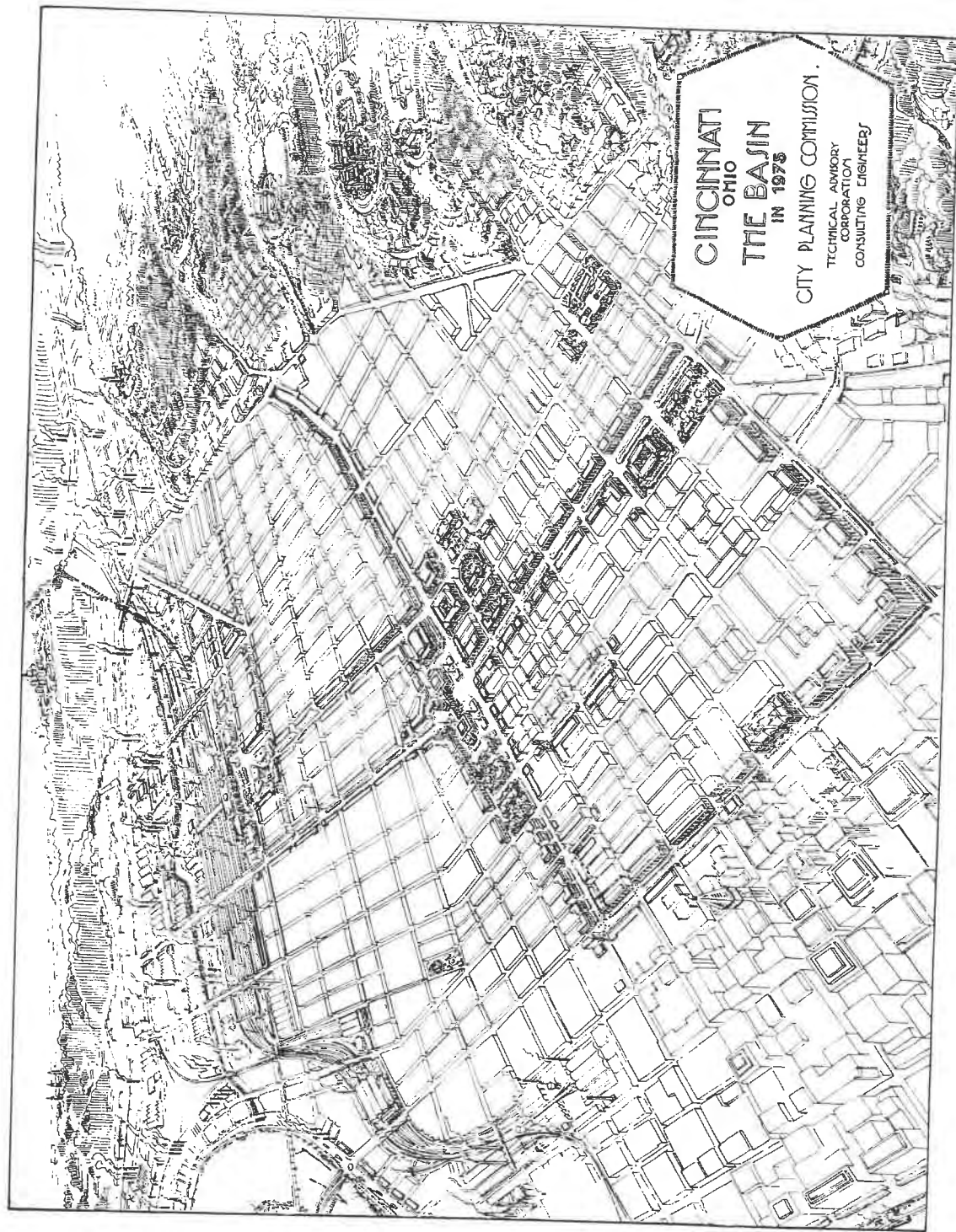


THE OFFICIAL CITY PLAN  
*of*  
CINCINNATI, OHIO

ADOPTED BY  
THE CITY PLANNING COMMISSION  
1925

PUBLISHED BY  
THE CITY PLANNING COMMISSION  
CINCINNATI



BIRDSEYE VIEW OF HOW CINCINNATI WOULD LOOK 50 YEARS FROM NOW, AS DEVELOPED UNDER THE CITY PLAN

# The City Planning Commission

-- OF THE --

City of Cincinnati, Ohio

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CINCINNATI BRIDGES  
The city's arteries to the South

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# Foreword

This is the Official City Plan of the City of Cincinnati.

The result of the labor of many hands, of years of collection and study of data and of constant and painstaking consideration and revision, it is presented to the citizens of Cincinnati as an earnest, sincere attempt to plan for the orderly development of the city during the fifty years to come.

The City Planning Commission which has prepared this report makes no claim to infallibility. With the assistance of engineers skilled in city planning, of advisors learned in the law pertaining to municipal government and all other matters involved herein, it has striven to foresee and make provision for those things which shall tend to increase the public health, safety, convenience, comfort, prosperity, beauty and general welfare of Cincinnati as a home for its citizens. To what extent this endeavor has succeeded, only the passing of years can tell.

The report is necessarily only an epitome of the studies upon which it is based. In addition thereto, however, much data has been collected and many calculations and studies made, all of which, with accompanying maps, charts and other documents, are preserved, and on file for consultation in the office of the Planning Commission in the building of the Board of Park Commissioners.

The Building Zone Ordinance printed herein as Appendix B is an integral part of the City Plan. This was adopted by the City on April 1, 1924, and is proving a vital and efficient force in the orderly growth of the city.

The Program of Improvements as set forth herein does not contemplate im-

mediate large expenditures of money nor increase in taxes. An effort has been made rather to distribute the proposed improvements over a long period of years, to arrange them in order of necessity or desirability, and to point out particularly those which, in the opinion of the Commission, founded upon reasons explained in each instance in the text, should be undertaken immediately or in the very near future. Those improvements which are of immediate, vital importance are enumerated in a separate chapter at the end of the report.

Suggestions are made herein of development of Regional or County Planning. This should go forward in the interest of proper development of the metropolitan area embracing Cincinnati and the communities adjacent to it.

The City Planning Commission has been assisted in the preparation of this report by many people and in many ways. It acknowledges, gratefully, its obligation to the officials not only of Cincinnati but of neighboring communities for their cordial co-operation; to the Municipal Art Society, whose interesting plan of 1921 has proved most valuable and whose activity in conserving and increasing the beauty of the city should never be relaxed; to the United City Planning Committee and its component organizations, and the generous citizens who by their contributions through that committee made the preparation of this plan possible; also to the many civic organizations that have shown, through the United City Planning Committee, a particular interest in the City Plan.

This City Plan and Program, the first officially adopted by any city in the United States of the size of Cincinnati or larger, is now the law of the city.

## CHAPTER I Community Development

### The Future Growth of Cincinnati

The great fundamental question that affects the City Plan is:

How fast will Cincinnati grow?

How much will it grow?

and,

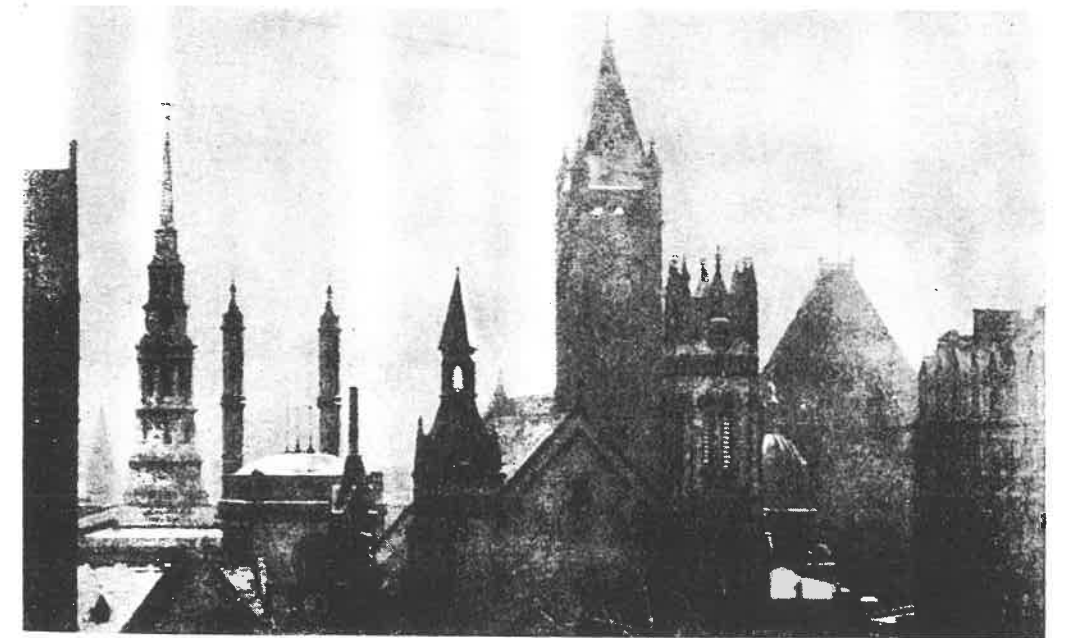
In what direction?

By Cincinnati, we mean metropolitan Cincinnati—that is, the whole surrounding region that is directly tributary to the city.

It is a well-known fact that Cincinnati has not grown, and is not growing, as fast as the average American city of its size. From 1910 to 1920 the population of Cincinnati increased only 10.4 per cent and from 1900 to 1910 it increased only 11.6 per cent. The increase in Columbus, Dayton, Cleveland and Toledo was three

and one-half times as great, while the increase in Youngstown, Canton and Akron was five to ten times as great. Indianapolis increased three and one-half times as fast, while the increase in Pittsburgh was about the same as in Cincinnati.

The great question is, will Cincinnati continue to grow at the gradually decreasing rate of growth which it has steadily adhered to for the last eighty years, or is it possible that it can take on a new lease of life and make a sudden spurt, like Detroit, Los Angeles or Akron? The only way to answer this question is to make a thorough analysis of the various contributory factors in Cincinnati, and comparatively with other cities to determine as nearly as it is humanly possible to do, the future growth of the city.



TOWERS FROM GARFIELD PARK  
A City of many towers and spires, which add so much to its charm

© Paul Briol 1924

Each of the cities that has taken a spurt in its growth can point to some one outstanding factor that very obviously accounts for the abnormal growth. For example, in Los Angeles, it was brought about partly by the discovery of oil, and partly by a purely artificial real estate boom. It has already slowed down materially, for the real estate boom has now been transferred to the coast of Florida.

Detroit and Akron, one-industry towns, owe their abnormal growth to the accidental, stupendous development of the automobile industry. Bridgeport, Conn.; Gary, Ind.; Winston-Salem, N. Car.; Bethlehem, Pa., and Norfolk, Va., owe their great increase to the growth of their industries, as occasioned by the war.

Leaving out these abnormal increases, the average city of the size of Cincinnati has increased faster, but on an average not more than once and a half to twice as fast.

In order to visualize the normal growth of Cincinnati, of Hamilton County, and of the adjacent Kentucky counties, the accompanying Population and Growth charts were prepared, which show that normally Cincinnati will reach a population of about 525,000 by 1970 and will reach saturation with a population of 675,000 by about 2100. Hamilton County should reach nearly 650,000 by 1970, and should reach about 850,000 by 2100. Hamilton County plus the adjacent counties in Kentucky, should reach 800,000 by 1970, and nearly 1,000,000 by 2100.

Unless the growth of the Cincinnati metropolitan district is artificially stimulated, either by intention or by accident, the history of the growth of cities points very conclusively to the above population increase for 1970, and for the next century.

What are the possibilities of an artificial stimulation? In the first place, it must be evident to all that the possibility of an accidental stimulus, such as that which has accounted for the abnormal growth of nearly all of the American cities that have had over 50 per cent increase in population during the last ten years, is exceedingly remote in the case of Cincinnati. For Cincinnati, fortunately for its healthy growth, is not a one-industry town, as is Detroit, Akron, Gary or Bethlehem. The very fact of the wholesome diversification of its industries renders an excess of industrial growth impossible.

The fact that Cincinnati suffered no relatively large boom during the last war should prove that it presents little possibility of such a boom during any other war: again thanks to its diversified industries. The only possibility is that the Government might decide to locate some mammoth plant for war purposes in Cincinnati, but there are so many other cities that can offer fully as great inducements as Cincinnati for the location of an exceptionally large plant, that the chance for such a development taking place in Cincinnati is again small.



"THE BRIDGE" Mural Decoration by H. H. Wessel at the College of Engineering, Cincinnati's most inspiring Gateway. Courtesy of H. H. Wessel, University of Cincinnati

The chance of an artificially stimulated real estate boom, such as that at Los Angeles or on the coast of Florida, is also out of the question, as Cincinnati, charming as it is as a place to live in, does not offer the unique and striking advantages on which the real estate promoter insists.

As an educational and art center, Cincinnati is growing far more rapidly than the average, but a study of the growth of other cities that are outstanding as educational or art centers, shows that beyond a certain point, even the greatest growth of that sort is bound to become lost in the general growth of the community, and can never be a predominant factor in a large city. Cincinnati has already passed beyond the point where even an exceptional educational or art growth can materially affect the total increase in its population.

It remains to be seen whether it is possible for a Chamber of Commerce, or for any group of business men or manufacturers to so artificially stimulate the growth of a community as to permanently affect the size of the metropolis. This question is the fundamental problem of the Industrial Survey now being conducted by the Cincinnati Chamber of Commerce. This survey will bring out facts and considerations which should lead to a far more conclusive answer to this question than is possible with the limited facts gathered in connection with the work on the City Plan. However, while awaiting the more conclusive answer of the Industrial Survey, a few general considerations affecting the city's growth are now in order, as it is impossible to make a City Plan without agreement on at least a general basis of growth.

It is always understood, however, in making a City Plan and Program for the next fifty years, that if by artificial stimulation or by accident, the growth of the city should be speeded up, the City Planning Program would merely be advanced to correspond.

In analyzing the various physical, economic and social conditions affecting cities' growth, occasion will also be taken

to show how each affects the City Plan itself.

#### The Relative Location of Cincinnati

Cincinnati is only 110 miles east of the center of population of the United States, which from the standpoint of business and industry is obviously a distinct advantage. Two-thirds of the population of the country live within 600 miles of Cincinnati. Cincinnati is nearer to the center of industry of the United States than any other community of its size. It is at the converging point of nineteen railroads, five or six of which are main trunk lines. It is the recognized gateway between the North and South, for the whole central part of the country. It is the coal center of the United States, one-half of the supply being within 400 miles. It is as accessible as any city, and with cheap rates, from the iron ore supplies of the country. It has all the building materials within 100 or 200 miles, including cement, stone, sand, gravel, brick, tiles and road stone. It is a large distributing point for most of the Southern lumber. In general, its location has great economic and natural advantages, that should assure at least a healthy, continuous growth. However, there is nothing new or exceptional in these conditions that would warrant any greater growth in the future than there has been in the past.

#### Natural Physical Conditions

The outstanding physical characteristic of Cincinnati is the rugged topography. The city is spread over rolling country, intersected by two quite deep and relatively narrow valleys. The railroads are bound to follow the valleys, and with their growth are monopolizing a large proportion of the valuable lands. Industry and general business logically follow the railroads, and therefore, in most cases are bound to locate in the restricted valleys. The only alternative is to locate in the "Basin," which is already filled with substantial buildings, which must be sacrificed in order to acquire the necessary plottage for industry or warehousing. Therefore, the choice of available sites for new or growing industries or general business is limited, and even

today new plottage of any considerable extent can only be acquired at least four or five miles away from the center of the city. This in turn means that the accessible labor market is correspondingly limited, although, fortunately, there is a large choice of sites available along the various railroads, which fortunately interchange trap cars, as well as full cars among themselves.

On the other hand, the variety of the topography and the elevation of the residential portions of the city above the industrial valleys, render them exceptionally delightful places to live in, all of which tends to put Cincinnati in the first rank among home cities.

Again, the rugged topography is a disadvantage from the City Planning standpoint, in that it forces the city to spread out abnormally and involves the city in exceptionally heavy cost for public works and public services, due to the unusual

distances that have to be covered and the difficulty of surmounting the steep slopes. This is the chief reason for a relatively high per capita cost of city government in Cincinnati in proportion to the results. From a City Planning standpoint, it presents the problem of so planning the future growth of the city as to avoid, or at least to counteract, these two setbacks to economic development.

The soil and geological conditions are excellent for building, the "Basin" being alluvial deposit and the hills limestone and shale. The only construction difficulty comes on the steep hillsides bordering the valleys, where in many instances the shale refuses to hold anything but the lightest construction. The glacial and alluvial soil throughout Hamilton and the Kentucky counties is better than the average for farming, lending itself especially to wheat and ordinary crops on the higher land and to corn in the river

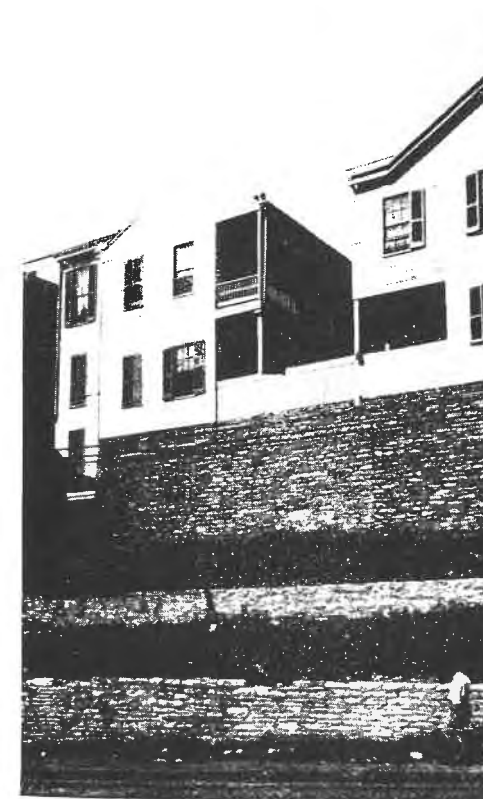


SPRING GROVE CEMETERY  
A model for the parklike treatment of cemeteries

© Paul Briol 1924



BUILDING COLLAPSING AS THE SIDE HILL SLIPS  
The steep side hills are often treacherous for buildings



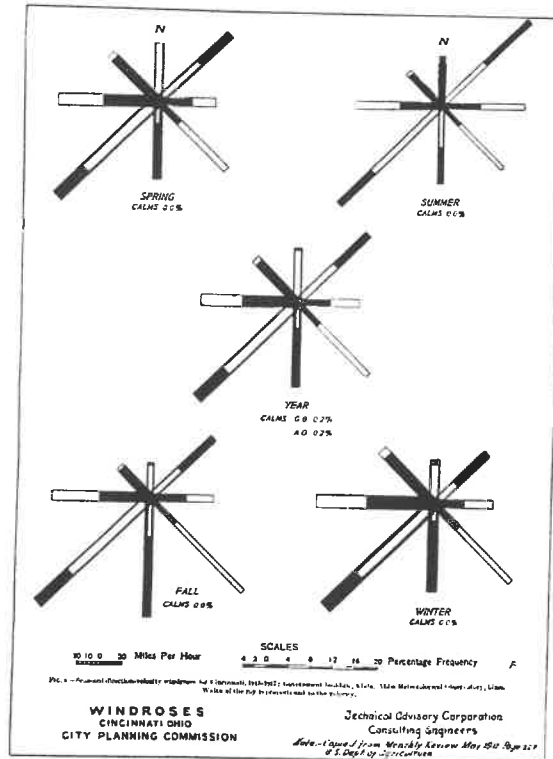
RETAINING WALLS ABOVE MARTIN ST.  
Often only costly walls will hold the hillsides

valleys. In fact, Cincinnati can almost be self-supporting from an agricultural standpoint, because as it takes seven acres under cultivation to support each inhabitant of the district, it would require an area about 100 miles square to support the eventual million population of the Cincinnati region. Nearly all this area is uniquely tributary to Cincinnati. This area has not begun to develop its possibilities.

#### Climatic Conditions

Cincinnati is fortunate in having no very hot or no very cold spells, with an average temperature of 55° throughout the year, and an average temperature during July and August of 76½°, the cool nights averaging not over 70°. The thermometer gets below zero not oftener than once a year. There is little snow, and no deep snow. There are no long rains, and no particularly hard rains, yet there is an average rainfall of 38 inches per year. The climate is not damp—in fact, the humidity is nearly 1½° below the average for the country. Cincinnati is also remarkably free from fogs. In fact some years it has no fogs at all. The average frost starts late—that is, after October 25th—and stops early—that is, about

April 14th. There is almost no hail. There are few wind storms relatively. In fact from the standpoint of industrial and living conditions the climatic tendencies are much better than the average, all of which attracts labor and helps industry.



#### WINDROSES

Prevailing summer winds are south to west.

The accompanying windroses show that the prevailing wind throughout the year is from the southwest and that the predominating winds vary from west to southeast. The greatest velocity of winds is from the west and southwest. There is very little wind from the northwest, north or east, although somewhat more from the northeast. Thus the prevailing winds blow the smoke of the factories and railroads in Mill Creek Valley largely up the valley, and the same is true of the railroads and potential industries in the Little Miami Valley. The smoke from the railroads and industrial districts along the B. & O. Railroad and in Nor-

wood and Oakley is blown away from the city, and the same is true of the industrial developments in the upper Mill Creek Valley. Therefore, in general, Cincinnati is fortunate in the prevailing direction and intensity of its winds.

#### Water

Cincinnati uses water taken from the Ohio River, that is taken quite a number of miles above the city. Since the construction of the new City Water Works the water is exceptionally pure. The water is also exceptionally soft for Ohio, in fact, two and one-half times as soft as that of Dayton. This is excellent for industry as well as for the housewife, for it means that there is no boiler scale or scale formation in water pipes. Furthermore, there is unlimited well water in Mill Creek Valley, so that industries may carry their own supply at very little relative cost.

Adequate water supply also means cheap power, although with coal as cheap relatively as it is in Cincinnati, there has been little inducement to develop water power from the Ohio or its tributary rivers.

#### Water Transportation

Cincinnati, like many other great cities of the world, was started where it was, because it was at the junction of several principal waterways. The first settlers came down the Ohio and landed at the mouth of the Little Miami River. Until the advent of rail transportation, Cincinnati owed its growth largely to this converging water transportation. The Miami Canal through Hamilton, Dayton and Toledo again had considerable influence on the growth of the city. However, with the development of rail transportation, water transportation almost entirely died out. Today a large proportion of the coal arrives in Cincinnati by water. The same is to a certain extent true of bulky materials such as building material. Freight rates by water are from 1/4 to 1/15 corresponding rates by rail. There are daily packet lines up the river to Charleston, W. V., and down the river to Louisville. There are other lines with frequent sailings from Pittsburgh to New Orleans. Nevertheless, the fact that only

about 2,000 feet of water-front are actually used for water transportation indicates what a small part water transportation now plays in Cincinnati's development.

