chicago increased 516,422 persons, or 23.6 per cent, from 1900 to 1910 the increase was 486,708 persons, or 28.7 per cent. The area of the city increased to some extent during these periods but the entire increase in area from 1900 to 1920 was less than 5 per cent. During the decade 1910 to 1920 the population of Cook County increased 26.9 per cent, and from 1900 to 1910, 30.8 per cent. The increase for the entire county was in each period slightly more rapid than for the city of Chicago indicating that the population in the area outside the city has increased at a more rapid rate than the population of the city. The increase of population in the county exclusive of the city of Chicago, disregarding changes in the area of the city, was 59.7 per cent from 1910 to 1920, and 56.9 per cent from 1900 to 1910. The more rapid increase of population in sections of the county outside the present limits of the city may be expected to continue.

Figure 1 presents graphically the population per square mile (land area), the decrease or increase of population from 1910 to 1920, and the relation between highway traffic and population.

In this map the county is divided into eight sections, as follows:

- 1 City of Chicago
- 2 North-east section, consisting of the city of Evanston and townships of Niles and New Trier
3. North-central section, consisting of the townships of Maine and Northfield
- 4 North-west section, consisting of the townships of Barrington, Palatine, Wheeling, Hanover, Schaumburg, and Elk Grove
- 5 Western section, consisting of the area west of Chicago, south of Devon Avenue extended, and north of 87th Street extended, including the townships of Berwyn, Cicero, Leyden, Lyons, Norwood Park, Oak Park, Proviso, River Forest, Riverside, and Stickney

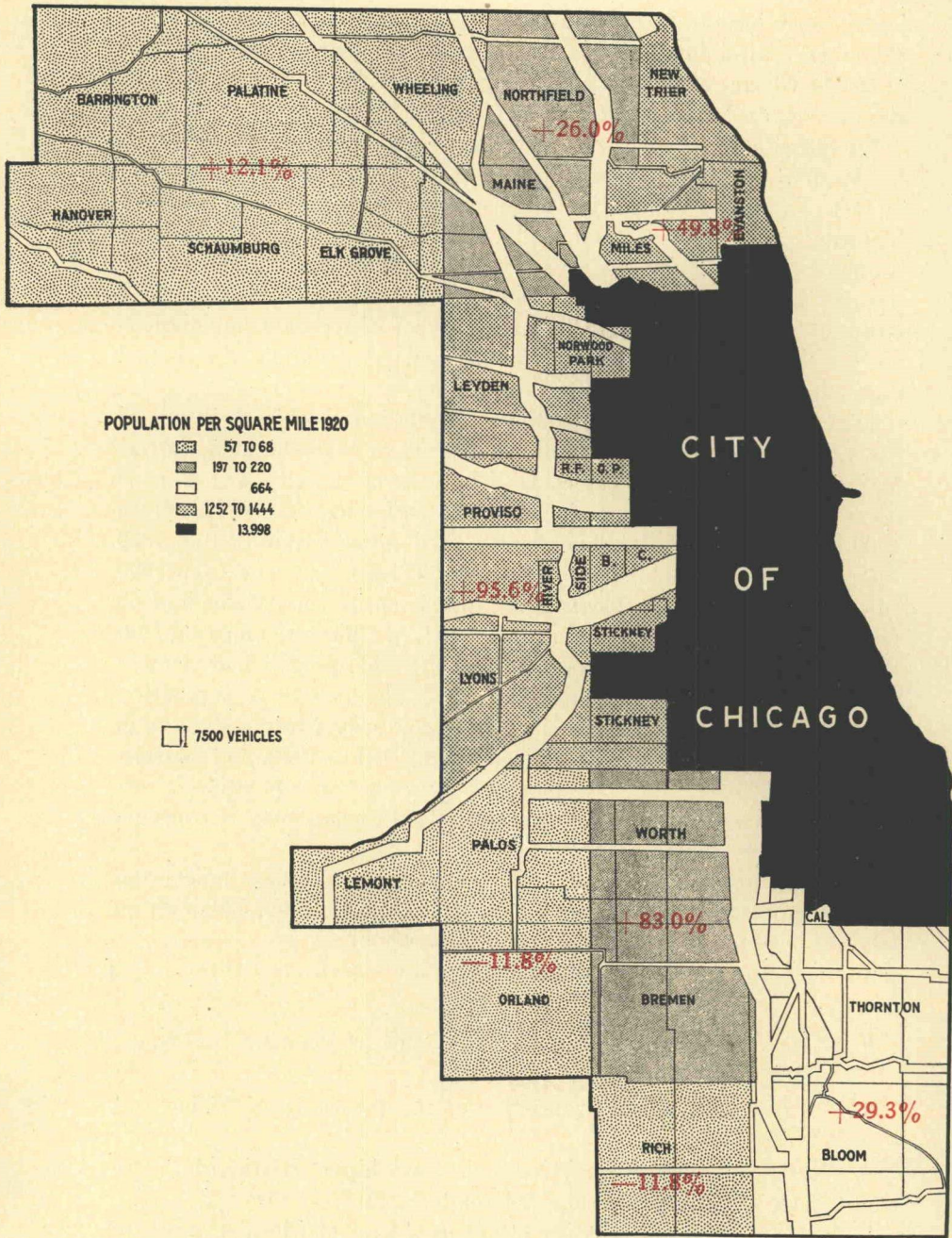


Figure 1
 Population density and highway traffic in Cook County, Ill. (Population increase or decrease, 1910-20, shown by numeral overprint)