On the other hand, as affecting Cincinnati's future growth, it should be noted that the United States Government is building a series of dams across the Ohio River, which will raise the present six foot draft to a minimum of nine feet throughout the length of the Ohio River. This should have a material effect on the reawakening of river transportation.

The United States Army Engineers, after considering four alternate water routes from the Ohio River to the Great Lakes, have decided in favor of the route from Pittsburgh to Ashtabula. Nevertheless, it is conceivable that some day the State of Ohio will find it advantageous to reopen, in modernized form, the old Miami Canal from Cincinnati through Dayton to Toledo. The recent experience with the State Barge Canal in New York would appear to warrant such a potentiality.

An increase in river or canal transportation would help the growth of the city and would affect the character and rate of development of the City Plan.

#### Rail Transportation

The nineteen railroads entering Cincinnati all provide interswitching facilities, the switching limits having some 25 mile radius. These facilities include the placing of trap cars as well as full cars on any siding, while in addition 600 package cars leave Cincinnati daily, for designated points. Eighty-five team tracks and freight stations serve all parts of the community, while the L. C. L. motor freight service between freight terminals assures speedy handling of freight, and uncongested yards. The proposed improvements in railway freight routing and handling will vastly improve even the present relatively efficient system. Therefore, from the standpoint of rail transportation Cincinnati is, and will be, exceptionally well served. This is especially true when it is considered that Cincinnati enjoys the most favorable freight

rate to fully one half of the population of the United States.

These facts all speak well for the healthy growth of the city, but again the fact that they are not new in Cincinnati would mean that they should not cause any increase in the rate of growth.

#### Trolley and Motor Transportation

Each of the existing interurban street railways carries a certain amount of freight, but the total is very small in proportion to the aggregate handled through Cincinnati. Also various motor truck routes to the outlying towns augment somewhat the trolley total, but the amount of goods carried by both means of transportation, is insignificant in comparison with that handled by the railroads. While this form of transportation is increasing rapidly, it is felt that it will be so long before it reaches any proportions that its effect is virtually negligible in City Planning.

#### Agricultural Belt

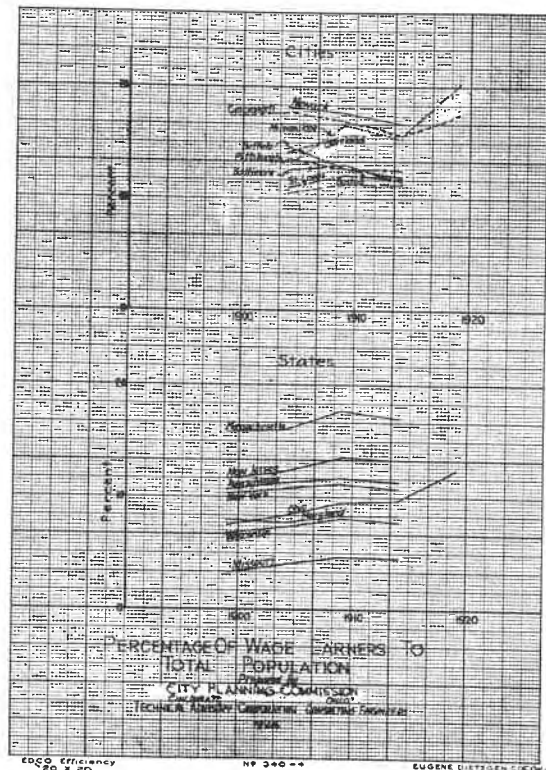
As was pointed out above, a 50 to 60 mile radius around Cincinnati should supply the food wants of the whole region. The soil and climatic conditions are good, so that there is every reason why agriculture, including market gardening should be encouraged. It is here that the use of trolley freight, and particularly of the motor truck, should prove advantageous in bringing locally raised food stuffs quickly to the Cincinnati markets. The existence of such an agricultural belt should stabilize the city's growth, and it will affect the City Plan to the extent of requiring the development of a network of radiating and cross connecting thoroughfares throughout the Cincinnati region. The cost of living in Cincinnati is lower than the average for the country. This advantage can be maintained by a constant insistence on the maintenance of a well distributed system of good thoroughfares throughout the region.

#### Industry and Business

15.2 per cent of the total population is engaged in the over 3,000 industries located in Cincinnati. This is the same proportion as in Cleveland and in Milwaukee and Newark; while it is larger

than the proportion in St. Louis, Baltimore, Pittsburgh and Buffalo. In fact, Cleveland is the only one of these cities that has had a more rapid growth.

In 1923, 722 acres, or 1.13 square miles were actually used by industry, in which were employed 112,000 workers at the



PERCENTAGE OF WAGE EARNERS TO POPULATION  
Average and should be larger

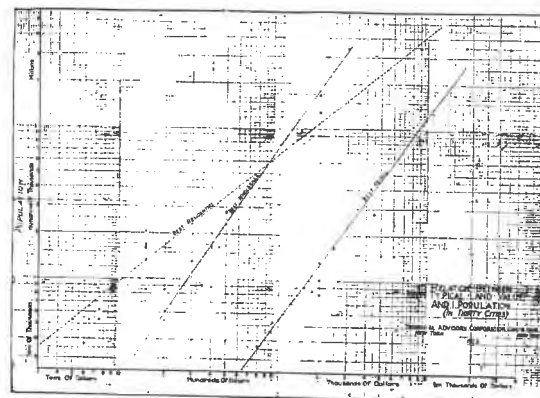
peak in 1921, and in which about 85,000 are employed today. At the same time, about 35,000 more are employed in business and about 10,000 in the professions. These are healthy proportions, which again speak well for the continued growth of the city.

Another striking fact from the industrial standpoint is that less than 43,000 of the total population, that is, 11.7 per cent, is foreign born. This is one of the lowest percentages of foreign born in any large city in the country. In Cleveland, the percentage of foreign born is six times as great. Furthermore, the fact that 2/5 of the foreign born are of Ger-

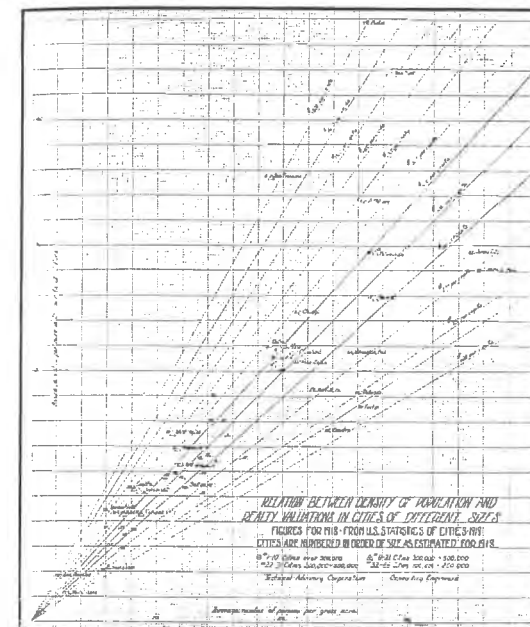
man extraction speaks well for the high quality of the immigrant labor. On the other hand, only 7.4% of the population is colored, which is very low relatively for a city so near the south. These facts mean that the quality of labor available is exceptionally high; therefore, it is not to be wondered at that Cincinnati ranks exceptionally high among cities for its good mechanics and high class operatives.

Coupled with this high quality of labor is the fact that wages and living costs are relatively low, which makes Cincinnati particularly attractive to the better class of industries. The natural upshot of these facts is that actual unemployment in Cincinnati is never severe relatively; so that the city is known as a place of steady employment. This healthy condition again augurs well for the continued growth of Cincinnati.

The census report of 1909 puts the relative average cost per primary horse power in Cincinnati at a lower figure than in any one of ten other corresponding cities, nearly one-half of the rate in Cleveland, for example, although its position is not quite as good today but still good. When one couples with this fact the fact above mentioned that no one city is better placed with respect to supplies of coal, oil, gas, building material, lumber and steel, it is again safe to assume that Cincinnati has a prosperous future and a reasonable growth ahead of it.



RELATION BETWEEN BEST TYPICAL LAND VALUE AND POPULATION (30 cities)  
Cincinnati is average

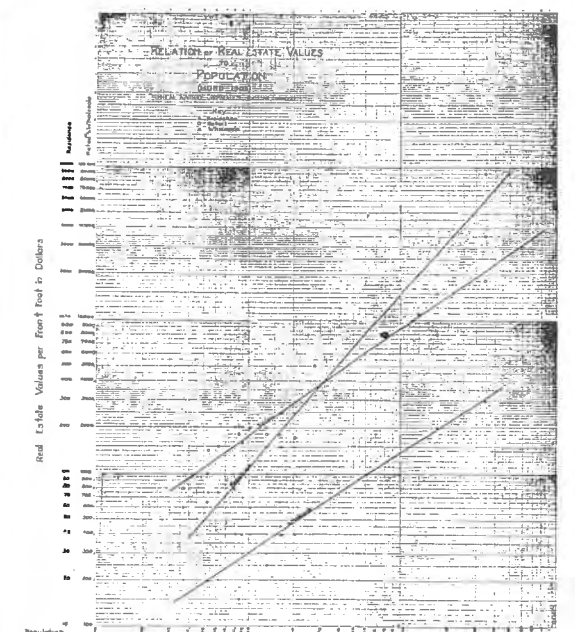


RELATION BETWEEN DENSITY OF POPULATION AND REALTY VALUATIONS IN CITIES OF DIFFERENT SIZES  
They increase similarly

Real Estate

The property values in Cincinnati are relatively low for the same distance away from the center, as compared with other cities of about the same size. Only recently there has been a sudden increase in property valuations at the center of the city. However, it can be said that for the average home or small industry, land can be bought fully as cheaply in Cincinnati as it can in any similar city. These low land values are reflected also in the taxes, for even with the present reappraisal, the assessed valuations do not average much over 90 per cent of the actual valuations, while the tax rate in proportion to the size of the city is one of the lowest in the country. Of course, this low tax rate is at the expense of vitally needed improvements, all of which is thanks to the notorious Smith One Per Cent Law.

Construction costs are correspondingly lower than the average, so that the purchase of land and the erection of a home or factory costs no more, and probably a little less, in proportion to wages, than in most other cities.



RELATION OF REAL ESTATE VALUES TO POPULATION  
Cincinnati is not high for its size

Living Conditions

Enough has been said already to show that living conditions in Cincinnati are exceptionally attractive. In addition to the economic advantages that have already been indicated, it is true that socially Cincinnati is among the most interesting cities in the country. The splendid system of 88 public parks, covering 2,700 acres, one of the largest and best laid out systems in the world, alone speaks loudly for the leisure time possibilities. The 21 playfields, 24 playgrounds, 2 public golf courses, 23 swimming pools, 10 amusement parks, 7 theatres, 108 motion picture houses, 34 bowling alleys, 135 billiard parlors, 1 National League Ball Park seating 30,000 people, 7 private golf clubs, a public library with 22 branches, 26 stations and 171 school distributing points, 13 private libraries and 4 museums, all indicate the wide choice in recreation which the city offers.

In addition to all this, Cincinnati is recognized as one of the leading music and art centers of the country. The Conservatory of Music and the College of Music, each with over 1,000 students, the



year 1860, since which date there has been a progressively decreasing rate of growth.

The curves of these greater districts have also been compared with those of similarly large areas in other parts of the United States, such as the State of Vermont and the whole of New England.

Speaking in general terms, experience shows that the influence of cities of different size extends beyond their limits roughly in proportion to the population of each. Based upon this premise, a curve can be drawn between two such cities as Cincinnati and Columbus for example. Such curves are always circles which are concave toward the smaller city.

On the basis of this assumption, the zone of influence of Cincinnati was plotted. Its boundaries approximate with

fair accuracy a fifty-mile radius zone around Cincinnati, except toward the southeast, in which direction no large cities exist which can be considered in any sense competitive with Cincinnati. The natural boundary is therefore the Appalachian Mountains in that direction. That the value of the Cincinnati influence throughout that district can not be large is disclosed by the relative scarcity of railroad lines extending toward the southeast as compared with those which are operated toward all the other points of the compass. Because the theoretical zone of influence, as thus explained, so closely coincides with the fifty-mile zone, population studies were made only of the latter region.

Statistics as to the births and deaths which have occurred in Cincinnati during each of the past forty-eight years have also been obtained and growth curves



ONE OF 48 POPULATION, SCHOOL AND PARK MAPS  
Shows where people will probably live in 50 years and locates schools and parks accordingly.

based upon an analysis of this data has been employed in analyzing the future population problem.

The difference between the total births and deaths each year since birth statistics were first collected by the Health Department, was computed and plotted. This showed a markedly decreasing tendency until 1921. This was caused by a striking decrease in the birth rate. A comparison of this birth-death data with the annual population increase increments, shows that there was a practically constant annual influx of population from the outside which was about twice as large in 1920 as was the increase due to the natural multiplication of population.

The studies of the actual past population of Cincinnati as compared with the smoothed growth curve, show occasional variations from the uniform growth curve, which have decreased almost uniformly as the city has grown. In 1840 the population was almost 20 per cent larger than that shown by the uniform growth curve. In 1850 the deviation was 7 per cent in the opposite direction. For the last three census dates the deviation has been 2.5, 1.1 and 0.75, variously plus and minus.

These variations are due to a spurt in growth which has usually been followed within a decade or two by a corresponding slowing down. On the basis of past experience, it is probable that the future may show deviations from the figures contained in the table above, but it is hardly to be expected that they will exceed five per cent.

The population of Cincinnati is estimated to be as follows. The figures are believed to be accurate within comparatively narrow limits, at least as far as the year 1970, or for the next fifty years.

The following table shows the probable future population:

Year	Population	Year	Population
1810	2,540	1910	363,591
1820	9,642	1920	401,247
1830	24,831	1930	425,000
1840	46,338	1940	450,000
1850	115,435	1950	478,000
1860	161,044	1960	500,000
1870	216,239	1970	523,000
1880	255,139	1980	543,000
1890	296,908	1990	560,000
1900	325,902	2000	577,000

#### Movement of the Center of Population

The center of the population in 1900 was 200 feet southeast of the intersection of Race Street and McMicken Avenue. Between 1900 and 1920 this center moved in a north-northeasterly direction by approximately one mile, and in 1920 it was about 200 feet southwest of the intersection of Euclid and Charlton Avenues.

Based upon the population distribution studies, the probable center of population for 1970 will be situated at the intersection of Vine Street and Nixon Avenue, approximately five-eighths of a mile north-northwest of the 1920 center of population.

The area considered for all three dates includes not only the present political area of the city, but also Norwood, St. Bernard and Elmwood Place as well.

#### Method of Distributing Population

Generally speaking, the following are the primary factors upon which the distribution of the population of a community has been found to be dependent:

1. Total increase of the population.
2. Zoning system.
3. Topography.
4. Distance from the center of the community measured along existing and proposed thoroughfares.
5. Time distance from the center of the community by existing and proposed transportation facilities.
6. Distance from main arteries and from transit lines.
7. Distance from local centers.
8. Present building tendencies.
9. Existing population tendencies.
10. Land values and their trend.
11. Distribution of schools and playgrounds.
12. Status of public services and of public utilities.

The order of the factors in the above list is only in a very general way the order of their importance, for their weight is so much dependent on local conditions, not only of the community as a whole, but of every single district within the latter which is treated as a unit for the purpose of distributing the future popula-

tion, so that the relative weight of the listed factors has to be considered separately for each district. Besides, there is another circumstance which renders it complicated and impractical to attach definite weights to each of the factors with regard to their relation to each other, namely, the interdependence of the factors themselves.

An individual analysis of the factors makes it clear that most of them are inter-related, the zoning plan, for instance, growing out, in part, of practically all the residual items of the list, the thoroughfare system being in some communities but a reflection of topographic conditions, existing building and population tendencies; the result of conditions brought about by land values, by distances from general and local centers, by the state of communication facilities and of public utilities, etc. Speaking mathematically, the formula which would determine the density of population for a specific district is in reality an indirect function; the twelve enumerated factors, the variables of the formula, being themselves functions of other mostly common parameters. Naturally, nothing would be in the way of listing the more simple but far more numerous basic factors, the parameters. Their practical application, however, for the purpose now under consideration would be most difficult and lengthy.

In order to determine the value of our formula in a specific case, a knowledge of the constants, exponents, etc., of each variable is imperative; in other words, we have to know in what way and to what extent each factor has a bearing upon the density of population of a particular district.

The total increase of the population up to the date under consideration, that is, 1970, is dependent on the nature of growth of the community in the past and upon certain natural laws, the knowledge of which makes it possible to forecast the future course of growth. The total increment of population is the algebraic sum of the changes in the number of inhabitants in all the districts into which

the community has been divided for the purpose of this study.

The zoning plan, as already touched upon, reflects the effect of practically all the other factors, and in addition, of a large number of other elements, physical and social, which through the zoning plan enter into the distribution of future population. The direction of prevailing winds, the racial settlements are two examples indicating the large variety of these elements.

Zoning regulates the use of property, not only qualitatively but quantitatively also, as far as population is concerned, and determines the possible maximum density of population for each of the zoning districts serving in full or in part for the housing of the population. Therefore, the density of population under restrictions of the Zoning Ordinance for the different zones will have to be ascertained by building up an average block preferably, and a density so arrived at will serve as an upper limit in working out the saturation of each block in the different zones. It will be necessary to determine the average number of persons per family for the community previous to this investigation.

The topography of the land upon which the community is built underlies practically all the other factors, and its effect is progressively evidenced as the relative difference in elevations and the ruggedness of the land increases. We do not think it necessary to explain how this influence manifests itself in the case of each of the other factors. There is, however, a ramification of zones into different population density districts, due principally to topographic conditions, to which we would like to call attention.

Taking, for example, the single family districts in different parts of the community, we might find that the density of population, although all the districts might be saturated to the same extent, shows a considerable variation, 100 per cent not being infrequent. The reason can be found in the different types of development in the different single family districts, in the size of lots, this being in some relation to real estate values, and

the latter accruing, other conditions being equal, from topographic conditions. The criticism that the cognizance of present building tendencies (the latter offering beyond any doubt the truest picture of crystallization of the complexity of influences under which a certain neighborhood develops) makes this consideration superfluous, is perfectly justified as long as it refers to areas which have advanced far enough in their development so that the manifestations of such tendencies can be recognized. In the case of undeveloped areas, or in the very early stages of development, however, there is nothing but topography itself to guide in this subdivision of zones into districts with different types of development.

In general, it has been found that the density of population varies inversely with the distance from the center of the community. This fundamental law should be superimposed over all the other factors which affect the distribution of future population, and while usually zoning itself brings out the consistency of this law, it will be found clearly and uniformly in evidence along every radial thoroughfare.

The time distance from the center of the community by transportation facilities has a very definite relation to rents (which is but a different expression for real estate values) and thereby to the intensity of use of the land, in other words, to the density of population. Studies conducted at the time when the extension of the Brooklyn Rapid Transit was brought into operation, show that each additional minute of ride was balanced by a certain fairly definite reduction in the commuters' rent. Lower land values result generally in a more open type of development, characterized by a low density of population.

In general, the effect of the distance from main arteries and from transit lines, as well as from local centers, is the same as for the distance from the center of the community. This is more accentuated in the case of transit lines and of local centers than it is in the areas adjoining traffic arteries. As a matter of fact, the inverse relationship between

distance and density of population applies more consistently in the case of local centers than it does when the center of the entire community is under consideration, there being a falling off in the density of population close into the main center, caused usually by the spreading out of large scale business around such center.

Existing building tendencies determine the natural saturation of a given district. Building up an average block in conformity with such tendencies, and adjusting it according to the extent to which the district can be expected to become saturated within the given period, gives the basic density for the district. Needless to say, the maximum natural saturation density can not exceed the one determined by the restrictions of the Zoning Ordinance for the zones in which the district happens to be located.

Present population tendencies indicate the rate at which a given neighborhood is developing, or the rate at which a district of a definite type is being transformed into another type of district. Knowing the rate of growth makes it possible to forecast the state of development which will be attained in a district at a certain date and so the extent of its saturation can be determined. A knowledge of the increase or decrease of the population in a district and its rate can be obtained only by a comprehensive study of past conditions. This makes the preparation of population distribution maps for one or two previous census periods an absolute prerequisite of this study.

Land values are primarily functions of population depending solely on the number of persons who are desirous of the possession or use of the land, whether this desire be actual or potential.

The desirability of a piece of property, and thus its sound value, is in definite although variable relation to its return; the latter depending again on the use to which the land is subjected. It is not within the scope of this report to deal at length with all the numerous factors determining the best use which can be made of a piece of property nor with the com-

plex laws through which such factors beget their effect. We merely desire to point to the fact that land values as created by population and by physical conditions, have a decisive influence upon the future use of the land.

Neighborhoods well provided with educational and recreational facilities, with schools, parks, playgrounds, etc., attract population, while the lack or inadequacy of the same retard their development. On the other hand, the movement of the future population can be controlled to a certain extent by the distribution of schools and of playgrounds, by park and highway systems, and by improving transportation facilities and public utilities. Reciprocal relationship exists between all these factors and the distribution of future population, while the details of the school and of the playground program, the final plans for the extension of communication facilities and of public utilities, can be worked out economically and intelligently only when based on the completed distribution of the future population. It is necessary to have a tentative general plan for all these features of the City Plan in order to make such distribution reflect a conscious effort to guide the community's development along lines found to be most advantageous, and also to obtain the best possible projection of future population conditions.

The status of public services and of public utilities in a district exercises its influence on the development of the district the same as in the case of schools and playgrounds, except perhaps that its influence is more active.

#### The Technique of Preparing Maps Showing the Distribution of the Future Population

The following procedure has been found to be the best for the technical preparation of population distribution maps:

The community should be divided into fairly homogeneous areas of good size. This should be done on a large scale map, simultaneously comparing it with other maps, charts or records on which information regarding the factors is given. These maps cover: zoning, topography,

existing building tendencies, existing population tendencies, land values, the distribution of educational and recreational facilities, the status of public services and public utilities.

After the homogeneous areas have been outlined, the present population of each has to be determined.

For each district then follows a thorough review of the twelve factors, with a view to estimating their change in population for the time period considered. This can be done by devising a scale of relative choice (numerical or qualitative) for all of the factors, making notations during the review and expressing the estimates in percentages of the district's present population.

It is helpful to figure out the percentage of increase of the total population before proceeding with the estimates described above, this percentage being the weighted percentage of increase of all the areas or districts into which the community has been divided for the purpose of this study.

It is evident that the algebraic sum of the changes in population of all the districts so estimated has to be equal to the increase of the total population, but at the same time it is very probable that the first estimate will not attain this. It is customary to overestimate or underestimate the rate at which development proceeds and the zoning saturation; notwithstanding this fact, however, not only the two just mentioned factors, but all the others, should be subjected to a very careful reconsideration, and the whole estimating process repeated entirely independent from the first one. The result of this second estimate usually shows a deviation from the total increase opposite to the first one, in which case an average of the estimated percentages adjusted by the weighted distribution of the still existing difference will yield the ultimate figures for the population changes in the districts. It depends upon the magnitude of the differences whether two or more independent estimates will have to be made before one of them, or a combination of several, can be accepted as satisfactory.

The next step is the actual distribution of the future population (or the decrease of population) so arrived at within the districts. The factors will have to be constantly kept in view again during this process, and details, like uninhabitable steep hillsides, areas subject to frequent floods, parks, cemeteries, railroad rights-of-way, etc., carefully observed.

Spots representing 25 to 100 persons each can be used according to the scale of the base map and the desired detail of the study. The use of transparent paper over the map, showing the distribution of the present population, and on which the proposed thoroughfare plan, the proposed park and parkway system (or at least the new thoroughfare and parkway connections) and possibly the limits of business and industrial zones, are roughly sketched in, will greatly facilitate the actual distribution of spots.

#### Deaths and Population Density Cincinnati, Ohio

Wards	Area in Acres	Population	Year 1910	
			Density per Acre	Deaths per Thous. and
1	7,549	22,999	3.07	279 12.12
2	1,438	19,786	13.75	186 9.41
3	634	13,039	21.55	157 11.5
4	272	12,024	44.25	210 17.45
5	123.4	11,381	92.1	145 12.75
6	414	10,134	25.5	113 11.2
7	104	13,430	109.0	166 12.35
8	296	10,603	35.81	124 11.7
9	491	13,045	26.57	160 12.26
10	155	14,616	94.4	176 12.02
11	476	17,579	36.8	220 12.52
12	901	16,807	18.65	144 8.57
13	4,580	20,863	4.56	152 7.28
14	386	15,287	39.6	203 13.3
15	104	14,290	137.1	155 10.87
16	157	16,264	103.5	232 14.29
17	314	13,646	43.5	221 16.2
18	204	14,965	73.25	151 10.1
19	2,190	15,781	7.20	253 16.05
20	2,425	15,873	6.53	200 12.61
21	169	14,178	83.8	170 12.00
22	830	12,473	15.02	133 10.67
23	2,045	19,318	9.44	188 9.72
24	4,270	14,610	3.43	176 12.02

#### Births and Deaths in Cincinnati Years 1874 to 1922

Year	Births	Deaths	Natural Increase
1922	8,000	6,035	1,965
1921	8,133	5,712	3,421
1920	7,887	6,074	1,813
1919	7,080	6,382	698
1918	8,221	8,640	-581
1917	7,837	6,743	1,094
1916	7,880	6,735	1,145
1915	7,774	6,352	1,422
1914	8,074	6,428	1,646
1913	7,574	6,734	840
1912	7,780	6,453	1,327
1911	7,528	6,225	1,303
1910	7,263	6,330	933
1909	6,810	5,921	889
1908	5,966	6,450	-484
1907	6,041	6,414	-373
1906	8,108	7,195	913
1905	5,583	6,534	-951
1904	5,160	7,038	-1,878
1903	5,370	6,201	-831
1902	5,858	5,744	114
1901	5,208	6,155	-947
1900	5,548	5,412	136
1899	5,624	6,000	-376
1898	6,389	5,585	804
1897	6,867	5,565	1,302
1896	7,167	5,916	1,251
1895	7,112	6,096	1,016
1894	7,651	5,945	1,706
1893	7,766	6,092	1,674
1892	8,121	6,015	2,106
1891	8,383	6,635	1,748
1890	8,063	6,441	1,622
1889	8,340	5,992	2,348
1888	7,569	5,994	1,565
1887	7,085	6,490	595
1886	8,067	6,170	1,897
1885	7,958	5,973	1,985
1884	7,428	5,667	1,761
1883	7,956	5,916	2,040
1882	7,101	6,783	318
1881	7,819	6,101	1,718
1880	7,945	5,177	2,768
1879	7,832	5,290	2,542
1878	7,276	4,823	2,453
1877	7,170	4,428	2,742
1876	5,413	5,710	-297
1875	6,053	5,404	649
1874	4,695	5,321	-626

### Relation of Wage Earners to Total Population

City	State	— 1914 —		% of Population
		Population	Wage Earners	
Cincinnati		378,455	59,861	15.8%
Cleveland		655,134	103,717	15.8
	Ohio	5,164,009	510,435	9.9
St. Louis		721,376	85,058	11.8
	Missouri	3,337,623	152,182	4.56
Boston		711,575	78,894	11.1
	Massac'sts	3,560,792	606,698	17.05
Baltimore		628,621	73,769	11.75
	Maryland	1,357,072	111,585	8.24
Pittsburg		555,630	69,620	12.5
	Pennsylv'a	8,087,073	924,478	11.4
Buffalo		456,939	54,416	11.9
	New York	9,722,263	1,057,857	10.88
Milwaukee		407,173	61,839	15.2
	Wisconsin	2,453,144	194,310	7.95
Newark		374,293	63,084	16.85
	New J'r'sy	2,785,059	373,605	13.4

### Population of Counties Within 50 Miles Radius of Cincinnati

	1920	1910	1900	1890
Cincinnati, Ohio	401,247	363,591	325,902	296,908
COUNTIES—				
Hamilton (Cincinnati)	493,687	460,732	409,479	374,573
Clermont, Ohio	28,291	29,551	31,610	33,553
Brown, Ohio	22,621	24,832	28,237	29,899
Clinton, Ohio	23,036	23,680	24,202	24,240
Highland, Ohio	27,610	28,711	30,982	29,048
Green, Ohio	31,221	29,733	31,613	29,820
Warren, Ohio	25,716	24,497	25,584	25,468
Montgomery (Dayton)	209,532	163,765	130,146	100,852
Preble, Ohio	23,238	23,834	23,713	23,421
Butler (Hamilton)	87,025	70,271	56,870	48,597
Franklin, Indiana	14,806	15,335	16,388	18,366
Union, Indiana	6,021	6,260	6,748	7,006
Fayette, Ohio	17,142	14,415	13,495	12,630
Ripley, Indiana	18,694	19,452	19,881	19,350
Dearborn, Indiana	20,033	21,396	22,194	23,364
Ohio, Indiana	4,024	4,329	4,724	4,955
Switzerland, Indiana	9,311	9,914	11,840	12,514
Gallatin, Kentucky	4,664	4,697	5,163	4,611
Grant, Kentucky	10,435	10,581	13,239	12,671
Boone, Kentucky	9,572	9,420	11,170	12,246
Kenton (Covington)	73,453	70,355	63,591	54,161
Campbell (Newport)	61,868	59,369	54,223	44,208
Pendleton, Kentucky	11,719	11,985	14,947	16,346
Bracken, Kentucky	10,210	10,308	12,137	12,369
Carroll, Kentucky	8,346	8,110	9,825	9,266
Owen, Kentucky	12,554	14,248	17,553	17,676
Harrison, Kentucky	13,798	16,873	18,570	16,914
Robertson, Kentucky	3,871	4,121	4,900	4,684
TOTALS	1,284,408	1,190,772	1,113,024	1,022,808
NEW ENGLAND	7,400,909	6,552,681	5,592,017	4,700,749

A comparison of Deaths per Thousand with Density per Acre shows that the death rate bears no relation to density of population.

During these fifty years the total population has increased from a little over 200,000 to a little over 400,000—in other words, doubled.

Meanwhile, births, deaths and natural increase have remained nearly constant, for as health measures have increased longevity, the increasing cost of living and city living habits have reduced the number of children per family.

All bold-face figures show a decrease since ten years before. This shows conclusively that the cities are increasing by loss from the rural sections plus some immigration.

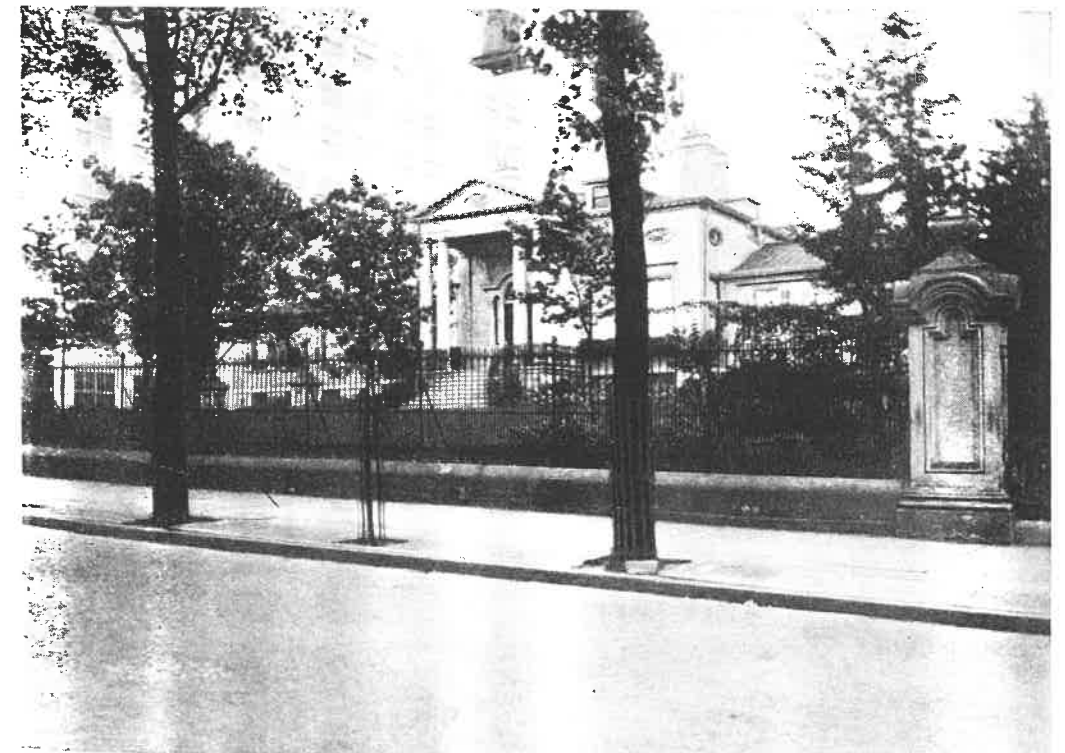
## CHAPTER II Building Zones

### The Need of Zoning

The field survey showed that there were hundreds of stores, public garages and even industrial plants, that had invaded home neighborhoods. In almost every case they were having a harmful effect on surrounding property, and many of them were obviously located badly for their own economic advantage. Each case was tending to lower neighboring real estate values, with a corresponding loss to the city in ratables.

The Cincinnati Building Zone Ordinance was passed unanimously by the City Council, April 1, 1924. It was approved by the Mayor and the City Planning Commission on April 3, and went into effect on May 3, 1924.

In addition to the text, which describes in detail the uses of buildings and lands, and heights, setbacks, side yards, rear yards, courts and floor area requirements of buildings, there are 48 maps, which show in detail the results of each of the eight kinds of districts described in the Ordinance.



FAMOUS OLD RESIDENCE—NOW THE HOME OF MR. CHARLES P. TAFT © Paul Briol, 1924

A number of apartment houses were invading open detached home districts. These invasions took place because it was found to be profitable to appropriate light, air, privacy and outlook over the open lawns of neighboring residences.

Many hundreds of buildings were found to blanket their neighbors by projecting well in front of them, yet each thus projected at the expense of its neighbors. Other buildings were harming neighboring property by projecting far above them, or by filling up the common rear yard open space with buildings.

Private garages and billboards were located anywhere, regardless of their effect on neighboring property.

#### The Problem

Cincinnati property owners realized that they must have protection against the harmful effect of neighboring property. Of course, the wealthy man could buy up surrounding property to protect himself, or he could pay a fancy price for a plot in a highly restricted private development. However, only a limited few could afford to do these things. Nevertheless, it was felt that every citizen had

a right to protection. Zoning offered the only accepted solution of the problem.

#### Previous Solutions

The City Planning Commission which was created in January, 1918, was given the power under the new Charter to control the character and intensity of use of private property in the interest of the common health, safety, morals and welfare. This power was also sanctioned and defined by a State act. Both the Charter and the Act grant the power to zone under police power, on the presumption that a Comprehensive Zoning Ordinance and Map covering the whole area of the City in detail, would be adopted. However, realizing that the preparation of such a Comprehensive Ordinance required years of study, the Commission proceeded to pass upon applications for building permits, with a view to preventing the unnecessary erection of buildings that did not conform to the character of the surroundings, until such time as the Comprehensive Ordinance could be drafted. In this way the Planning Commission passed upon many hundreds of cases, and in particular pre-



CLEMMER AVENUE, WEST OF HUGHES HIGH SCHOOL  
Foundations for a macaroni factory in a home district caught by "Zoning".

vented the erection of several hundred garages, stores and factories in what have since become residence districts under the Zoning Ordinance. This service was of the greatest value, and helped the citizens to appreciate the possibilities of zoning.

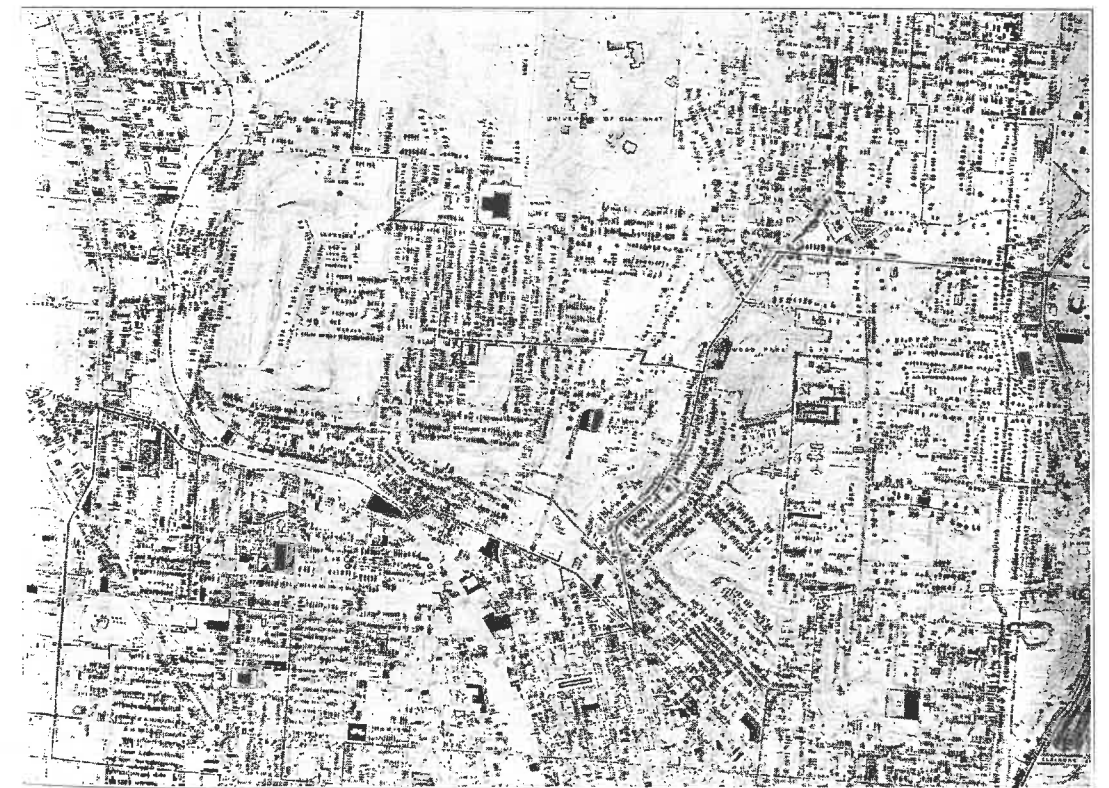
On the other hand, the Planning Commission found that as this control proceeded, it was becoming more and more difficult to preserve a consistent policy, and it was brought strongly to the realization of the need of a Comprehensive Zoning Ordinance and Map, which would state in black and white, definitely, just what could and could not be done on every lot in the whole 72 square miles of the city.

#### How the Zoning Ordinance Was Prepared

The legislature and the courts say that zoning must be reasonable if it is to be recognized as a legitimate use of the

police power, and it must be undertaken "in such a manner as will best promote the health, safety, convenience and welfare of the inhabitants." This means that if the Zoning Ordinance and Map is to be accepted as reasonable by the courts, guesswork must be eliminated and the Ordinance based on a thorough knowledge of the facts as they affect every property throughout the city. Obviously this meant the collection of a large amount of pertinent data and its thorough analysis, with a view to being sure that the best interests of the city in the future, as well as in the present, were being protected. In particular, the proper growth of industry, business and multiple dwellings must not be stifled just because there happens to be a popular prejudice against them.

It was also evident that zoning could not be studied effectively apart from the



ONE OF 52 PROPERTY DATA MAPS  
Shows for every lot in and near the city all facts needed in city planning.

rest of the City Plan, for all parts of the plan are inter-related. Thoroughfares determine the location of future business, industrial and apartment house districts. They control the bus lines, present and proposed, and fix the location of business and apartment houses. The type of subdivision layout controls the types of residences. Parkways attract apartment houses, especially near the center of the city. Schools and playgrounds should be surrounded by residence districts, as should also parks and play fields. In general, it was found that unless the zoning plan is studied jointly with the rest of the City Plan, it would be likely to be just a good guess and a continuance of existing conditions, rather than a creative force for the logical and orderly development of the growing city.

It is unnecessary to describe in detail all of the many steps and processes involved in working out a Zoning Ordinance, but it should be known that a detailed survey was made of every property within the 72 square miles of the city, and for a considerable distance out-



A PRIVATE GARAGE SPOILING A HOME STREET.  
Doors swing over street and garage masks houses.



SIMILAR PRIVATE GARAGE AS CONTROLLED BY ZONING

side, and about 100 questions were checked in the field for each parcel. All of this data was shown on some 1,200 large field maps, and then the facts were recorded in detail on a series of 48 sheets at 400 scale, called the Property Data Map. This was extended also for three miles outside of the city limits. The records of the Commissioner of Buildings were searched for five to ten years back, and the various applications for building permits were segregated into groups according to use and structure, and many analyses made of prevailing conditions and tendencies for each type of use and structure. These were checked in turn for a number of types of districts in various parts of the city. These studies were made so as to avoid guesswork, and so as to base the provisions of the Ordinance on what is considered reasonable in practice.

The following tables entitled: "Analysis of All Buildings in Business 'B' Area," "Analysis of Recent Taller Buildings" and "Capacity of Sidewalks," are typical of this data.

**Analysis of All Buildings in Business "B" Area**

	Number	Percentage	Cumulative Percentage
1-story buildings.....	42	3.7	3.7
2 " " ".....	132	11.6	15.3
3 " " ".....	441	38.9	54.2
4 " " ".....	265	23.4	77.6
5 " " ".....	104	9.2	86.8
6 " " ".....	63	6.0	92.8
7 " " ".....	29	2.4	95.2
8 " " ".....	21	1.8	97.0
9 " " ".....	6	0.5	97.5
10 " " ".....	13	1.1	98.6
11 " " ".....	4	0.3	98.9
12 " " ".....	5	0.4	99.3
13 " " ".....	2	0.2	99.5
15 " " ".....	2	0.2	99.7
18 " " ".....	1	0.1	99.8
19 " " ".....	1	0.1	99.9
34 " " ".....	1	0.1	100.0
<b>Total.....</b>	<b>1,137</b>	<b>100.0</b>	

**Analysis of Recent Taller Buildings**

	No.	Pctge.	Cumulative Pctge.
Between 100' and 110' high.....	0	0	0
" 111' " 120' ".....	3	23.1	23.1
" 121' " 130' ".....	4	30.8	53.9
" 131' " 140' ".....	2	15.3	69.2
" 141' " 150' ".....	1	7.7	76.9
" 151' " 160' ".....	1	7.7	84.6
" 161' " 170' ".....	1	7.7	92.3
" 171' " 180' ".....	1	7.7	100.0
<b>Total.....</b>	<b>13</b>	<b>100.0</b>	

	No.	%
Buildings greater than 1½ times street width.....	12	92.3
Buildings greater than 2 times street width.....	5	38.5
Buildings greater than 3 times street width.....	1	7.7

**Capacity of Sidewalks—Height of Buildings**

Average down-town block.....	400 ft. x 400 ft.
Gross area of average down-town block.....	160,000 sq. ft.
Net area of block (90% of gross).....	144,000 sq. ft.
Average sidewalk width.....	12 ft.
Walking speed of pedestrians.....	200 ft. per minute
Number of persons per ft. of sidewalk (6 sq. ft. per person).....	2 persons
Capacity of sidewalk.....	400 persons per minute
Rate of elevator operation in buildings.....	3%
400 persons are 3% of.....	13,333 persons
Gross floor area per office worker.....	100 sq. ft.
Gross floor area accommodating 13,333 persons.....	1,333,300 sq. ft.
(a) Assumed average walking distance (2 blocks).....	866 ft.
Ground area of buildings.....	144,000 sq. ft.
Number of stories to accommodate workers.....	10.0
(b) Assumed average walking distance (3 blocks).....	1,332 ft.
Ground area of buildings.....	216,000 sq. ft.
Number of stories to accommodate workers.....	6.65
(c) Assumed average walking distance (4 blocks).....	1,798 ft.
Ground area of buildings.....	288,000 sq. ft.
Number of stories to accommodate workers.....	5.0

As a result of these latter calculations in regard to sidewalk capacities, it was found that the widths of the streets would limit the average height of buildings in the downtown district to not over seven stories, and probably not over five stories. At present there are about sixty buildings in the downtown district that exceed this

height. The maximum height limit finally adopted in the Zoning Ordinance is much higher than the average for other zoning ordinances throughout the country. In making the height limit four times the street width, it was done on the assumption that there would be very few tall buildings ever erected in Cincinnati, and



**NEW YORK CITY**  
 Note effect of zoning ordinance in stepping back of the upper stories of taller buildings, thereby letting much more light and air into the street.



that the erection of those few should not be prevented on account of any possible damage to their neighbors. It is firmly believed that as time goes on this will prove to have been a mistake, as it will tend to concentrate in the few exceptionally tall buildings the cream of most of the market for a profitable use of the upper floors of buildings in the central business district, and at the same time these exceptionally tall buildings will be attractive to tenants just in proportion as they are able to steal their light, air and outlook over lower neighboring buildings.

In almost all other features, the Zoning Ordinance as adopted conforms to that which is best in existing tendencies as discovered in the analysis of the facts. These facts include for each type of district the investigation of thousands of instances of typical front yards, side yards, rear yards, courts, heights, lot widths, lot depths, property uses, and aggregate floor areas in relation to the lot areas.