- 6 South-west section, consisting of the townships of Lemont, Orland, Palos, and Rich
- 7 South-central section, consisting of the townships of Bremen and Worth
- 8 South-east section, consisting of the townships of Bloom, Calumet, and Thornton

The population per square mile in 1920 and the relative change in population between 1910 and 1920 in each of these areas is shown in Table I

TABLE I
POPULATION PER SQUARE MILE AND CHANGE FROM 1910 TO 1920¹

Section	Persons per square mile 1920	Ratio of 1920 population to 1910 population
		<i>Per cent</i>
City of Chicago	13,988	123 6
North-east section	1,444	149 8
West section	1,253	195 6
South-east section	664	129 3
South-central section	220	183 0
North-central section	197	126 0
North-west section	68	112 1
South-west section	57	88 2
Whole county exclusive of City of Chicago	475	159 7
Whole county	3,272	126 9

¹ Calculated from United States Census of Population 1920

The grouping of population about the city of Chicago as a center is very apparent. Ranking next to the city in density of population are the three areas directly contiguous to the city—the west, the north-east, and south-east sections. Of these three sections the west and north-east sections are quite similar in population density and exceed considerably the density of population in the south-east section. Next in importance are the sections only partially adjacent to the city—the north-central and south-central sections. These two sections are very similar in density of population but the population per square mile is only approximately one-sixth of that in the west and north-east sections. The areas having the fewest persons per square mile are the sections most distant from the city—the north-west and south-west sections, which have a density of population respectively, of 68 and 57 persons per square mile.

Reference to Figure 1 will indicate the close relation between population density and highway traffic. Population decreases rapidly with

the increase in distance from the city of Chicago. The volume of highway traffic on each route also decreases rapidly with the increase in distance from the city. The traffic on any particular highway naturally varies with the location and condition of parallel or alternative routes in the area but the total traffic on all highways in an area is obviously closely related to the population of the area.

The relation between population and highway traffic indicates the necessity of considering population trends in the formulation of a highway improvement program. The trends of population growth in Cook County very markedly in different sections of the county. With some exceptions the trends are similar to the distribution of present population. The relative increase in population in the city of Chicago is not as great as the relative increase in the adjacent areas. However, of the total increase of 647,784 persons in the population of the county between 1910 and 1920, 79.7 per cent was in the city of Chicago, and between 1900 and 1910, 85.9 per cent of the total increase of 566,498 persons was in the city.

The most rapid increase in population during the decade 1910 to 1920 has been in the western section of the county, south of Devon Avenue Extended, and north of 87th Street extended. In this section population increased 95.6 per cent during the 10-year period. The south-central section also increased very rapidly during this period. The population of this area in 1910 was 9,252, and in 1920 it was 16,929, an increase of 83 per cent.

With these exceptions the trend of population growth has followed the present distribution of population. It is significant that the areas having the lowest density of population also had the lowest rate of population change during the decade 1910 to 1920. The north-west section with 68 persons per square mile had an increase in population of only 12.1 per cent during the 10-year period, and the south-west section, with 57 persons per square mile, had a decrease in population of 11.8 per cent during the same period. It is evident that these areas, having a low density of population and having at present a decreasing or only slowly increasing population will not produce a large amount of highway traffic for a considerable period of time. As these areas are also located at some distance from Chicago a relatively small part of the traffic produced in the city will use highways in this area except as these highways connect the city with more distant centers of population such as Elgin and Joliet. Traffic between Chicago and these cities is a comparatively small part of total traffic on Cook County highways.

From all points of view, therefore, the evidence is conclusive that the greatest need for highway improvement in the county is in the west, north-east, and south-east sections. These sections have a relatively dense present population, a rapid increase in population and are also

directly adjacent to the city of Chicago. The need for betterments in the south-central and north-central sections is greater than in the north-west and south-west sections but far less than in the west, north-east, and south-east sections. The south-central section is increasing in population rapidly but its present density of population is low.

Assuming the rate of increase in the south-central section between 1910 and 1920 to continue, the present density of population in the south-eastern section would not be reached for almost 20 years, and almost 30 years would be required to reach the present density of the western section.

On the basis of past experience highway traffic may be expected to increase even more rapidly than population. The traffic is closely related to the number of traffic units as reflected in motor vehicle registration, and the registration is increasing more rapidly than the population. In 1914, 31,869 motor vehicles were registered in Chicago, or one vehicle for 75.7 persons. In 1924 the registration of motor vehicles was 305,143, one vehicle for 9.64 persons. The very rapid increase of motor vehicles as compared with the increase in population is indicated by the increase in motor vehicles from 1 for 75.7 persons to 1 for 9.64 persons in a 10-year period.

It is estimated that the registration in the city of Chicago in 1930 will be approximately 670,500 motor vehicles, and that this registration will be equivalent to 1 vehicle for 4.86 persons. This increase of over 100 per cent in motor vehicle registration by 1930 may be expected approximately to double the present traffic on the highways of the county. To provide highway service for this rapidly increasing volume of traffic, especially since the present highway system does not meet the demands of present traffic, the establishment of a comprehensive highway improvement program is essential. This improvement program must anticipate future highway needs and provide for future traffic as well as for present traffic a serviceable and efficient highway system.

INTERSTATE TRAFFIC ON FEDERAL-AID HIGHWAYS

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To what extent is highway traffic an interstate as contrasted with a local movement? That motor vehicles have vastly widened the range of both passenger and freight transportation, is a fact of common knowledge, and cars displaying license plates from far-distant states attract only passing glances.

Surveys of highway utilization recently made by the United States Bureau of Public Roads in cooperation with the highway departments of several States give a basis for a reasonably accurate measure of inter-