The accompanying table, dealing with Total Floor Areas of Apartment House Buildings in Residential Districts, shows the latter data:

Apartments in Residence "B" Districts							
Width	Depth of Lot	Area	Set-Back	Side Yards	Rear Yards	Total Floor Area	% of Lot Area
70	x 120	8,400	20	30.1	34.2	7,900	94 %
100	x 120	12,000	20	36.2	36.2	12,250	102
100	x 150	15,000	20	39.2	38.6	16,000	106.3
160	x 120	19,200	20	48.4	39.6	20,400	106
120	x 180	21,600	20	46.7	50.8	24,000	111
200	x 120	24,000	20	56.5	42	25,000	104
200	x 150	30,000	20	62.5	50	32,900	109.7
250	x 120	30,000	20	66.7	45	33,000	101
200	x 200	40,000	20	72.5	63.4	43,600	109
Apartments in Residence "C" Districts							
Width	Depth of Lot	Area	Set-Back	Side Yards	Rear Yards	Total Floor Area	% of Lot Area
70	x 120	8,400	10	17.8	26	13,200	157 %
100	x 120	12,000	10	21.2	26.5	19,800	165
100	x 150	15,000	10	21.95	31.9	25,500	170
150	x 120	18,000	10	26.8	27.3	30,600	170
200	x 200	40,000	10	36.5	43.8	71,600	179



TYPICAL RIVER VIEW, WITH MT. ADAMS IN THE BACKGROUND

While this work was going on, the future growth of the city was calculated from many angles, with due regard to its character, intensity, rate and direction of growth, and for each part of the city a detailed prognostigation was made of what would be the normal expected growth for fifty years to come.

The preliminary drafts of an ordinance and map specially designed to meet Cincinnati conditions and tendencies were being tried out while the data was being analyzed. These studies were carefully checked in the field and in numerous conferences with those competent to pass on Cincinnati conditions, so as to make sure that no contributory factor had been overlooked or misjudged, all of which resulted in constant amendments to the preliminary drafts.

Furthermore, at every stage the zoning map was compared with the studies going on simultaneously on every feature of the City Plan, so as to avoid "surprises" and

the necessity of undoing the Zoning Plan later to conform with the rest of the City Plan.

Calculations were made from field studies of the amount of business space which would probably be needed for the next fifty years in each part of the city to take care of local needs, and similar calculations were made on the amount of industrial space needed in proportion to the growing population. Studies were also made of the space that would be needed in apartment houses to take care of the normal apartment house demands.

In making the Zoning Maps, the future business, industrial and apartment house needs were constantly in mind, and the accompanying table, entitled "Areas of Zones in Zoning Ordinance" shows that ample provision for growth has been made in each type of district. For example, it is seen that the business districts provide for the needs of nearly five times the present population, the apartment house districts for at least double the present population plus the possibility

of erecting an open type of apartment house almost anywhere in the city, and the industrial districts provide for expanding the present industrial holdings at least ten times, or leaving out land subject to flood and otherwise unavailable, fully five times the present industrial use.

With regard to the expansion of housing in general, the table shows that well over three-quarters of the area of the city is as yet undeveloped.

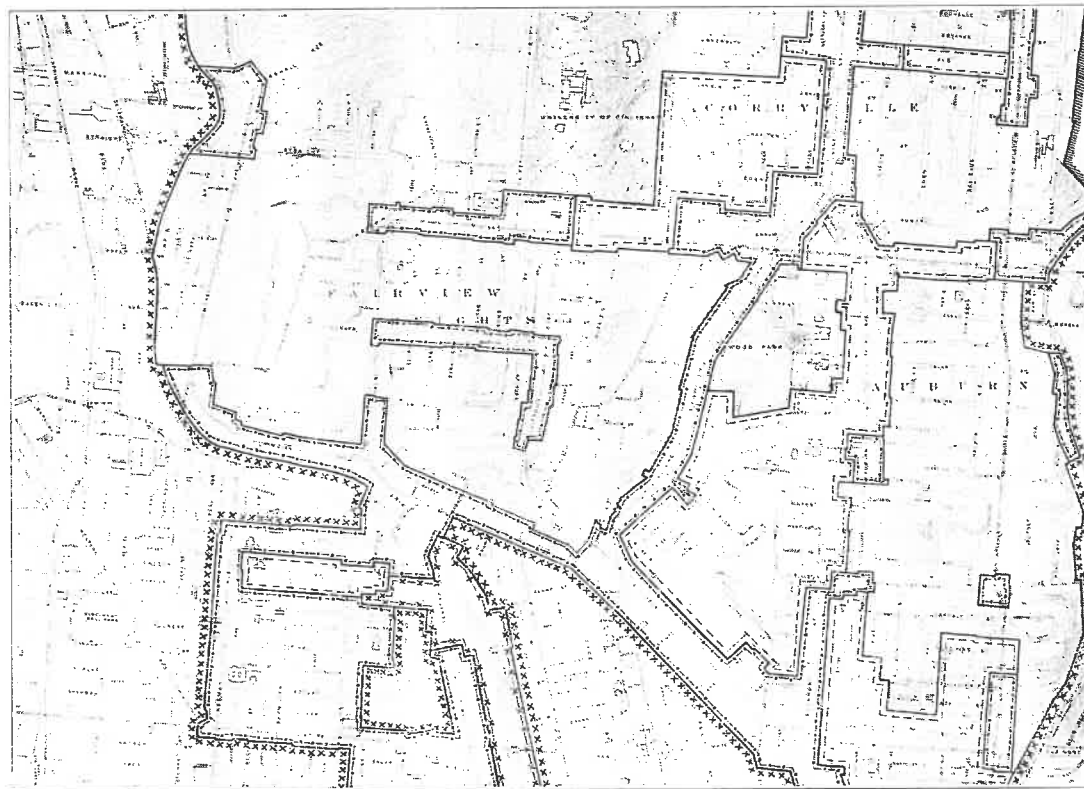
**Area of Zones in Zoning Ordinance  
Cincinnati, Ohio**

Residence A—	90,300,000	sq. ft.	2,074	acres
“ B—	1,458,231,800	“	33,471	“
“ C—	39,220,000	“	902	“
Business A—	119,343,000	“	2,743	“
“ B—	10,570,000	“	242	“
Industrial A—	28,710,000	“	659	“
“ B—	246,770,000	“	5,667	“
“ C—	14,010,000	“	323	“
<b>Total</b>	<b>2,007,244,800</b>		<b>46,080</b>	

**Comparative Area of Zones Expressed in  
Percentage of the Total Area  
of the City**

	Under Zoning	Existing in 1924
Residence A	4.5%	2.5%
“ B	72.7	
“ C	2.0	1.0
Business A	5.9	1.4
“ B	0.5	
Industrial A	1.4	1.6
“ B	12.3	
“ C	0.7	
	100.0%	

The many conferences with Cincinnati organizations and groups of public-spirited citizens were productive of a great many good suggestions and brought out many facts which constantly tended to improve and render more practical the text of the Ordinance and the limits of the various zones.



ONE OF 48 OFFICIAL BUILDING ZONE MAPS  
Shows district limits in detail.



THE CITY PLAN

apartment  
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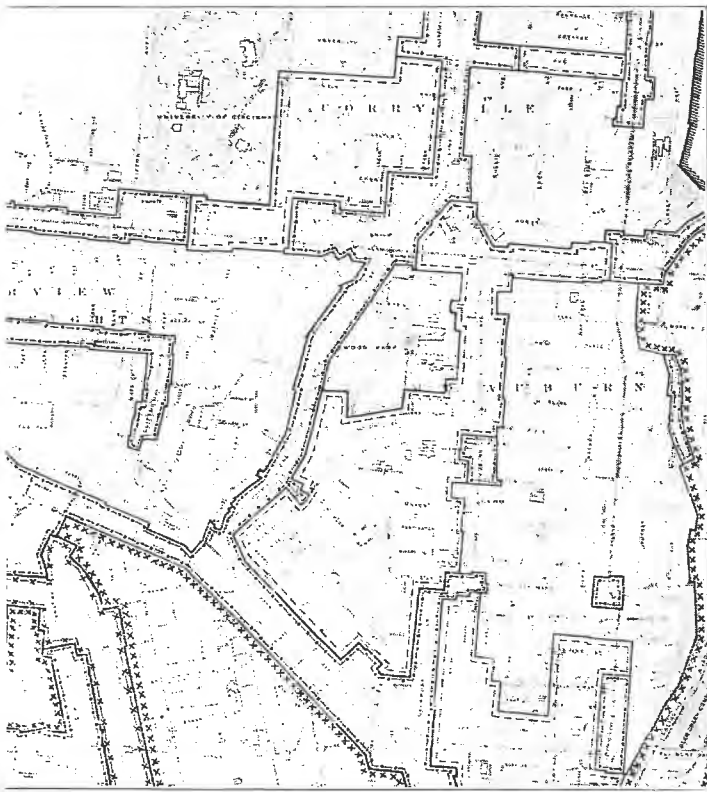
Comparative Area of Zones Expressed in  
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Industrial A	1.4	
" B	12.3	1.6
" C	0.7	
	100.0%	

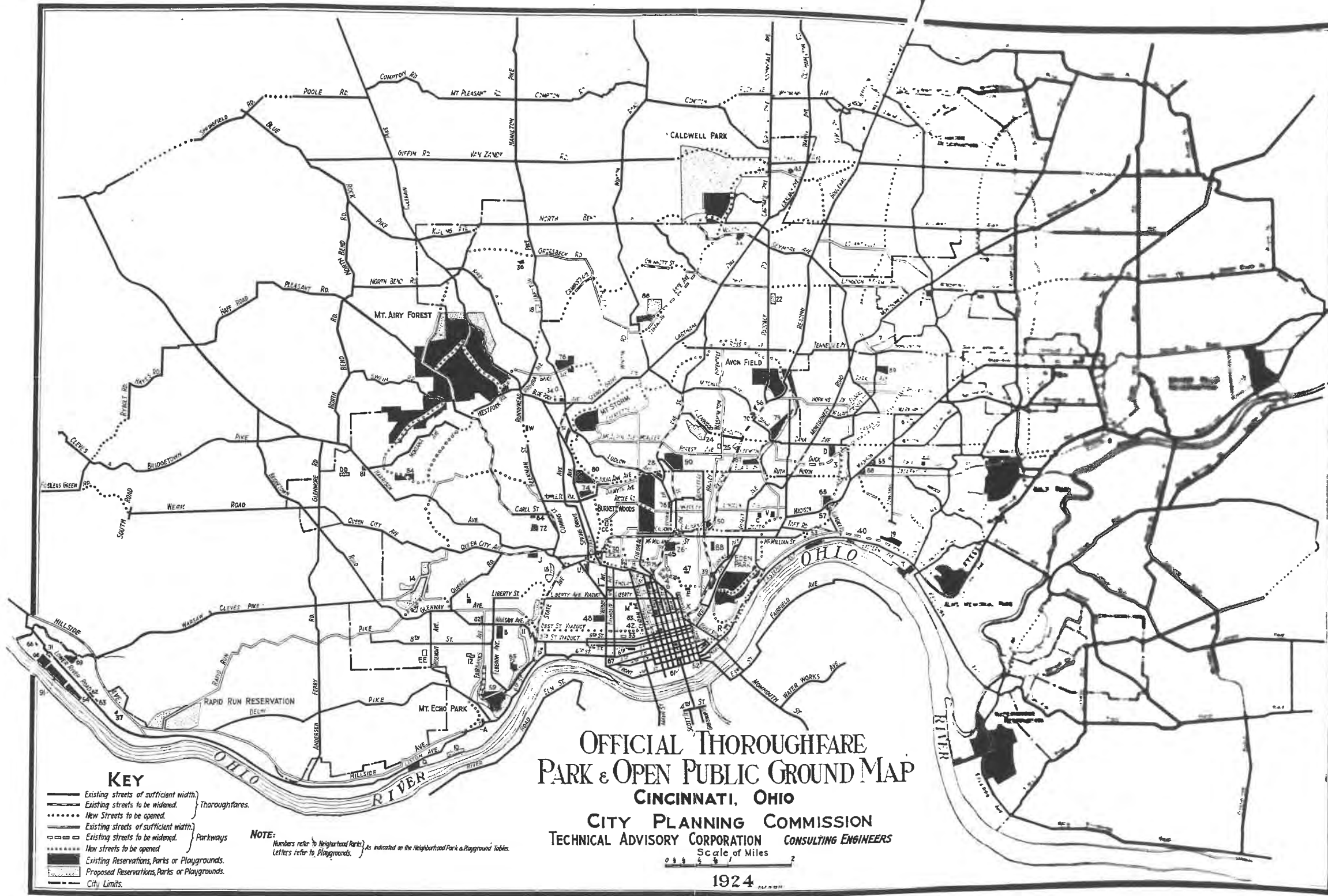
Ordinance

2,074 acres  
33,471 "  
902 "  
2,743 "  
242 "  
659 "  
5,667 "  
323 "  
46,080

The many conferences with Cincinnati organizations and groups of public-spirited citizens were productive of a great many good suggestions and brought out many facts which constantly tended to improve and render more practical the text of the Ordinance and the limits of the various zones.



48 OFFICIAL BUILDING ZONE MAPS shows district limits in detail.



All subdivision plats must conform to it.

On November 20, 1923, the Technical Advisory Corporation presented to the City Planning Commission for certification to the City Council, a full statement with regard to the principles on which the Zoning Ordinance was based, the method of study used in arriving at the form of the Ordinance and Map as drafted, the reasons why it was felt that the Zoning Ordinance and Map as drawn was a reasonable application of the police power, and a list of data of all sorts and kinds which substantiated the Zoning Ordinance.

On that date, the City Planning Commission adopted the following resolution:

"RESOLVED That the plan for the districting or zoning of the City of Cincinnati incorporated in the map of such zone plan and draft of ordinance identified by the signatures of.....

.....be approved and be

and the same are hereby certified to the City Council of the City of Cincinnati, and that the Executive Secretary of this Commission be and he is hereby directed to transmit said plan, including said map and ordinance, duly certified by this Commission to the City Council of Cincinnati, and that accompanying it there shall be transmitted to the Council the following report this day made to this Commission by the Technical Advisory Corporation, showing the principles and data on which this zone plan has been based. The maps, charts, tables and other data referred to in this report are on file and can be consulted at any time at the office of this Commission, and that this Commission is ready at any time, on the request of the City Council, to submit to it any of the aforesaid data."

The City Council Committee on the Building Zone Ordinance then held a long series of conferences and hearings, and after various further revisions, the zoning ordinance was adopted by unanimous vote of the City Council, on April 1, 1924, and it took effect May 3, 1924.

#### The Zoning Ordinance Since Enactment

Up to January 1, 1925, there have been no amendments to the text of the Zoning Ordinance, but various possible improvements brought out in the handling of nearly 5,000 building permits since the Zoning Ordinance went into effect are now being considered. Most of these amendments are matters of detail which come up in daily practice, and if adopted as amendments to the Zoning Ordinance, will save the Building Commissioner considerable trouble in explaining the application of the Zoning Ordinance to many specific cases. These changes do not affect the general policy of the Ordinance.

Various changes in the map are under consideration, and while but few have been adopted up to January 1, 1925, various of the proposed amendments to the map should be adopted, in view of changing conditions, and of new facts which were not available at the time the original map was drafted.

The official Building Code of the City of Cincinnati was amended at the same time the Zoning Ordinance was passed, so as to eliminate all inconsistencies and duplication between the two ordinances. All provisions in the Building Ordinance which had to do with the use of buildings, structures or land, except where a matter of fire protection and safety, and all provisions with regard to the height of buildings, and the sizes of their yards and courts, except where a matter of fire protection or strength of construction, were taken out of the Building Code and put into the Zoning Ordinance, with different restrictions in different parts of the city.

The Board of Zoning Appeals was appointed immediately after the Zoning Ordinance was enacted, and was ready to function as soon as the Zoning Ordinance was in effect. Meanwhile, the Commissioner of Buildings had published several bulletins, informing those who were submitting applications for building permits, as to just what they would have to do to comply with the regulations of the Zoning Ordinance.

At an early meeting, the Zoning Board of Appeals adopted rules of procedure and various typical blank forms for the use of applicants. These follow in detail, as they have been found in practice to work most satisfactorily:

**Rules of Procedure of the Zoning Board of Appeals  
(Cincinnati, O.)**

**ARTICLE I.  
Meetings**

1. Regular meetings of the Zoning Board of Appeals shall be held at 11 A. M. on the first and third Tuesday of each month.
2. Special meetings may be called by the President, or at the request of three members, provided that notice of same has been mailed to each member at least 24 hours before the time set, except that the announcement of a special meeting, at any meeting at which all the members are present, shall be sufficient notice of such meeting.
3. A quorum of the Board shall consist of four members.

**ARTICLE II.  
Cases Before the Board**

1. Every appeal shall be made to the Zoning Board of Appeals on Form No. 104, prepared by said Board, and which can be secured at the office of the Commissioner of Buildings. The procedure of appeal shall be as follows:

A written appeal shall be filed with the Secretary of the Board by the party aggrieved by any order or decision of the Commissioner of Buildings, upon the forms prepared and supplied by this Board. Said petition shall contain, in addition to filling out the blanks of said form, the following:

An explicit typewritten statement setting forth

- (a) The principal points upon which this appeal is made.
- (b) A clear and accurate description of proposed work or use.
- (c) Specific reference to that section of the Zoning Ordinance under which it is claimed permit should be issued.
- (d) Names and addresses of owners of ALL abutting lots or property.

2. Every appeal shall be taken within 30 days from the date of any refusal of a permit by the Commissioner of Buildings, or the date of any order, ruling, decision or determination of such Commissioner, from which an appeal is taken.

3. Any communications purporting to be an appeal, shall be regarded as mere notice to seek relief, until it is made in the form required.

4. Upon receipt of any such communication, the writer shall be supplied with the proper forms for presenting his appeal, and if he fails to file with the Zoning Board of Appeals the form properly filled out and executed, and to supply the required data within 30 days from the date of refusal of a permit by the Commissioner of Buildings, or from the date of any order or decision of such Commissioner, his case may be dismissed for lack of prosecution.

**ARTICLE III.  
The Calendar**

1. Each appeal, filed in proper form, with the required data, shall be numbered serially, and shall be placed upon the Calendar of the Board by the Secretary thereof. The calendar numbers shall begin anew on January 1st of each year, and shall be hyphenated with the number of the year in which said appeal is filed.
2. Appeals will be assigned for hearing in the order in which they appear on the calendar, except that an appeal may be advanced for hearing by order of the Board, upon good cause being shown.
3. Three days' notice of the hearing of an appeal shall be given the appellant by mailing notice thereof by registered mail to the address stated in the appeal. A brief notice of all hearings shall be published in a newspaper of general circulation in the City of Cincinnati, at least two days before such hearing.

**ARTICLE IV.  
Hearings**

1. Hearings by the Zoning Board of Appeals shall be held on Wednesday of each week, at 10 A. M.
2. A quorum for hearing by the Board shall consist of four members, but a lesser number may meet and adjourn a meeting.
3. The appellant shall appear in his own behalf, or be represented by counsel or agent at said hearing. At such hearing, the appellant's side of the case shall be first heard; the Commissioner of Buildings, or his representative next, and the appellant shall then be given an opportunity to reply thereto. No further argument shall be allowed unless by the unanimous consent of the Board.

**ARTICLE V.  
Final Disposition of Appeal**

1. The final disposition of any appeal to the Zoning Board of Appeals shall be in the form of a resolution, which shall affirm, modify or reverse the refusal of a permit by, or any order or decision of, the Commissioner of Buildings.

The Board may set out in said resolution the condition or conditions upon which the permit may be issued in order to carry out the purpose and intent of the Ordinance. The concurring vote of three members shall be necessary to a decision. If a resolution presented at any meeting fails to receive three concurring votes, it shall be presented

again at the next meeting. In cases where no serious conditions exist and where there are no objections, the Secretary is authorized to notify the appellant verbally of the action of the Board prior to the mailing of the final resolution.

2. Any appellant may withdraw his appeal at any time prior to decision by the Zoning Board of Appeals thereon.

3. Unless an appeal be perfected within forty (40) days of the date of filing of same, the Board of Appeals, by a concurring vote of three members, may dismiss said appeal for want of prosecution.

**ARTICLE VI.  
Rehearings**

1. No rehearing of the decision by the Zoning Board of Appeals shall be had except

- (a) On a motion to reconsider the vote or
- (b) On a written request for a rehearing.

2. If the motion to reconsider receives three affirmative votes, the Zoning Board of Appeals may vote on the motion to grant said request for a rehearing, subject to such conditions as said Board may, by resolution, in each case, stipulate.

3. No request to grant a rehearing will be entertained unless new evidence is submitted, which could not reasonably have been presented at the previous hearing. If the request for a rehearing is granted, the case shall be put on the Calendar for a rehearing. In all cases, the request for a rehearing shall be in writing, reciting the reasons for the request, and shall be duly verified, and accompanied by the necessary data and diagrams. The person requesting the rehearing shall be notified to appear before the Board on a date to be set by said Board, of which he shall be notified.

**ARTICLE VII.  
Officers**

1. The President shall preside at all meetings and hearings of the Board. In the event of the absence or disability of the President, the Vice-President shall preside.
2. The President, subject to these rules, shall decide all points of order or procedure, unless otherwise directed by a majority of the Board in session at that time.

3. The President shall designate the members of the Zoning Board of Appeals to make an inspection, and unless otherwise directed by a majority of the Board, shall appoint any committee that may be found necessary.

4. The President shall report at each meeting on all official transactions that do not otherwise come to the attention of the Board.

5. The President shall, subject to these rules and further instructions from the Board, transact all official business of said Board, engage the necessary employees, direct their work, and exercise general disciplinary powers.

6. Subject to these rules and the direction of the Board, the Secretary shall conduct all official correspondence; send out all notices required by these rules and the order of the Board; attend all

meetings and hearings; keep the minutes of the Board's proceedings; compile the required records; maintain the necessary files and indexes, and generally supervise all the clerical work of the Board.

**ARTICLE VIII.**

1. The forms referred to in the above rules of procedure, and made a part thereof, are

Form 104—Appeal under the Zoning Ordinance.  
Form 105—Notice of Hearing of Appeal.  
Form 106—Notice of Public Hearing.  
Form 108—Resolution.  
Form 110—Form of Consents.  
Form 111—Notice to Adjoining Property Owners affected by appeal.

**ARTICLE IX.  
Amendments**

1. These rules may be amended or modified provided that such amendment be presented in writing at the regular meeting and action taken thereon at a subsequent regular meeting.

**ARTICLE X.  
Resolutions**

1. Every resolution not otherwise provided for, shall require three affirmative votes of the Board.

**ARTICLE XI.  
Records**

1. The records of appeals to the Zoning Board of Appeals shall be kept in the office of said Board, in such manner as to be accessible to the public at all reasonable hours.

**ARTICLE XII.**

**Order of Business at Regular Meetings**

1. The order of business at all regular meetings of the Board shall be as follows:

1. Roll Call.
2. Reading of the Minutes of the previous meeting and action thereon.
3. Communications.
4. Report of Committees.
5. Unfinished business.
6. New business.
7. Miscellaneous business.

**Form No. 104-34**

Board of Appeals

Case No. ....

Filed....., 192.....

Zone Case No.....

**APPEAL UNDER THE ZONING ORDINANCE**

ZONING BOARD OF APPEALS  
CITY OF CINCINNATI, OHIO  
CITY HALL

NOTE:—This appeal must be typewritten and filed within thirty days after the date of the decision or refusal of the Commissioner of Buildings, from which this appeal is taken.

The appellant must file herewith an explicit type-written statement setting forth:

- (a) The principal points upon which this appeal is made. In any case, the principal points set forth in the appeal shall be the same as those under which the Commissioner of Buildings issued a refusal, order or decision.
- (b) A clear and accurate description of proposed work or use.
- (c) Specific reference to that section of the Zoning Ordinance under which it is claimed permit should be issued.
- (d) Names and addresses of owners of all abutting lots or property.

Names and Addresses

Appellant..... Address.....  
 Owner ..... Address.....  
 Lessee ..... Address.....

To the Board of Appeals, Cincinnati, Ohio:

The undersigned, ..... hereby appeals from the decision of the Commissioner of Buildings, Zone Case No. ...., wherein a

Building Permit is Refused For.....

Certificate of Occupancy is Refused For.....

Order or Decision.....

in accordance with plans, application and all data heretofore filed with said Commissioner of Buildings, all of which are hereto attached and made a part of this appeal.

No previous application or appeal under the Zoning Ordinance has been made by me affecting these premises.

I hereby depose and say that all the above statements and the statements contained in all of the exhibits transmitted herewith are true.

Appellant

Sworn and subscribed before me this ..... day of ....., 192.....

Notary Public.

My commission expires.....

Form No. 111-24

NOTICE TO ADJOINING PROPERTY OWNERS

CITY OF CINCINNATI  
ZONING BOARD OF APPEALS

Cincinnati, O.,.....

An appeal has been filed by.....

(Address)....., on behalf of.....

(Address)....., as provided by the Zoning Ordinance, .....

on the premises located at.....  
This appeal has been given Board of Appeals

Case No. ...., and a hearing will be held by the Board of Appeals on..... at 10 A. M., in the Zoning Board of Appeals Room, Second Floor, City Hall, at which time you may appear, if you so desire, either in person or by agent or attorney.

By order of the Zoning Board of Appeals.

Secretary.

Form No. 105-24

NOTICE OF HEARING OF APPEAL

ZONING BOARD OF APPEALS  
CITY OF CINCINNATI, OHIO  
CITY HALL

Address all communications to  
Secretary, Zoning Board of Appeals,  
City Hall, Cincinnati, O., ....., 192.....

Sir:

Your appeal, under the Zoning Ordinance, relative to premises..... has been given Board of Appeals Case No. ....

All inquiries and references should always be made to that Board of Appeals Case number.

Further, you are notified to appear before the Board of Appeals, either in person or by agent or attorney, for a hearing of your case on..... at..... A.M., in the Zoning Board of Appeals Room, Second Floor, City Hall, Cincinnati, Ohio.

You must publish the publication enclosed herewith, in accordance with the instructions given thereon.

Respectfully,  
ZONING BOARD OF APPEALS,

Secretary.

Form No. 106-24

PUBLICATION OF APPEAL

CITY OF CINCINNATI  
ZONING BOARD OF APPEALS

Instructions: The appellant must publish the publication given below in a newspaper of general circulation in Cincinnati, Ohio, seven days in advance of hearing.

The publication is all wording below heavy ruled line.

The newspaper in which this notice is published must issue a certificate setting forth a true and complete copy of said publication and the exact date on which same was published. Such certificate must be filed by the appellant with the Zoning Board of Appeals, not less than five days before the date of hearing referred to in said publication.

Between May 3, 1923, and January 1, 1925, about 5,000 applications for building permits have come before the Commissioner of Buildings, and except in about 300 cases, the plans as filed conformed, or without difficulty were made to conform to the Zoning Ordinance.

About 125 cases have come before the Zoning Board of Appeals, and almost all of these cases have been disposed of; about one-half in favor of and one-half against the applicant. The Zoning Board of Appeals has met at least once a week, and often twice a week since the beginning. With the constant recurrence of similar cases before the Board, it has been found possible to build up a sort of jurisprudence, or consistent policy, which when supplemented by the proposed amendments to the Zoning Ordinance should considerably reduce the work of the Zoning Board of Appeals.

There is no question in the minds of those who are acquainted with the facts that the conscientious fairness of the Zoning Board of Appeals is largely responsible for the general satisfaction that the Zoning Ordinance has given.

Their use of their power to modify the application of the Zoning Ordinance in specific cases of unnecessary hardship has resulted in keeping out of the courts most of the cases that otherwise would have gone there.

Up to the time that the Zoning Ordinance went into effect, the following was a summary of the situation of the judicial decisions in Ohio on constitutionality of zoning:

Two Nisi Prius courts, which means courts of first instance, namely the common pleas courts of Cuyahoga and Mahoning Counties, in four distinct

cases involving the zoning ordinances of East Cleveland, Lakewood, Euclid Village and Youngstown, have upheld the constitutionality of zoning, namely: People ex rel Morris v. Osborn, 22 Ohio N. P. (N. S.) 549; State ex rel Dantzig v. Durant, Lakewood; State ex rel Cormiea v. Stein, Euclid Village; Parrish v. City of Youngstown, Youngstown.

On the other hand, but one Nisi Prius court, namely, the United States District Court for the Northern District of Ohio, in a case involving the Euclid Village Ordinance, decided against the constitutionality of zoning. The case is Ambler Realty Co. v. Euclid Village, 21 Ohio Law Bulletin, 607.

This shows a strong balance of favorable decisions in courts of first instance.

There was one appellate court decision upholding the constitutionality of zoning, involving the Lakewood ordinance. The case is State ex rel Dantzig v. Durant, 21 Ohio Law Bulletin 395, a decision of the Court of Appeals, sitting in Cuyahoga County. Consequently, the decision of the highest court which has passed on the question is in favor of constitutionality.

In general throughout the country there have been over 200 zoning cases, over 90 per cent of which have been fully favorable to zoning, and the other 10 per cent largely depending on local conditions which do not affect cities in the State of Ohio.

The upholding of the Duttonhoffer ordinance by the Supreme Court of Ohio in December, 1924, made it possible for the applicants for building permits who had filed their applications before May 3, 1924, but whose application had been refused because of non-compliance with the strict letter of the building code, to go ahead with their plans as filed, even though contrary to the Zoning Ordinance. This sanction did not apply, however, to the

Hyde Park case, where the applicant wished to erect a group of seven stores at the corner of Observatory Road and Edwards Road in a residence district. This case, together with the Youngstown case above referred to, went before the Supreme Court of the State of Ohio on January 26, 1925.

In general it can be said that the passage of the Zoning Ordinance and its successful operation, is the most important single step in the carrying out of the City Plan. However, it is obvious that the full enjoyment of the benefits that should be derived from zoning is dependent on the

carrying out of the rest of the Plan, as presented in this Report.

#### Fire Limits

The City of Cincinnati, according to the building code, has several large districts and a number of small districts called "blocked squares," within which buildings can not have a combustible exterior. **In the interest of consistency it is most desirable that the fire limits and the "blocked squares" should be modified, so as to conform with the Business and Industrial Districts of the Building Zone Map.**



HOMES ON THE HILLTOPS NORTH OF THE "BASIN"  
Why Cincinnati delights the artist



PRAGUE TOWARD THE HARADCANY  
How a "Jewel in the Crown" of Cincinnati hills might look and Mount Adams does look

## CHAPTER III Subdivisions and Housing

According to the contract, Section 5, "the corporation shall prepare and submit to the Commission a code of standards and regulations to govern the subdivision of land."

According to the second section, subsection (j), the corporation shall determine "the location of areas well adapted for housing developments of all grades. This part of the plan shall cover a territory at least three miles in extent outside of the present municipal limits."

#### The Subdivision Problem

Between 1890 and 1922, 343 subdivision plats were filed at the County Registry of Deeds. Fully one-third of these were

filed during the boom from 1890 to 1893. Not until 1915 and 1916 was there any appreciable activity in subdividing, and then again it died down during the war and did not become really active again until 1922.

Until January 1, 1918, the City Council had kept a nominal control over plats, but few if any changes were made by the Council in the plat plans as submitted.

With the enactment of the new charter, the control of plats passed directly into the hands of the City Planning Commission on January 1, 1918. Since then, every plat plan filed has been passed upon by the Planning Commission from the standpoint of good practice.



AVON HILLS SUBDIVISION (Courtesy of Mr. Morgenthaler)  
A model for the fitting of streets and lots to topography.

However, it was soon realized that the subdivider had a right to know in advance on just what principles the City Planning Commission would be likely to criticize his plat layout. Then too, the Commission itself soon realized that it was hard to preserve a consistent policy and to know just what standards they should adhere to. Furthermore, it was difficult to know how to handle the layout of subdivisions themselves without having a thoroughfare plan to which each subdivision could be made to conform. The city charter of 1918 provides as follows:

"The City Planning Commission shall be the Platting Commission of the city, and as such shall provide regulations governing the platting of all lands so as to require all streets and alleys to be of proper width, co-terminous with adjoining streets and alleys, and otherwise to conform to the regulations prescribed by the Commission.

All plats of lands within the corporate limits of the city or within three miles thereof, upon which streets, alleys, ways, commons, or other ground intended for public use are laid out, shall be submitted to the Commission and approved thereon in writing by it before being offered for record. Failure to submit, or the disapproval of the Commission of any such plat, shall be deemed a refusal of the proposed dedication shown thereon. The approval of the Commission shall be deemed an acceptance of the proposed dedication, but shall not impose any duty upon the city to maintain or improve any such dedicated parts."

According to the charter, it is incumbent on the City Planning Commission to provide regulations covering the platting of lands.

In 1923, the State Legislature went further and enacted the following law:

#### Subdivision and Platting Law May 8, 1923

AN ACT to regulate the platting and subdivision of land by supplementing section 3586 by the enactment of section 3586-1 of the General Code, and by amending sections 3588 and 12928 of the General Code of Ohio.

Be it enacted by the General Assembly of the State of Ohio:

Section 1. Section 3586 is hereby supplemented by the enactment of section 3586-1 and sections 3588 and 12928 of the General Code of Ohio are hereby amended to read as follows:

Sec. 3586-1. Whenever a city planning commission of any city shall have adopted a plan for the major streets or thoroughfares and for

the parks and other open public grounds of said city or any part thereof or for the territory within three miles of the corporate limits thereof or any part thereof except a part lying within a village, then no plat of a subdivision of land within said city or part thereof or said territory or part thereof shall be recorded until it has been approved by such city planning commission and such approval be endorsed in writing on the plat. If such land lie within three miles of more than one city, then this section shall apply to the approval of the planning commission of the city whose boundary is nearest to the land. When a village planning commission shall have adopted a plan for the major streets and thoroughfares and parks and other public grounds of such village or any part thereof, then no plat of a subdivision of land within said village or part thereof shall be recorded until it has been approved by such village commission and such approval endorsed in writing on the plat. The approval of the planning commission, platting commissioner or village council, required by this section, or the refusal to approve, shall take place within thirty days from and after the time of the submission of the plat for approval; otherwise such plat shall be deemed to have been approved, and the certificate of such planning commission, platting commissioner or of the clerk of such council as to the date of the submission of the plat for approval and the failure to take action thereon within such time, shall be issued on demand and shall be sufficient in lieu of the written endorsement or other evidence of approval herein required. The ground of refusal or approval of any plat submitted, including citation of or reference to the rule or regulation violated by the plat, shall be stated upon the record of the commission, commissioner or council. Any planning commission, platting commissioner or village council may adopt general rules and regulations governing plats and subdivisions of land falling within its jurisdiction to secure and provide for the co-ordination of the streets within the subdivision with existing streets and roads or with the city or village plan or plats, for the proper amount of open spaces for traffic, circulation and utilities and for the avoidance of future congestion of population detrimental to the public health or safety; but such rules and regulations shall not require the dedication to the general public of open grounds or spaces other than streets and ways, nor impose a greater minimum lot area than thirty-five hundred square feet, nor any requirement as to the minimum percentage of lot occupancy, nor as to the height, bulk, location or use of buildings; and minor streets shall not be required to be wider than fifty feet. Such rules and regulations shall be promulgated and published as is provided by law for the promulgation and publication of ordinances and before adoption a public hearing shall be held thereon and a copy thereof shall be certified by the commission to the county

recorder of the county in which the municipality is located. Nothing herein contained shall be construed to impair, modify or postpone any power over or concerning the platting and subdivision of land or the recording of plats of subdivisions granted to a city or other planning commission by any other section of the General Code; but when a plan has been adopted as provided in this section the approval of plats provided for herein shall be in lieu of the approvals provided for by any other section or sections of the General Code, so far as territory within the approving jurisdiction of the planning commission, as provided in this section, is concerned.

Sec. 3588. Whoever, being the owner or agent of the owner of any land within or without a municipal corporation, transfers any lot, parcel or tract of said land from or in accordance with a plat or map of the subdivision or allotment of all or a part of said land and upon which plat or map certain areas are indicated as for the use of the public for streets or other public grounds, before such plat or map has been recorded in the office of the county recorder of the county in which the land is situated, shall forfeit and pay the sum of fifty (\$50.00) dollars for each lot, parcel or tract of land so sold; and the description of such lot, parcel or tract by metes and

bounds in the deed or transfer shall not serve to exempt the seller from the forfeit herein provided. If the land be within a municipal corporation, then such sum may be recovered in a civil action brought in any court of competent jurisdiction by the city solicitor or other corresponding official of the municipal corporation in the name of the municipal corporation and for the use of the street repair fund thereof. If the land be situated outside of a municipal corporation, then said sum may be recovered in a civil action brought by the prosecuting attorney of the county in which the land is situated, in the name of the county and for the use of the road repair fund thereof. This section as herein amended shall not apply to a map or plat of a subdivision from or according to which two or more lots as shown on such plat have been sold or contracted for sale previous to the taking effect of this section nor to a plat or map of a subdivision heretofore made where the proprietor has heretofore carried the improvement of the land in accordance with the plat to the point of commencing the grading of streets or other public ways as shown on the plat; nor to a map or plat of a subdivision on which all areas indicated as streets or open grounds are expressly indicated as for the exclusive use of the abutting or other owners in such subdivision and not as public streets, ways or grounds.

Sec. 12928. Whoever, being a county recorder, records a map or plan of a subdivision of a lot or ground without the approval or certification thereof by the planning commission, platting commissioner or council, engineer or other board or officer, as required by law, shall be fined not less than one hundred (\$100.00) dollars nor more than five hundred (\$500.00) dollars.

Sec. 2. That said original section 3586, 3588 and 12928 of the General Code be, and the same are hereby repealed.

H. H. GRISWOLD,  
Speaker of the House of Representatives.  
EARL D. BLOOM,  
President of the Senate.

Passed March 30, 1923.  
Approved April 11, 1923.

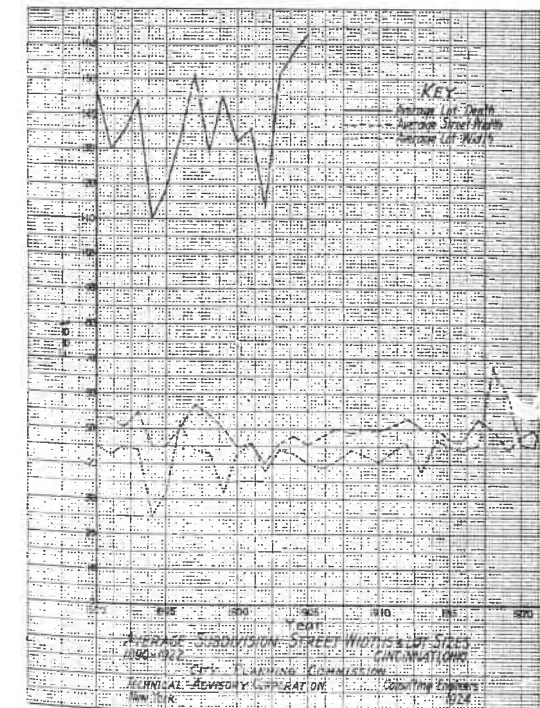
VIC DONAHEY, Governor.  
Filed in office of Secretary of State, April 13, 1923.

I hereby certify that the foregoing is a true copy of the engrossed bill.

THAD H. BROWN,  
Secretary of State.

#### AN ACT

Relative to restoring section 3586 to the General Code, relative to plats of land.  
Be it enacted by the General Assembly of the State of Ohio:



AVERAGE SUBDIVISION STREET WIDTHS  
AND LOT SIZES  
Little change in 50 years

Section 1. That section 3586 of the General Code be enacted as follows:

Sec. 3586. When there are on record plats adopted by a platting commission or board of public works, no such map or plat of any addition within the limits of a municipal corporation shall be recorded until the engineer thereof certifies that the streets, as laid down on the plats of such addition, correspond with those laid down on the recorded plats of the platting commission or board of public works. When there are streets laid down in addition to those adopted by a platting commission or board of public works, or in any municipal corporation where no platting commission is or has been in existence, no such plat shall be recorded until it has been approved by the council of the municipal corporation.

H. H. GRISWOLD,  
Speaker of the House of Representatives.

GEO. E. KRYDER,  
President pro tem. of the Senate.

Passed April 28, 1923.

Approved May 8, 1923.

VIC DONAHEY, Governor.

Filed in office of Secretary of State, May 8, 1923.

I hereby certify that the foregoing is a true copy of the engrossed bill.

THAD H. BROWN,  
Secretary of State.



A London Apartment House Street.  
Note setback, curved street and use of trees.

For a City Planning Commission of any city to operate under this law it must adopt a thoroughfare plan and a plan for parks and other open public grounds not only within the city, but for three miles outside, and once such a plan is made and regulations drafted, the Planning Commission can very definitely control plats for record not only within the city, but for three miles outside. However, the Planning Commission has no control if the plat lies within the borders of any other incorporated city or village, and if

any other city within six miles has a City Planning Commission, each city controls to a line half way between the borders of the two cities and extended to the intersection of both three mile limits.

Meanwhile, the City Council of Cincinnati, realizing that there was nothing to prevent a subdivider from evading the new law by refusing to dedicate new streets, passed an ordinance on May 15, 1923, making it a misdemeanor to sell land abutting on private and undedicated streets, alleys, ways or commons within the city, without informing the purchaser in writing of the fact that the streets were not dedicated. The ordinance is as follows:

**Making it a Misdemeanor to Sell Lands Abutting on Private and Undedicated Streets, Etc.**

Be it ordained by the Council of the City of Cincinnati, State of Ohio:

Section 1. That the Code of Ordinances of the City of Cincinnati be, and the same hereby is supplemented by ordaining section 836, to read as follows:

Section 836. It shall be unlawful for any person, partnership, firm, association or corporation to sell a subdivision of land, part of a subdivision of land, or any lot, or any parcel of land abutting on a private, undedicated street, alley, way or commons, within the City of Cincinnati, unless the person, partnership, firm, association or corporation, before or at the time of such sale, shall have informed the purchaser, in writing, that the plat of land showing such private and undedicated street, alley, way or commons, has not been approved by the City Planning Commission, by virtue of Section VII, Paragraph 8, of the Charter of the City of Cincinnati, and that said private and undedicated street, alley, way or commons, has not been accepted for public use by the City of Cincinnati, as provided by said Charter and general law.

Any person, partnership, firm, association or corporation violating any of the provisions of this section shall, upon conviction thereof, be fined in any sum not exceeding \$200.00, and imprisoned in the County Jail of Hamilton County, Ohio, not less than ten (10) days, nor more than thirty (30) days, at the discretion of the Court.

Section 2. That this ordinance shall take effect and be in force from and after the earliest period allowed by law.

Passed May 15th, A. D. 1923.

ROBERT SCHMIDT, JR.,  
President pro tem. of Council.

Attest: FRED SCHNELLER, Clerk.

Approved: FROOME MORRIS,  
Acting Mayor.

May 17, 1923.

The specific problems that the City Planning Commission has to meet in controlling plats are as follows:

1. Lots are too narrow to provide for adequate side yards for fire protection, privacy, sunlight and health.
2. Lots are too shallow to provide adequately for fire protection, health, sunlight and space for gardening or for play.
3. Streets are too narrow for fire protection, uncongested access, privacy and for possible later use as through streets.
4. Grades are often too steep.
5. Fine old trees are ruthlessly destroyed.
6. Streets do not connect with those of adjoining subdivisions.
7. Inadequate provision made for setback building lines.
8. Use restrictions fail to agree with the Zoning Ordinance.
9. Insufficient data is given with the plans for a proper check.

**SUBDIVISION PLATTING RULES**

As a result of numerous conferences with the City Engineer and other city officials and with many realtors, the following rules for the control of plats are presented:

The following rules for control of plats and subdivisions are adopted by the City Planning Commission, together with a Thoroughfare, Park and Open Public Ground Plan for the whole area of Cincinnati and within three miles of it.

**RULES AND REGULATIONS**

**Governing the Platting of Subdivisions Within the Jurisdiction of the City Planning Commission of Cincinnati**

The Charter for the City of Cincinnati provides:

City Planning Commission shall be the Platting Commission of the City, and as such shall provide regulations governing the platting of all lands so as to require all streets and alleys to be of proper width, co-terminous with adjoining streets and alleys, and otherwise to conform to the regulations prescribed by the Commission.

All plats of land within the corporate limits of the City or within three miles thereof, upon which streets, alleys, ways, commons or other ground intended for public use are laid out, shall be submitted to the Commission and approved thereon in writing by it before being offered for record. Failure to submit, or the disapproval of the Commission of any such

plat, shall be deemed a refusal of the proposed dedication shown thereon. The approval of the Commission shall be deemed an acceptance of the proposed dedication, but shall not impose any duty upon the City to maintain and improve such dedicated part.

**SECTION A  
Preliminary Plan**

- (1) Three blue prints of a preliminary plan of the proposed subdivision shall be submitted to the Planning Commission and the subdivider shall not proceed with any work on the subdivision until the Commission has approved tentatively the preliminary plan. These blue prints must be filed with the secretary of the Commission at least one week before the meeting of the Commission to receive action thereon at that meeting.
- (2) The plan shall bear the proposed name of the subdivision, its location as forming a part of some larger tract or parcel of land referred to in the indexes of the records of Hamilton County, the name and address of the subdivider, and that of the engineer or surveyor. The scale to which the plan is drawn is optional, but shall be 100 feet or less to the inch horizontally, and 20 feet or less to the inch vertically. The direction of north shall be indicated. Any private restrictions to be embodied in the deeds of sale should accompany the plat.
- (3) In addition to showing the layout of the lots, streets, alleys and easements of the proposed subdivision, the plan shall show:
  - (a) The boundary lines of the tract to be subdivided.
  - (b) The zoning district or districts and their boundary lines within the tract involved.
  - (c) The lines and names of all existing streets and other public ways, all railroads and other important features, section lines and other main property lines in the territory surrounding and contiguous to the tract. Where such features do not exist within a reasonable distance, a vicinity plat on a scale of about 400 feet to the inch shall accompany the preliminary plan.
  - (d) Contours with intervals of five feet or less.
  - (e) All watercourses, drain pipes, culverts, sewers, water mains, etc., within the tract or immediately adjacent thereto.
  - (f) All parcels of land intended to be dedicated to the public use.
- (4) As to the work proposed to be done by the subdivider, the plan should show:
  - (a) A profile of each street with a tentative grade indicated thereon.
  - (b) A cross section of the proposed grading, roadway and sidewalk.

- (c) Plan and profiles of proposed sanitary, storm water or combined sewers with grades and sizes indicated.
  - (d) A plan of the water distribution system.
- (5) The tentative approval of the preliminary plan by the Planning Commission is to be considered as merely a general approval of the layout submitted, and it is thoroughly understood that the Department of Public Service shall first examine and report as to the grades of the streets, the type of improvements, the layout of the drainage and sewer system, the water distribution system, and shall have the power to modify any such engineering or construction details submitted by the subdivider wherever advisable for the protection of the city's interest. The approval of the final plan for record will be considered only when all such questions have been settled to the satisfaction of the proper officials.
- (6) Where the proposed subdivision is of minor importance or is in a locality where conditions are well known and well defined, the Planning Commission may relax the above requirements to the extent deemed just and proper.

### SECTION B General Requirements

- (1) **Lots**—The size and shape of lots shall be such as the Planning Commission shall deem proper for the locality where the subdivision is located, due consideration being given to the zoning district in which the tract is situated.
- (2) **Streets**—Whenever a tract to be subdivided embraces any part of a street indicated as a thoroughfare on the adopted Thoroughfare Plan, such part of such street shall be dedicated by the subdivider. In general it will be required that the minimum width of right-of-way for main thoroughfares be 90 feet, for secondary thoroughfares 66 feet, for minor streets 50 feet, and for local service streets 40 feet. In special cases, where imperatively demanded by the local topography, a smaller width may be permitted for minor or local service streets. Alleys shall be not less than 18 feet wide. In general, the street system shall be laid out so that the new streets make proper connections with existing streets in surrounding territory; blocks shall not exceed 900 feet in length and dead-end streets shall not be over 600 feet in length unless local topographical conditions are such as to render these provisions impracticable.
- (3) **Grade and Alignment**—For main and secondary thoroughfares, the minimum radius of curvature shall be 200 feet on the center line, for minor streets 100 feet, and for local service streets 50 feet. The maximum grades shall not exceed seven per cent for main and secondary thoroughfares, or fourteen per cent for minor or local service streets. All changes in grade shall be connected by vertical curves of minimum length equal to fifteen times the algebraic difference in rate of grade and thoroughfares, and one-half this minimum length for minor or local streets. The grade layout and alignment, especially at intersections, shall be worked out in detail, to meet the approval of the Department of Public Service.
- (4) **Type and Width of Roadway**—Unless in the opinion of the Planning Commission there are strong reasons of public policy for adopting other widths, the standard minimum widths of roadway shall be 56 feet for main thoroughfares, 40 feet for secondary thoroughfares, 27 feet for minor streets, and 20 feet for local streets.
- (5) **Trees**, of a type to be approved by the Board of Park Commissioners, shall be planted not over 60 feet apart on each side of each street except at intersections.
- (6) **Sewers and Drains**—The entire drainage system, both as to sanitary and storm water disposal, shall be laid out to meet the approval of the Department of Public Service.
- (7) **Water System**—The water system shall be laid out to meet the approval of the Department of Public Service.
- (8) **Carrying Out of Street Improvement**—The entire street improvement as above outlined, comprising the grading of the entire right-of-way, the installation of storm water and sanitary, or combined sewers, storm water inlets, house connections from sewers to beyond curb lines, laying of water mains with service pipes to points beyond the curb, and the construction of the roadway to the approved grade, shall be carried out under the direction of the Department of Public Service, in strict accordance with standard City specifications for the various kinds of improvements. The City Engineer shall assign a city inspector to the work for such time as may be necessary to insure full compliance with specifications, and the wages of such inspector shall be paid from a sum for inspection to be deposited by the subdivider with the Department of Public Service.
- (9) **Acceptance**—Unless in the opinion of the Planning Commission, there are strong reasons of public policy for acting otherwise, the Commission will not approve and accept any plat of subdivision involving the dedication of streets unless and until the subdivider has improved the streets proposed to be dedicated as above outlined. If any street is laid out by the subdivider solely in pursuance of requirements of the Commission that cross streets be provided and if an adopted thoroughfare crosses the tract and the portion of it so situated be dedicated, and if the cross street is not needed to afford access to lots as laid out, then the Commission may relax its requirement that such street be improved by the subdivider.

### SECTION C

#### Final or Record Plat

The final or record plat of the subdivision shall be submitted to the Commission in the form of an original tracing in waterproof ink on linen. It shall preferably be drawn at a scale of 50 feet to the inch, but this is not obligatory.

The final plan shall conform to the following:

- (1) The boundaries of the tract subdivided shall be clearly indicated on the plat and shall be completely and accurately determined by courses and bearings; the bearings, wherever possible, being referred to the true north of the zero meridian of the Topographical Survey. These boundaries must be determined by an accurate survey in the field which must be balanced and closed. The requirement that bearings be referred to the true north can only be enforced where the city has established lines of known bearing in the immediate vicinity of the proposed subdivision.
- (2) The lines of all lots, streets, alleys and easements as laid out must be completely determined both as to length and direction, and the system of lengths and directions shall be balanced so as to be consistent throughout, and consistent with the courses and bearings of the boundary lines.
- (3) Permanent monuments of natural stone, concrete, or iron pipe, shall be set at such critical points as will enable any skilled surveyor to correctly lay out a lot in the subdivision.
- (4) All existing dedicated streets, section lines and principal property lines in territory contiguous or immediately adjacent to the proposed subdivision, shall be accurately tied to the lines of the subdivision by courses and bearings.
- (5) All lots shall be numbered or lettered and all proposed streets shall bear tentative names.
- (6) Where street or lot lines are curved, lengths of radii, arcs, chords and tangents shall be given.
- (7) The zoning district or districts which embrace the subdivision shall be indicated. Where the subdivision is divided between two or more zoning districts, the lines of separation shall be indicated. All setback building lines required by the zoning ordinance shall be indicated on the plat by a brown line. If the subdivider proposes to use greater setbacks than those called for by the ordinance, such setback lines shall be indicated on the plat.
- (8) The City Engineer shall make such examination of the plat submitted, both in the field and office, as will enable him to certify that the above conditions have been faithfully carried out. It will be required that all lines mentioned in (4) above shall conform to the records of such lines in the City Engineer's office.

- (9) The plat shall contain the title of the subdivision and shall designate the larger subdivision or tract of land of which the tract now being subdivided forms a part. It shall also bear the name of the subdivider and the name of the engineer or surveyor. Direction of north, scale and date shall be indicated.
- (10) Before accepting the final or record plat, the Planning Commission will require a two-fold certificate from the City Engineer: (a) a certificate that all the technical requirements of the plat itself have been checked and found to be correct, and (b) that the provisions as to the grading and improvement of the proposed streets have been carried out. After the Planning Commission has finally approved and accepted the final or record plat, the Secretary of the Commission shall turn the plat over to the City Engineer, who shall prepare two blue prints to be returned to the Commission and such other prints as may be required for his own files. The City Engineer shall then transmit the approved plat to the subdivider who shall have the same placed on the records of Hamilton County.

#### General Discussion of Platting Rules

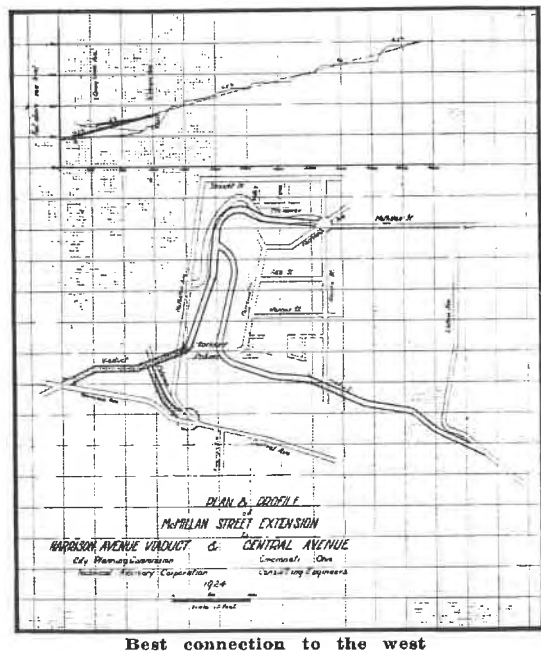
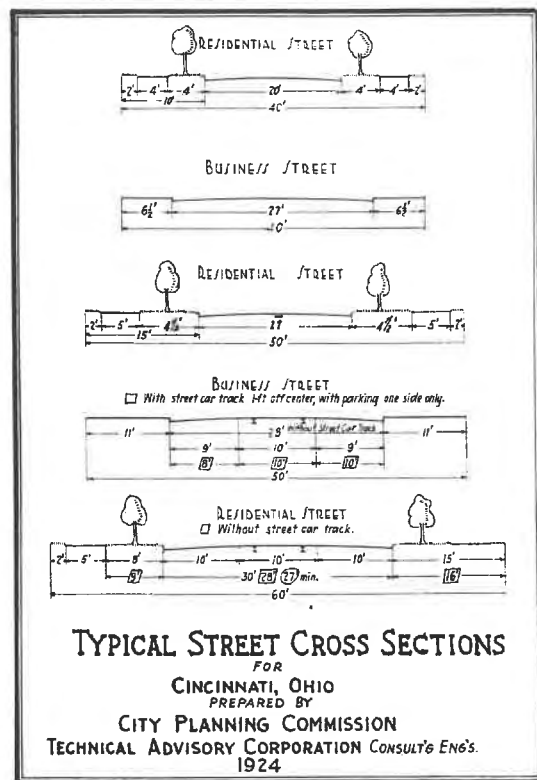
The subdivider should submit preliminary plans as well as final plans, so as to save trouble both for the subdivider and the City Planning Commission by making possible a preliminary check. The various specific items called for on both the preliminary and final plans are all matters which experience proves are essential to an intelligent criticism of the plats or for a proper record.

Block lengths are kept within 900 feet, as experience shows that a greater length than that impedes traffic and makes access in case of fire more difficult.

All alleys should be at least 18 feet wide, because two vehicles can not pass each other in less width than that, particularly when a reasonable allowance is made for poles or other obstructions along the sides of the alley.

The maximum grades of thoroughfares are kept down to seven per cent, as it is found that a greater slope than that impedes the flow of traffic, nor will stores locate on a greater grade than seven per cent, unless there is some exceptional inducement. On minor streets, however, a grade of 14 per cent is allowed, being about the maximum grade that the aver-





age fire engine or coal delivery truck can safely mount.

New thoroughfare street widths are kept at 90 and 66 feet minimum, and their roadway widths at 56 and 40 feet minimum, as practice proves that those are the narrowest street and roadway widths at which vehicles can be operated speedily and safely in four moving lanes and two moving lanes respectively. Slightly lesser width can be conceded for the widening and extension of existing streets in order to avoid unduly costly expropriation.

Purely minor and local service streets are allowed down to 50 and even 40 feet wide and the roadways down to 27 feet and 20 feet wide respectively, (with a seven-foot hard earth shoulder where less than 27 feet), partly to keep out through traffic, or at least to discourage it, and partly because it is not fair to abutting property owners to make them pay for



**A FLORENCE HILLSIDE STREET**  
A few well placed trees add greatly to the effect



**A PRAGUE HILLSIDE**  
Picturesque use of a hillside even steeper than most in Cincinnati

any more street than they actually need, both now and in the future.

It is evident that if plats are to be adjusted to an official Thoroughfare, Park and Public Grounds Map, the latter must be definite in its lines so that each property owner can know exactly what parts, if any, of his land and improvements are or will be affected by the Map. **The City Engineer should be immediately instructed by the City to delimit accurately from field surveys all lands and rights of way that, according to the intent of the Map, should be dedicated or taken for public use and to proceed with this work as fast as local demand makes necessary.**

**Building in Mapped Streets**

As it is today, under the Ohio law, the city has no way of preventing the construction of buildings within the bed of the thoroughfares as shown on the official Thoroughfare Map, except by requiring each subdivider as he presents a plat to dedicate to the city such portions of the thoroughfare as lie within his plat. In order to prevent the erection of buildings within the bed of the mapped thoroughfares within any subdivision or elsewhere, the Ohio State Conference on City Planning is presenting to the 1925 State Legislature a bill providing that the procedure now used for the acquisition of land for county thoroughfares shall become applicable also to cities, and that within a year from the publication of each detailed part of the official Thoroughfare Map, every property owner affected by the Map shall present his claim for damages, or if he does not, automatically waive damages for the construction of buildings within the bed of the mapped thoroughfares. It is most important that this latter should be passed in order to preserve the integrity of the thoroughfare system as mapped.

**Typical Minor Street Cross Sections**

Unless subdivision streets are treated as parkways, they would normally be 40, 50 or 60 feet wide. Except for those

strictly local streets that can never have any traffic on them except such as serves a very limited number of abutting houses, no street should be less than 50 feet wide. Even on the 40 and 50 foot streets there should be a good, permanent setback on each side of the street, so that on all subdivision streets there would be at least 80 feet, and preferably 100 feet of clear open space between the fronts of opposite houses.

Even on the narrowest street no roadway should be less than 20 feet wide, and on streets 50 feet wide, no roadway should be less than 27 feet wide. The minimum of a 20-foot roadway on a 40-foot street is provided, so that automobiles or delivery trucks can park on each side of the street, always staggered and never opposite one another, so that a moving vehicle can traverse the length of the street by sinuously weaving in and out among the parked vehicles. A minimum of 20 feet is also necessary to assure the passage of a fire truck, even when vehicles are parking along the street. Furthermore, 20 feet is about the minimum width in which a long automobile truck can be turned.

On any minor street that is not a strictly local use street, at least three traffic lanes should be provided. That would mean that a vehicle could be parked on each side of the street and a moving vehicle pass between them. In practice it is not safe to attempt this on less than 27 feet, as the parked vehicles may be exceptionally wide, and are often parked carelessly several feet away from the curb or gutter.

The various street, roadway and sidewalk widths as recommended for typical subdivisions, are shown in detail on the accompanying diagram.

In laying out all plats and subdivisions the street cross sections shown on the accompanying typical street cross section diagram should be observed as a minimum standard, although greater widths for wider grass borders are recommended.

A study of the accompanying chart of street width and lot sizes shows that for the last 35 years there has been a gradual decrease in the average width of streets as laid out in the nearly 400 subdivisions that have been filed during that period. At the beginning of the period the average street width was over 50 feet. Today the average is about 45 feet. While there is nothing wrong in principle with minor streets less than 50 feet wide, obviously they should be used only where there is no possibility of their ever being needed for anything except the use of a limited number of houses along them, and it is also evident that every narrow street should be accompanied by an ample setback.

#### Alleys

Wherever lots are wide enough—that is, wide enough so it is practical to have a driveway from the street back to the rear of the lot on each lot, an alley is neither necessary nor desirable. On account of the difficulty in policing and cleaning alleys, they are undesirable except where it is otherwise impossible to gain access to the rear of buildings. Therefore, in all subdivisions around Cincinnati, alleys are not to be recommended.

However, if they are provided they should be at least 18 or 20 feet wide, so that a fire engine, or a garbage collection cart or coal or ash truck, can pass a vehicle standing along the side of the alley, even where there are poles and hydrants along the edge of the alley. This can be done only with at least an 18-foot width.

**In new subdivisions alleys should not be provided, but if they are provided, because it is otherwise impossible to gain access to the rear of houses, they should be at least 18 feet wide.**

#### Lot Sizes

A study of the accompanying diagram of lot sizes from 1890 to 1922 shows that lot widths averaged about 43 feet until

about 1917, and that since then the average has increased to about 50 feet. This sudden increase is probably due directly to the control of all plats and subdivisions by the City Planning Commission, which started January 1, 1918. Lot depths have averaged about 130 feet, with a recent tendency to increase the average. In most cities 125 or 130 feet would be considered plenty deep enough for all practical purposes; in fact, it would often be desirable to discourage greater lot depths, but in Cincinnati, with its rugged topography and numerous deep ravines, a greater lot depth is often necessary in order to take full advantage of the topography.

Other things being equal, especially in a city as spread out as Cincinnati, a minimum lot width of 50 feet should always be insisted upon, as it is impossible with a less lot width to assure even the minimum standard of open space between buildings that is required by sanitarians and public health officers. During the war the United States Housing Corporation and Emergency Fleet Corporation made an exhaustive investigation as to what should be the minimum open space between houses in order to assure even reasonable fire protection, sunlight, ventilation and privacy. Their conclusion was that 20 feet was a desirable minimum, but that under certain circumstances 16 feet might be allowed. Allowing the 20 feet or even 16 feet between houses, it is impracticable to erect a house of normal width on a lot much less than 50 feet wide—in fact, 60 feet is preferable.

On the other hand, with land costing from \$20 to \$25 for a front foot and upwards, it is impossible to provide housing within the means of the average wage earner, unless lot widths are reduced to 40 and in some cases 37½ feet. For subdivisions of this character it is reasonable to permit these narrower lot widths, provided that the houses themselves shall not be over 20 to 24 feet wide, thus allowing the minimum of 16 feet clear between houses. In general this clear open space between houses is or can be provided for in the side yard provisions of the Building Zone Ordinance.

**A minimum lot width of 50 feet should be insisted upon, with wider lots wherever practicable, except that in the subdivisions laid out for wage earners a minimum width of 40 feet can be allowed, provided that a minimum of 16 feet between houses shall be insisted upon.**

Corner lots should be wider than interior lots, so that a building can set back far enough from the side street to keep back to the setback building line of other buildings in interior lots on the side street. This would mean that the corner lot would normally be 10 to 15 feet wider than the typical interior lot. For good traffic visibility alone this is most important.

**Corner lots should be enough wider than interior lots so that all buildings on a corner lot can keep back to the setback building line of houses on interior lots on the side street.**

#### Tree Planting

Cincinnati has fewer good street trees in its residential districts than almost any other city of its size. There is no inducement to plant street trees. There is no official or private body that cares for street trees, or in any way encourages them. Even the existing street trees have gradually decayed or have been cut down, so that Cincinnati gives the effect to a stranger of being a comparatively bald city.

There is almost nothing the city can do that in proportion to the trouble and expense involved, adds so much to its charm as good street trees and grass borders. **Every subdivider should be encouraged to plant trees, even on the narrowest streets, and to preserve and maintain grass borders on all streets, even though the grass border is only 5 feet wide.**

#### Controlling the Appearance of Buildings

There is nothing so ragged and incongruous as a mixture along the same street, of houses of all sorts and kinds of architectural treatment. Such a street becomes a sort of museum of architectural styles and fancies. On the other hand,

there is nothing so monotonous and deadly as a standardized street where all the buildings are cut out of the same mold. There is a point half way between the two where the street composes and delights the eye by its harmony.

Fortunately it is now becoming a practice to establish control over the architecture of all buildings or structures within a subdivision or group of subdivisions, so as to retain its harmony and prevent the incongruous. This is done by a statement in the deed that plans and designs for all structures shall be submitted to the subdivider's architect or to an art jury, or a similar competent architectural adviser directly responsible to a co-operative association of the lot owners.

**Each subdivision or group of subdivisions should establish a control of the architectural harmony of all structures erected within a subdivision, and such control should be either under the subdividers or under a co-operative association of the lot owners, or both.**

#### Typical Subdivision Layout

For a typical subdivision study, land, now undeveloped, was chosen on Price Hill between Harrison Avenue, Tomlinson Avenue, Lehman Road and State Avenue. Land values in this area run from \$4,400 an acre down to \$160 an acre. It seems to be the cheapest land closest in to the center of the city as yet unimproved. It is very rugged in its topography. In laying it out, every attempt has been made to take as much advantage as possible of the topography so as to secure as many practical building lots as possible with the least expenditure for streets.

Furthermore, every existing street, even though only on paper, has been preserved and incorporated in the proposed layout. A main thoroughfare has been carried through the development as an extension of the Liberty Street Viaduct.

The exceptionally long blocks are necessitated by the steep hillsides, although in laying the property out on the ground,

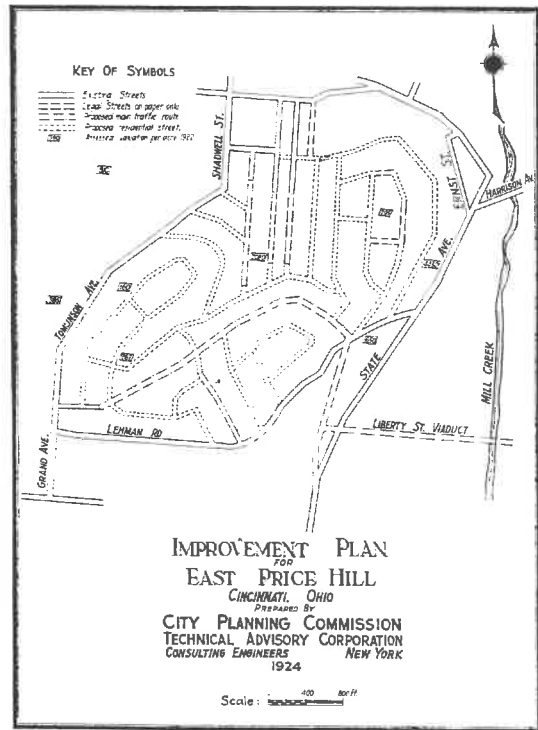
various rights of way with steps should be provided near the centers of many of these exceptionally long blocks.

Along the thoroughfares the number of intersecting streets is reduced to a minimum, so as to prevent interference with the free flow of traffic along the thoroughfares. The layout is shown on the accompanying map. To secure the full advantage of such a layout, it is desirable that the various property owners should pool their interests and lay out the whole area in one undertaking.

East Price Hill should be laid out in the near future approximately as indicated on the accompanying improvement plan.

**Housing Problem in Cincinnati**

According to a recent report of the Housing Betterment League of Cincinnati, the housing situation, so far as wage earners are concerned, is more pressing than it has been at any time in the past,



A typical sample layout in rugged topography.

and there are fewer vacancies, more bad housing conditions and a far greater degree of room overcrowding, while tenement rentals are constantly growing higher. For the first time the problem has become so acute that social agencies are stating that housing conditions are making it impossible for them to provide anything like a satisfactory solution of the family problems which they are attempting to adjust. The colored population is continuing to increase fairly rapidly, while the number of houses in which they may live is remaining stationary. Nearly 3,500 new colored people have come into Cincinnati since 1920. This is bound to remain a problem for several decades to come.

In addition to the west end of the "Basin," where the majority of the colored people live, there are five or six fairly large colored settlements at the east end of the "Basin," in Walnut Hills, Madisonville, O'Bryonville, along the Mill Creek Valley and in Steele's subdivision near College Hill. In the west end most of the oldest and more unsanitary tenements are occupied by colored people, where they often live six, seven, eight and even twelve people in a single room. These slum conditions could be much improved if the City had available even normal means for their control. Rentals have more than doubled since 1918. At least one-quarter of the average annual income per family is used for rent.



LETCHWORTH, ENGLAND  
MAIN BUSINESS STREET  
Note trees, setback and harmonious treatment of fronts

Ten per cent of all the dwellings in the city are tenements and 30 per cent of the total population lives in tenements. This is a large proportion as cities go. Eighty per cent of all the tenements are in the "Basin." Fortunately from the standpoint of sanitation, the population of the "Basin" is decreasing about two per cent per year, due to their being forced out by the spread of industry and business. However, for the last two years this decrease has been counteracted by the unusual influx of colored people.

The only way in which the housing shortage can be substantially relieved is by producing more homes. Single-family houses can not be built to sell for less than \$5,000, including the land. In fact, it is extremely doubtful whether it is possible today to produce a well-built house for \$5,500. Prizes offered for the best \$5,500 house have produced no competitors. Even these homes would have to rent for at least \$600 a year to produce a safe investment. It is therefore obvious that the construction of single-family houses can not meet the needs of the mass of the colored population and the white low-wage earners.

The four-family house and still more the row type of house is the cheapest type today. The row type of house would be two stories high, with one four-room flat in each story. It costs about \$3,750 per four-room flat, but even this type of apartment is beyond the means of the vast majority of colored families and a great many white wage earners. Therefore, it is obvious that new houses can not be built directly for wage earners, and that the only way housing accommodations can be provided for them is by relieving the pressure higher up. In other words, as fast as the families in better circumstances move out of the older tenements and houses, they will become available for housing the lower wage earners. This means that it is not feasible now to give any consideration as a part of the City Plan to providing housing for low-wage earners, and that attention should be concentrated now on the amelioration of living conditions in the older parts of the town by zoning protection and by the

provision of parks, playgrounds, community centers and open spaces. The Model Homes Company is now remodeling abandoned buildings, such as the old Good Samaritan Hospital, for living purposes. Other enterprises of this sort might well be undertaken.

For families in moderate circumstances and better, it is interesting to note that 29 per cent of the families own their own homes—a much lower proportion than in the average city. Other things being equal, wage earners tend to live near their work. It is true that most of the outlying families own their own cars and can easily get to their places of work or to the nearest transit line.

Fortunately, for a city as spread out as Cincinnati, houses built in rows are quite unpopular; in fact even two-family houses are less popular than one-family houses. In other words, the person of moderate income prefers his own separate house, with enough land around it so that he can have privacy, a garden and plenty of sunlight and air. There is less excuse for the more intensive types of housing in Cincinnati than in most cities—thanks to the topography and relatively low land values.

**The Distribution of Housing of Different Types**

Housing in Cincinnati may be roughly divided into the following classes or types:

1. Low rent old tenements.
2. New, higher class apartment houses.
3. Lowest cost one and two family houses.
4. New one and two family houses with ample open space about them.
5. Best one family houses.

The old tenement housing is mostly in the "Basin", and is gradually disappearing with the invasion of industry and business. It is not economical to reproduce this type today, in fact, the more objectionable features of it cannot be reproduced, thanks to the Zoning Ordinance and Building Code.

Higher class apartment houses are being erected today in increasing numbers, and this tendency is bound to continue, thanks to the modern habits of living and the modern servant problems. Therefore, provision has been made in the Zoning Ordinance in appropriate sections of the city, for the development of desirable types of apartment houses, enough at least to meet the demands of the 12 per cent of the population that prefer apartment house living. Even throughout the Residence "B" districts, which cover the larger part of Cincinnati, apartment houses are permitted, provided large open spaces are left about the houses. This makes it possible to introduce the apartment house anywhere in Cincinnati, except in Residence "A" districts, and there is no reason why they should not be so introduced, provided they contribute their share of light and air and open space to the neighborhood in which they locate. The districts where apartment houses can be built more closely together are limited to Residence "C" districts, and those districts are concentrated within a limited area around local centers and along principal thoroughfares. In most cases where there is no marked tendency toward this type of development, it should not be allowed to spread.

The type of apartment house or tenement house which is permitted in Residence "C" districts under the Zoning Ordinance, should not be allowed to spread as there is already provided several times as much area for the expansion of this type as it should ever need, and if new apartment houses are to be built in the future, it is much better for all concerned that they should be of the more open type permitted in Residence "B" districts.

The lowest cost one and two family houses will locate, other things being equal, near transit lines, near large industries or groups of industries, or where land values are lowest in proportion to the useableness of the land. There is an infinite variety of locations for such low cost housing in and about Cincinnati, so that it is impossible to cover all of the possibilities. The following are sug-

gested locations for possible future lowest cost one and two family houses:

1. Sedamsville.
2. Northeast of Price Hill from State Avenue to Tomlinson Avenue.
3. North Fairmount.
4. West of Beekman Street.
5. Winton Place to the northeast.
6. West of Carthage.
7. East of Elmwood Place.
8. West of Bond Hill.
9. East of Bond Hill.
10. Between Pleasant Ridge and Oakley.
11. Between Ault Park and Madisonville.
12. Linwood.

In some of these districts, nearest places of work and transit lines, new houses could be built of the type so successfully developed by Jacob G. Schmidlapp, that is, the four family or double two family houses, or of the two family row house type, recently recommended by the Better Housing League as the cheapest type of house that can be built in Cincinnati today. The more concentrated types of dwellings should be erected near thoroughfares or transit lines and nearest to places of work, leaving the more open land behind for low cost, single family housing.

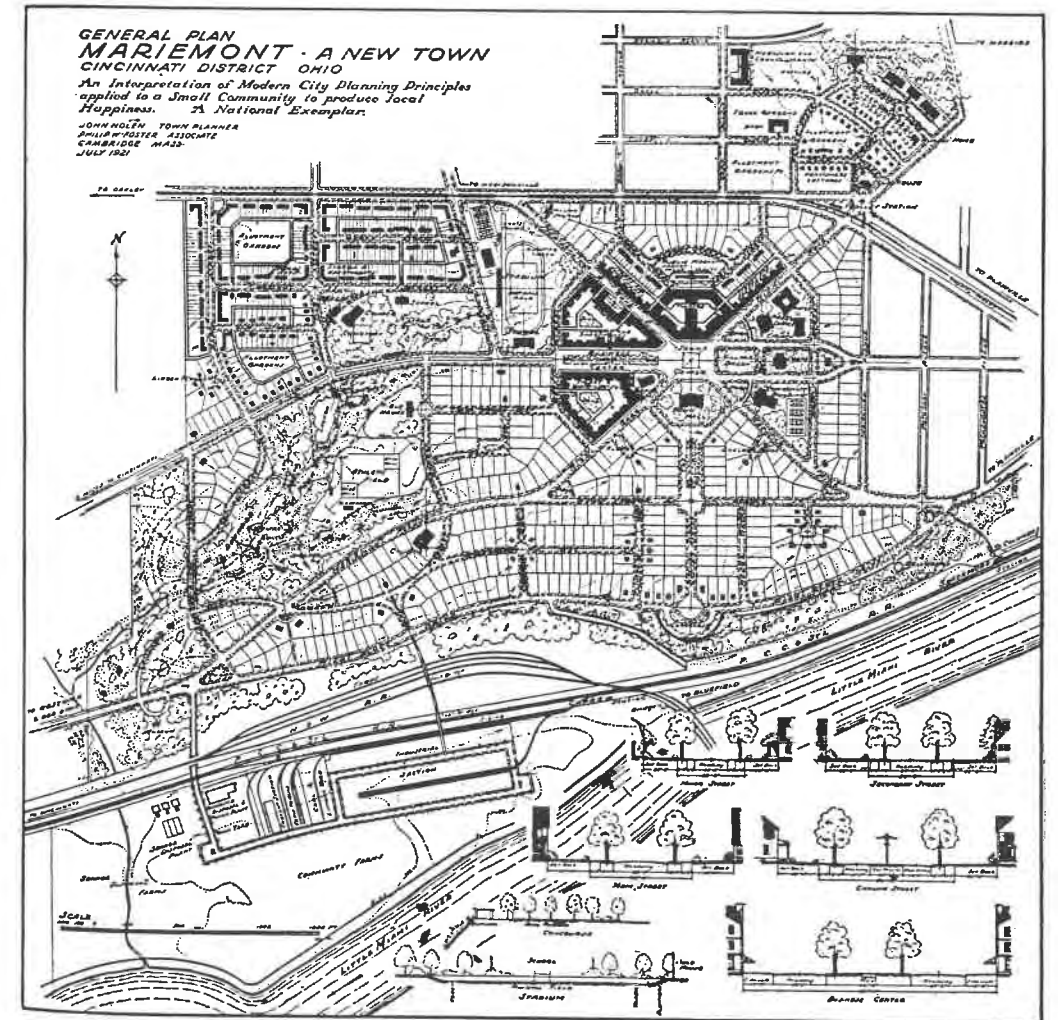
The highest cost and most open type of housing, such as is found today in the Grandin Road district and in Clifton, will always be limited in quantity and in a sense, can look out for itself. The most recent development is in Tusculum, north of Alms Park. It is an ideal location for continuing development of this type. There is considerable room for expansion of the same type in Clifton and to a lesser extent, in Avondale. There is a fairly high type development to the southwest of Westwood. There is also a good development in Fernbank. There is a good development in the eastern part of Hyde Park, in the neighborhood of Ault Park. All of this should be encouraged, although it is obvious from the history of other cities that the older developments nearer in, will gradually give place to a more intensive development and the best type of housing will gradually move farther out.

With a view to the future, the best type of housing should be encouraged to locate in the:

1. Indian Hill Road District.
2. North and west of Wyoming.
3. North and west of Mount Airy Forest.
4. Along the heights back from the river in Delhi, southwest of Price Hill.

The great majority of homes fall into the remaining class of moderate cost housing, which can locate anywhere in any residence district, as indicated on the Building Zone Map. Other things being

equal, they should adjoin present colonies; they should lie back in the hills; they should be near places of recreation, such as country clubs; they should enjoy the parks and parkways; they should take advantage of interesting topography, and they should be readily accessible to transit lines and automobile thoroughfares. Decentralization should be encouraged by every means. Cincinnati is not growing rapidly enough to warrant the creation of "Satellite" towns or garden suburbs, as would be the case in Detroit or Los Angeles.



A COMPLETE MODEL TOWN—ONE OF THE BEST IN THE COUNTRY

The one exception of this sort that is being carried out today, should satisfy all the demand for a great many years to come. That is the famous village of Mariemont, which is being laid out for Mrs. Mary M. Emery, by John Nolen, Town Planner and Landscape Architect. It is, perhaps, the most interesting project of the sort in the country, and should serve as a model for other cities.

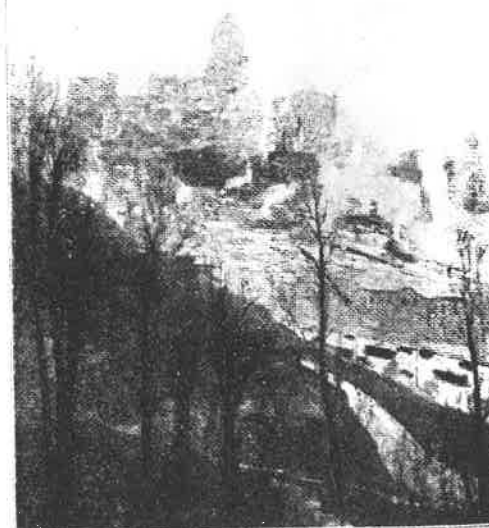
Mariemont is a "Satellite" town, with everything that is needed to make it socially, and to a large extent, economically an independent community. It will be readily accessible by transit and thoroughfares. It lies in the midst of interesting topography along the Little Miami River. The tract consists of 365 acres southeast of Madisonville and east of Cincinnati. On the bottom lands below there are excellent opportunities for an industrial settlement, also for community farms and sewage disposal. The town is self contained, so that for ordinary shopping, recreation, schools, etc., there will be no occasion to leave the community.

The present plans provide for the housing of about 5,000 people, with the possibility of eventual expansion to 10,000 in the neighborhood. The public buildings and the business section are grouped about the village green and along the thoroughfares as they approach the village center. The housing is limited to six or seven families to the acre; lots are 50x120 up to 60x120. One-half of the property is devoted to lots and one-quarter to parks and sites for public buildings and one-quarter to streets. The community is a model in every way, and is full of worth-while ideas for all subdividers within the Cincinnati area.

While it is improbable that there will be any demand for another such community around Cincinnati for many years

to come, if such were to be developed, the one outstanding area nearest the center of the city for a satellite community of any size, is the area west of Beekman Street, north of Harrison Avenue and south of the Mount Airy Forest. This is the largest undeveloped tract within walking distance of a large industrial and railroad district.

In general, industry should pool its provision of housing needed for employees and by mass production, standardized units, materials and building methods and by better typical plans, produce housing satisfactory for wage earners within an economic rent. Such houses should not be rented or sold exclusively to the employees of the industries responsible for the housing. Decentralization of housing and of industry should be encouraged by every means.



Published by the Woman's Art  
Cincinnati from the Academy Window. Painting by Kate Reno Miller

This painting in the Woman's Building  
University of Cincinnati

## CHAPTER IV Thoroughfares

### The Problem

It is good practice to concentrate through traffic on certain streets, especially adapted for the purpose, so that most streets, especially home streets, can be relieved of the danger, dirt and noise that necessarily accompany heavy traffic, and so that the most costly kinds of pavement and grading needed to take care of heavy traffic can be concentrated on a limited number of streets.

From earliest times, various streets have been set apart by habit or by design as thoroughfares. These streets are normally and logically wider and more heavily paved than the average street. Today they are the streets usually followed by trolley lines and bus lines, and also by through trucking.

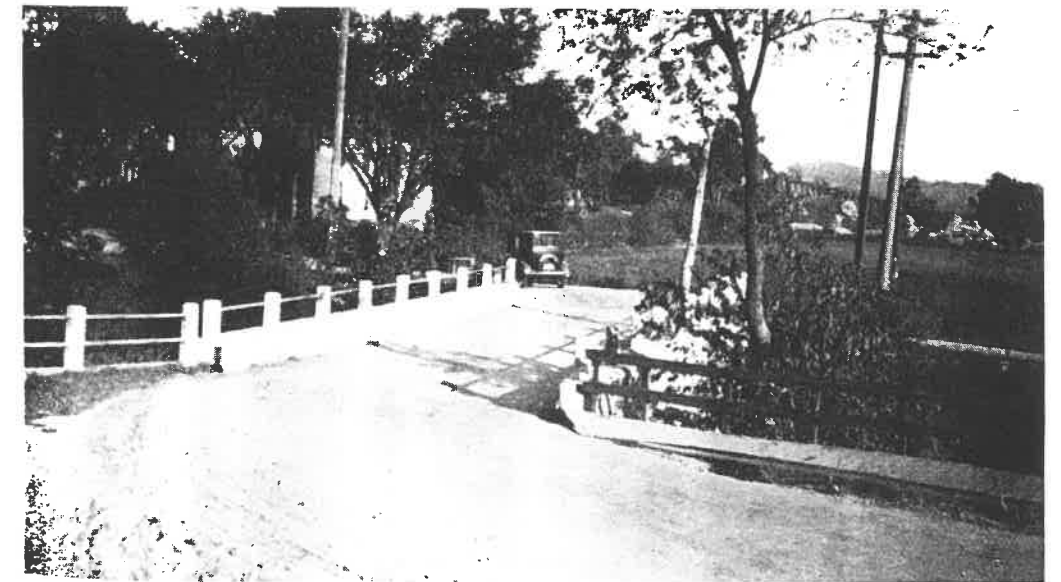
The agreement between the City Planning Commission and the Technical Advisory Corporation, in the Second Section, provides that the City Plan is to:

".....include the location and general scheme and development of....."

"(a) Streets, roads, alleys and highways, including a major.....street.....system; including street widening and narrowing and vacations and extensions; also classification and segregation of streets as regards character of traffic. The plan of major streets, roads and highways shall include the location of all main arteries in Hamilton County outside of Cincinnati and for a distance of five miles from Cincinnati, in so far as they affect highway facilities into and from Cincinnati."

"(b) The general location of all public bridges, viaducts and tunnels, including bridges over the Ohio River."

"(c) Parking places and auto truck routes and terminals."



DANGEROUS BRIDGE AT RED BANK  
Sharp turns on and off. Direct skew bridge imperative

Because they are encumbered and rendered more dangerous by the trolleys, trucks and buses, they are avoided wherever possible by the usual automobile driver, especially by the man or woman driving his own car. Therefore, the practice has grown up of providing parkway thoroughfares alternating with the general traffic thoroughfares, with the understanding that (1) the distinction between the two is the fact that street cars, trucks and often buses are prohibited on parkways; (2) that the paving on the parkways is uniformly hard and smooth, and (3) that the parkways be bordered as far as practicable with trees and grass strips.

In practice, these parkways cannot be reckoned on as substitutes for main traffic thoroughfares, as the heavier traffic must be taken care of anyway. At best they serve as supplementary "overflows" for the main traffic thoroughfares, to relieve possible congestion on them, and they tend to retard the date of any necessary widening on the thoroughfares.

Therefore, while a complete system of parkways was worked out as well as a system of thoroughfares, all calculations that were made as to future thoroughfare needs, left the parkways out of account except as a "factor of safety."

As was described in the preceding chapter on "Sub-Divisions and Housing," the State law provides that if the city, through its City Planning Commission, would control the location, layout and design of plats and sub-divisions, it should first adopt a Thoroughfare Map to which each subdivision can be adapted when it is presented to the Planning Commission for approval. As the city has the right to control subdivision plats for a radius of three miles outside of the city limits, obviously a thoroughfare system should extend over this whole three-mile belt.

When this is attempted it is soon seen that the location of thoroughfares, es-

pecially radiating thoroughfares outside the city limits, depends on the towns or areas each thoroughfare would be expected to serve out into the county and beyond. This means a study of thoroughfares throughout the county.

From any tract that is likely to be laid out as a subdivision, it should not be necessary to have to go more than a mile at the outside to reach a thoroughfare along which there will be good access to the heart of the city. Certainly inside of the city limits, it should not be necessary to go more than a half mile from any proposed subdivision tract to attain a primary, or at least, a secondary thoroughfare.

This means that an ideal thoroughfare system would be laid out something like a spider's web, with main arteries radiating in all directions from the center, and with cross communicating thoroughfares farther and farther apart, as the distance from the center increases. The farther one proceeds from the center along the radiating thoroughfares, the farther apart they are. There comes a point where the distance between them is too great. Therefore, a certain distance out, they should fork.



LOOKING DOWN SYCAMORE STREET  
Typical of many fascinating views from  
Cincinnati hilltops

In practice in each city and part of each city, this ideal theoretical scheme has to be adapted to conditions on the ground, and the existing thoroughfares, or where such do not exist, streets must be used as far as possible to approximate the ideal scheme.

Cincinnati is much more fortunate than the average city, since its present system of thoroughfares has an exceptionally good basis of old radiating and cross connecting country roads, which has been intelligently developed by the City's Engineering Department into a good working system.

Until recently, with certain exceptions, the system has served its purpose, but of late, with the rapidly increasing use and number of automobiles and the relative decrease in the amount of city money available for upkeep, the system has failed rapidly to meet the demands upon it.

The outlook for the future is serious, despite the fact that Cincinnati is not growing, nor likely to grow, as fast as many cities. It is particularly serious in Cincinnati because there are so many stretches of thoroughfares that are exceptionally long in proportion to the population and the City's revenue.

At first thought, it might seem that one could sit down with an automobile route map and a general knowledge of the city and county streets, and lay down a complete thoroughfare system for the city. This method is possible, but liable to be



PARIS. PLACE DES TERNES  
Tree bordered business street and main artery

extremely wasteful, and Cincinnati has no funds available to waste on improvements that are not imperatively needed.

The logical way and the reasonable way to work out a thoroughfare system and a program of execution, is: First, to know all of the facts in detail that might in any way effect the solution of the problem, or any part of it, and, second to make a detailed, quantitative study, not only of the present traffic circulation needs, but also of the probable needs in detail of each part of the community, for 25 or 50 years to come. With such a study as this, it is possible to determine for well into the future about where each primary and each secondary thoroughfare should be located to best serve the demands upon it, how far apart the streets should be, the width of each roadway, the width of each street, the time when each improvement should be carried out, and what interim expedients should be adopted in the way of traffic or parking regulation to tide over until it is practicable to carry out the permanent improvements.



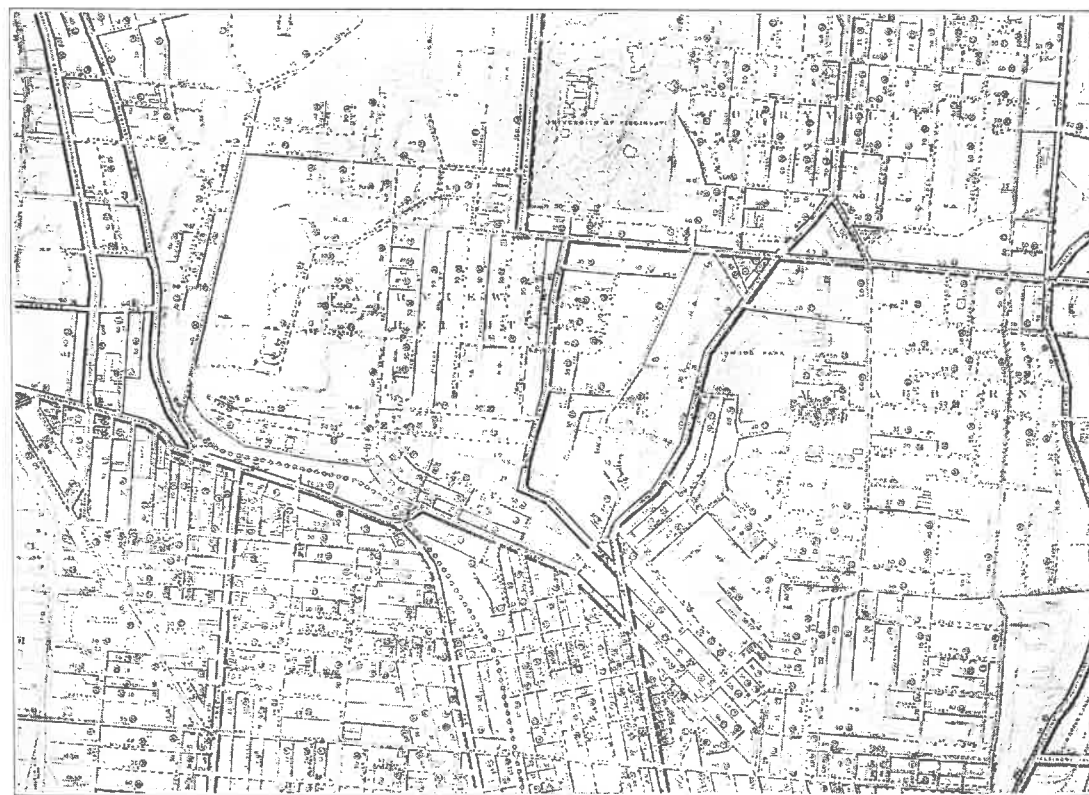
RHEIMS, NEW THOROUGHFARE BEHIND  
CATHEDRAL  
Cut through since the war to handle increased  
traffic

As the result of such a study, it is possible to concentrate the expenditure of the City's money on those improvements that are most urgently needed; when they are needed and not before. It is furthermore possible, as a result of such studies, to work out a program for the execution of street improvements by five year or ten year periods, over a matter of

fifty years, and so arrange it that in any one five year or ten year period, the City will spend money only for the improvements which are most urgently needed at that particular time, and for no others. Such a program should not mean the expenditure of any more money on street improvements than the City is spending currently today, but it should mean that the City would spend such money as it must spend on traffic ways, according to a far seeing plan.

#### How the Problem was Studied

The first thing that was done in undertaking this program of work, was to collect all of the facts that needed to be known about all of the existing streets, even the minor streets, not only throughout Cincinnati, but in fact, throughout the whole county. Most all of this data was gathered by personal observation in the field.



ONE OF 52 CIRCULATION DATA MAPS  
Shows all needed facts for every street, trolley line and railroad

All of this data was indicated on a series of maps for convenience of reference. These maps cover 52 sheets, and, for each street within the city and county, show street widths, roadway widths, pavement and sidewalk widths, pavement, grades, trolley lines, bus lines, status of the street, etc.

The maps also show the location of all bridges and viaducts, all recent subdivision plats, and whether the street is actually open on the ground or not.

All existing traffic counts that have been made by the Engineering Department or Police Department, were gathered together, and supplementary counts were made at a number of points. Other counts were made under varying conditions, to give correlative factors for the present application of the past counts.

Counts were also made for a typical day, of the vehicles passing over the four bridges from Kentucky. These were as follows:

Newport Bridge .....	2,222 vehicles
Suspension Bridge .....	3,296 "
C. & O. Bridge .....	804 "
L. & N. Bridge .....	1,892 "
Total .....	8,214 "

The next step was to determine quantitatively the amount of traffic now and in the future, that is and would have to be taken care of by each part of each existing or desirable thoroughfare. To this end, a detailed study was evolved of what are called "Emanation Districts." The method used is described in detail in the following notes, but, briefly, it consists of the mathematical determination of the number of automobiles which should come from or go to each local area within the city, to and from the center and to and from each other local area. The cumulative results of these studies show the number of vehicles that would have to be taken care of along each stretch of each thoroughfare, both now and in the future. A comparison with the existing facts with regard to each thoroughfare and its possible relieving streets, shows what changes, if any, must be effected, and approximately when.

The study of the future vehicular traffic on any thoroughfare can be based on the two following axioms:

- The amount of traffic and its nature is dependent upon the size of the area tributary to such thoroughfare, the uses to which it is devoted and the intensity of development of the area.
- Communication is equally frequent between any two districts representing equal potential traffic quantities—that is, from which an equal daily number of vehicles can be expected to emanate, except for a minor reduction in the frequency of travel, increasing with the distance between the two districts.

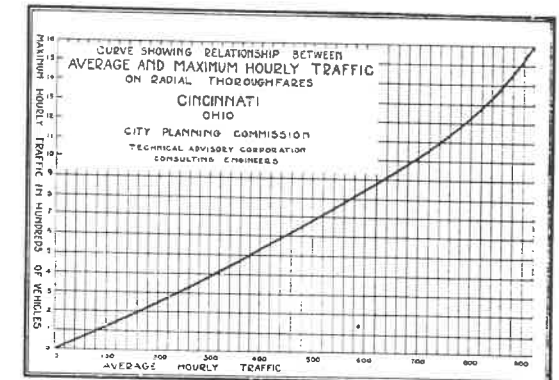
In order to apply these assumptions, special studies had to be made of the relationship which exists between the number of people in residential districts and the number of vehicles emanating from such districts, as well as the relationship of business frontages and industrial areas to the amount of traffic originating in them.

Generally speaking, the vehicular traffic on a particular thoroughfare is made up of (a) pleasure vehicles and trucks from and to residential districts transporting passengers, supplies and building materials, (b) delivery and heavy trucks hauling merchandise from jobbers and manufacturers to local business district, (c) trucks hauling raw material and finished products to and from industrial plants and the transportation of industrial employees to and from such plants, (d) trucks hauling freight to and from local freight facilities and water terminals, (e) street cars and buses.

The amount of area devoted respectively to residential, business or industrial uses in the territory tributary to a particular thoroughfare, is going to determine the relative quantities of the various types of vehicular traffic that there will be on such thoroughfares.

The amount of street traffic originating in various types of districts was determined by taking traffic counts on several local thoroughfares at points where there was little doubt as to the boundaries of the areas tributary to the thoroughfares. From several such traffic counts compared with the population found in the corresponding tributary residential districts, it was found that the average number of vehicles per family per day amounts to 1.23 for the entire city. (In the New York metropolitan area this amounts to about one vehicle per family per day.)

Because of expected increase in automobile ownership (it is expected that the present nine persons per car will be reduced to at most four and one-half persons, or one car per family. It is now less than three and one-half persons per car about Los Angeles), and because it is the maximum hourly and not the average hourly traffic for which adequate roadway widths have to be provided (the maximum hourly traffic averages fully 50 per cent more than the average), four (certainly over three) vehicles per family per day was assumed for the year 1970, for which year this entire study has been worked out.



The maximum is 20 to 80 percent more than the average.

The population spot map shows one spot to each 25 persons or six families, thus each spot can be taken as representing 24 vehicles per day, and this has been adopted as the unit in which all other types of traffic from business and industrial areas have been expressed by conversion.

The amount of vehicular traffic per front foot in local business districts has been ascertained by a survey in several existing local business districts. The average number of deliveries to local stores from wholesale houses and indus-

trial plants has been found to be around four vehicles per store, while the average frontage of such stores was around 20 feet. Consequently, 120 feet of local business frontage proved to be equivalent to 24 vehicles, or expressed in population, 25 persons, or 1 spot.

Traffic emanating from industrial areas has been separated, as touched upon previously, into trucking of raw materials and finished products, and the transportation of employees by private conveyance. To arrive at a unit factor for the purpose of converting industrial areas into numbers of daily vehicles, the tonnage produced by the various types of industries and the floor space required per industrial employee, had to be determined. It was found by observation that 20, 600 and 1,200 sq. ft. of net Industrial "A," Industrial "B" and Industrial "C" areas, respectively, according to the Building Zone Ordinance, produce daily one ton of freight. As the average net load of one truck is 1.43 tons, this leads to the following units:

700 sq. ft. of Industrial "A" area;  
20,000 sq. ft. of Industrial "B" area; and  
40,000 sq. ft. of Industrial "C" area,  
are each equivalent to 24 vehicles per day, or 25 persons or one spot on the Population Map. The areas to be considered do not include land which in most probability will be used for purposes accessory to manufacturing like storage or dumping of cinder and waste, etc.

The transportation of industrial employees—that is, the number of vehicles used for such purpose, has been found to vary with the type of industry; plants, the operation of which require a high number of skilled workers, showing a much larger proportion of employees using private conveyances. While the location of a plant undoubtedly has some effect upon this proportion, a survey disclosed a surprisingly uniform proportion in plants of kindred character. As a result of this survey, and again considering the expected increase in automobile ownership, it is assumed that one-third of the employees will make use of private conveyances in plants of general manufacturing character and one-fourth in heavy industrial plants. Assuming, as various surveys have shown, that 1,500 sq. ft. of net area per employee is customary in general manufacturing, and 3,000 sq. ft. per employee in heavy manufacturing, and applying the units mentioned above, 54,000 sq. ft. and 144,000 sq. ft. of net industrial area was found in Industrial "B" and Industrial "C" areas, respectively, to be the equivalent of 24 vehicles per day or 25 persons or one spot on the Population Map.

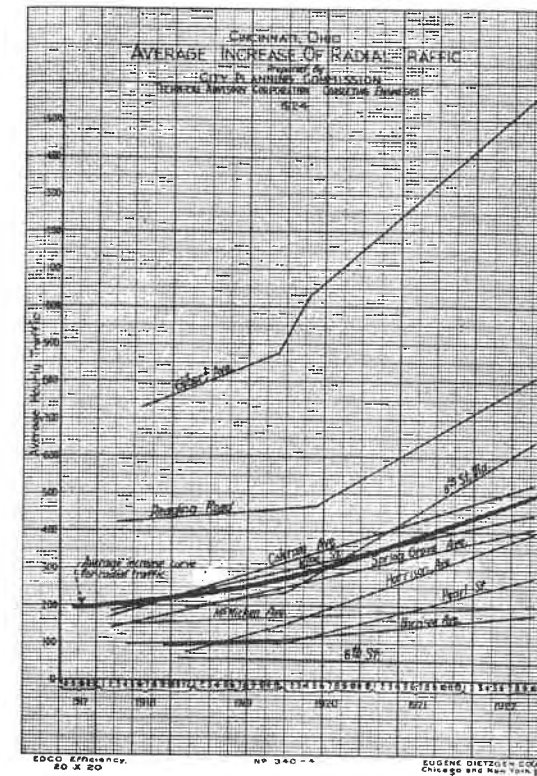
Combining the relationship between industrial areas and the freight traffic originating and terminating therein on the one side and the transportation of industrial employees on the other side, 14,600 sq. ft. of net area will produce 24 vehicles per day in Industrial "B" Districts and 31,300 sq. ft. in Industrial "C" Districts.

In arriving at the amount of trucking from and to local freight facilities, the following units have been considered: The freight tonnage inbound and outbound was found to be 6.84 tons per capita per annum. The average net load of a truck was found to be 1.43 tons. Using these units and taking into consideration, as was shown by observation, that approximately one-fourth of the freight is handled by water or by private sidings, it was calculated that there would be 0.122 vehicles per 25 persons per day, or per one spot on the Population Map. This resulted in 2,816 vehicles per day as the total estimated number going to all freight stations in the city, which roughly corresponds with the observed facts. The number of vehicles per day going to any freight station has been taken to be in the same relation to the total as is the capacity of such station to the total freight car capacity of the entire city.

The proposed barge canal terminal and the Ohio River Terminal have been assumed to handle one-quarter of the total freight—that is, 1,408 vehicles per day both to and from the terminal.

As the next step, a skeleton thoroughfare map was prepared, showing a possible thoroughfare system for the city, including secondary as well as primary arteries. This was based on the spider-web principle, but adapted to existing thoroughfares and minor streets that might serve as thoroughfares. On a transparent sheet superimposed on this map, the city's area was subdivided into traffic emanation districts, each representing 5,000 persons, equal to 200 spots, actual and theoretical, or 4,800 vehicles per day. (Units of 5,000 persons were chosen, as that appears to be an average size for fairly homogeneous self-contained local community groups.) This was done by the cut-and-try method of first outlining areas in which the actual number of population spots approximated 200 in greater or lesser degree according to the amount of local business and industrial areas to be found within the tentative limits of each such district. These business and industrial areas were then converted into theoretical population spots by applying the unit factors previously worked out. Then the tentative limits of the various emanation districts were so modified as to make the number of actual population spots plus the theoretical population spots corresponding to local business, industrial, freight house and water terminal areas and traffic, respectively, uniformly equal 200 spots or 5,000 people, or 4,800 vehicles per day. It should be noted that in these calculations industrial areas, existing and proposed, along railroad lines have been omitted, for industrials located in such areas will no doubt receive and ship directly by railroad.

No factors were determined for the downtown business areas. This was because it was found easier and more practical to treat the downtown district—that is, the "Basin"—in an



AVERAGE INCREASE OF RADIAL TRAFFIC  
Increasing much faster than the population

entirely different manner, and because, even if possible, it would have been of little value to trace the flow of vehicular traffic through the downtown district.

A study was then made of actual traffic counts taken along the radial arteries and so selected as to form a belt around the Basin. Thus all traffic emanating from and terminating in the Basin was analyzed. Using the factor of 1.23 vehicles per family per day from residential districts, it was found that the amount of traffic going to and from the Basin corresponds to approximately 8½ emanation districts of 200 spots each. In view of the increased population in 1970, the increasing use of cars and the probable increase in automobile ownership, the present Basin use was multiplied by four, as was done above; thus it would represent 34 typical emanation districts.

In laying out the emanation districts in the outlying parts of the city, care was taken to make each of them unquestionably tributary to one particular thoroughfare.

The city area was thus divided into 140 emanation districts, plus the Basin, representing 34 such districts, each of them comprising 200 actual spots plus the theoretical population spots and representing potentially at least 4,800 vehicles per day.

As the next step, the travel between these emanation districts was studied. It was assumed that each of these emanation districts was sending one vehicle to each of the other ones, by the shortest, most direct, and most convenient route, following obvious primary and secondary traffic arteries solely. One vehicle was taken for convenience, for in working out the relative amount of traffic on each section of each thoroughfare, it is immaterial whether one or any other number of vehicles is used. The carrying out of this method required considerable time, and was done by placing transparent sheets over both the skeleton thoroughfare map and the emanation district map and actually tracing the most favorable routes from each district to all of the others, and noting the cumulative number of theoretical vehicles so passing along each section of each thoroughfare. More than 20 sheets were used for the recording of the intermediate steps of this process. These resulted in a final summary sheet which indicated quantitatively the relative amount of expected travel along each part of each of the thoroughfares. These figures were relative and have no practical meaning, so some method had to be worked out to derive a unit factor, the application of which would convert each of these figures into vehicles. Attention should be called here to the fact that at each point this study gave figures for outgoing and incoming traffic separately, making it possible to consider the differentiation in the analysis of the maximum hourly traffic, which will be taken up in detail later.

Before proceeding to the determination of the unit factor which would convert the emanation study figures into vehicles, a further adjustment of them was undertaken. As already touched upon at the outset, the greater the distance between any two emanation districts the less the frequency of travel between them. The recent highway traffic survey in the State of Connecticut shows that the length of truck hauls and the number of trucks used bore the following relationship to each other:

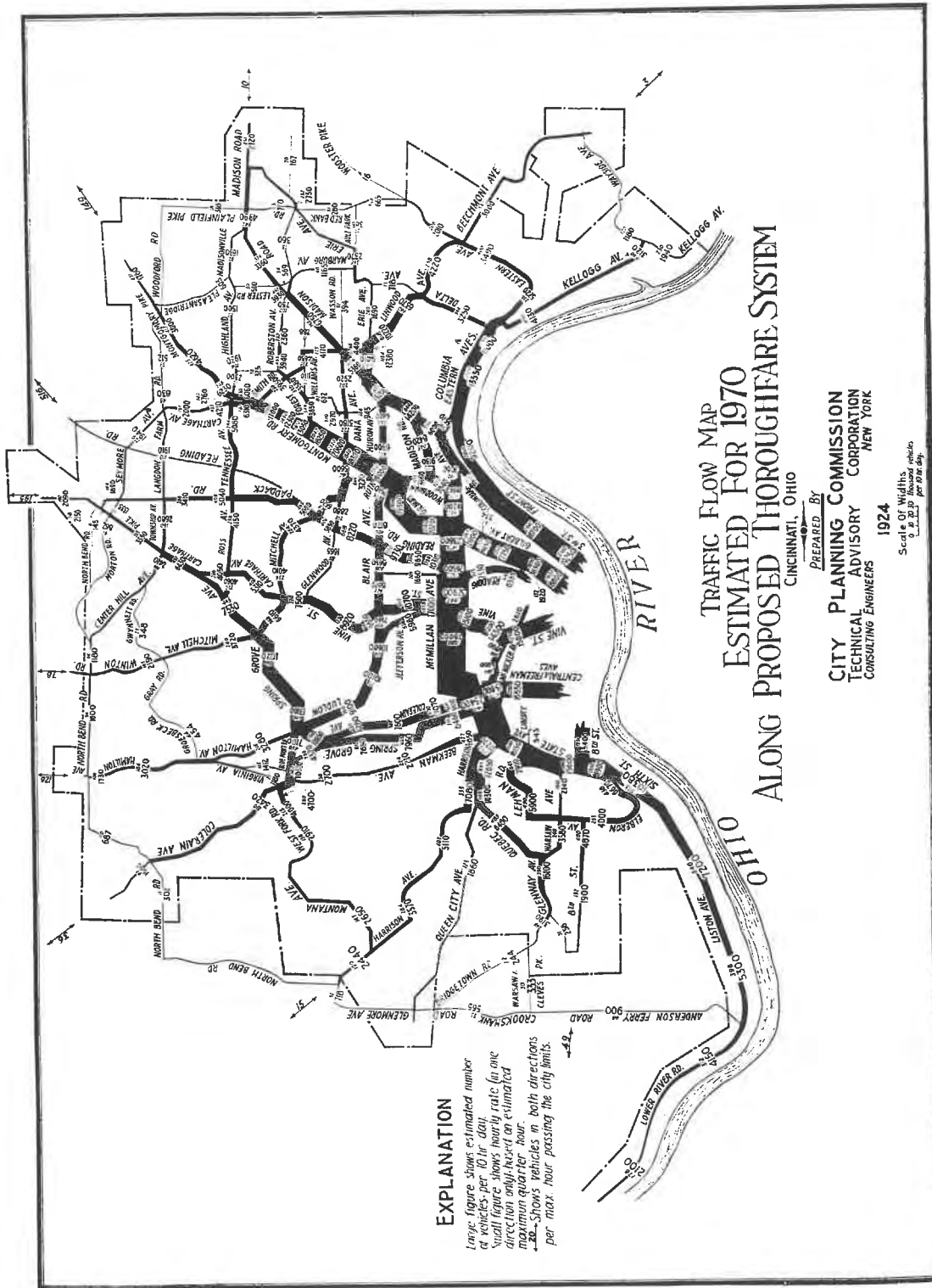
Distance	Percentage
0 to 9 miles	36.9
10 " 29 "	30.5
30 " 69 "	18.4
70 or more	14.2

Expressing the same findings in a somewhat different manner, the percentage of vehicles traveling a given average daily mileage can be grouped as follows:

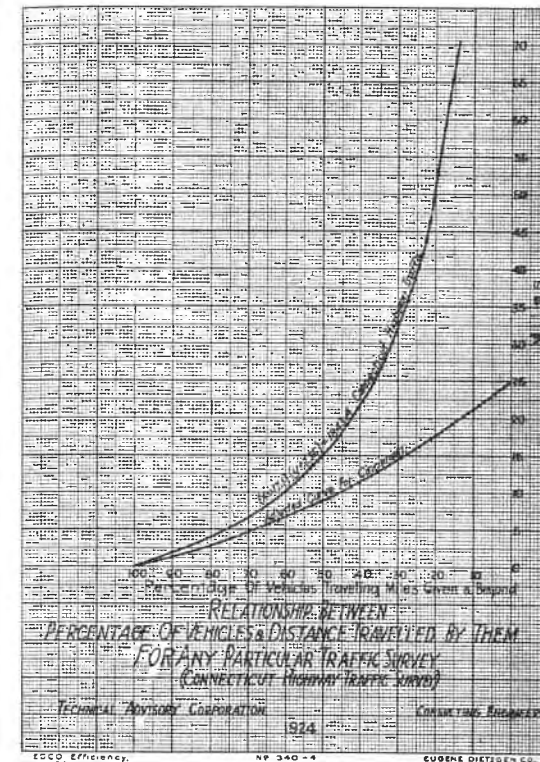
Miles	Percentage
0	100.0
9	63.1
29	32.6
69	14.2

This grouping means that 14.2 per cent of the total number of vehicles travel at least 69 miles and over.





This gives the basis on which the future needed width of streets was calculated



**RELATION OF PERCENTAGES OF VEHICLES AND DISTANCES TRAVELLED**  
 Used in calculating future traffic needs

A curve was plotted, based upon the foregoing data, and it was found that the course of the curve can be approximated with fair accuracy by the equation  $(X+17.1)(Y+7.36) = 1843.4$ .

To make the above curve applicable to conditions in the city, a 25-mile trip was assumed as a maximum and the above curve adjusted accordingly. Based upon this latter curve and the intensity of development in the vicinity of any given emanation district as characterized by the number of emanation districts located within specified radii from such district, average reduction factors were worked out and applied to the emanation study figures in each emanation district, according to the intensity of development surrounding the latter. These reduction factors vary from zero to 20 per cent, proceeding from the center toward the periphery.

Then for the purpose of converting the results of the emanation district studies into traffic figures, we had to resort to the findings and analyses of actual traffic counts. A comparison of these counts with the emanation district figures at identical points, led to the solution. The accompanying table gives the comparative figures for eight different points.

Adding together the outbound and inbound traffic figures for the ten hours of the day, the

total ten-hour traffic has been obtained on these radial thoroughfares. This figure has been doubled in view of the following considerations:

1. Increased population in 1970.
2. Increased automobile ownership.
3. The amount of travel increases in proportion with the square root of the number of automobiles.
4. Decrease of radial traffic in the downtown belt surrounding the Basin, as a result of improved and new cross-town arteries.
5. The probable decrease of travel by private automobiles as congestion in the downtown district increases, and as the city's transit facilities are improved.
6. The diversion of pleasure automobile traffic over existing and proposed parkways and boulevards.

A comparison of this traffic figure equalling 93,140, with the total emanation study figures equalling 12,894, gave the unit factor 7.2, to be applied at any point to the both-way emanation study figures, in order to convert them into the expected total number of vehicles at such point. The application of this unit factor and the graphical presentation of the results by bands along the thoroughfares, (the width of the bands varies with the traffic density), resulted in the accompanying traffic flow diagram showing the distribution of traffic for a ten-hour day over the proposed thoroughfare system.

It is obvious that for the purpose of determining the roadway widths that may be required to handle the expected future traffic on each of the thoroughfares, the maximum hourly traffic must be considered. For this purpose, as shown in the accompanying table, the relationship between average and maximum hourly traffic on each of the primary radial thoroughfares was ascertained; this relationship varying, according to the character of the tributary area of the given thoroughfare. The unit factors derived from this comparison have been applied to the emanation study figures along the corresponding radial thoroughfares and their tributaries, separately as to outgoing and incoming traffic.

For the purpose of following the same method with reference to crosstown thoroughfares, this same relationship has been ascertained for McMillan street by an actual traffic count, for it is evident that the distribution of traffic throughout the day is entirely different on a crosstown thoroughfare from that found on radial thoroughfares. The results of these traffic counts and the unit factors derived from them are shown in the table attached to this brief.

By using the unit factors so obtained, a second traffic flow diagram was worked out giving the expected amount of traffic between 5 and 6 o'clock p. m., (which has been found to be the maximum hour) in each direction over the entire proposed thoroughfare system.

Again the results of these calculations were graphically presented and the larger of the two in each case superimposed for comparison on the average traffic flow diagram.

As a final step, a careful comparison was made between the maximum hourly traffic flow diagram and existing widths of corresponding roadways in order to find out if the number of traffic lanes which each would be called upon to handle, could be taken care of. Then for each case a study was made of the best means of relieving overloaded roadway conditions, that is whether the construction of relieving streets, the re-routing of traffic, or traffic regulations such as one way streets would offer the most effective and economical solution.

Outside of the city limits the method used is similar to that inside of the city limits.

Also the effect of each city, town and township outside of the city limits was studied to determine its effect on the thoroughfare system of the city of Cincinnati itself.

First: Outside of the limits but within the county, all the communities whether incorporated or not, were listed on the accompanying table and a computation was made for each community to determine the number of vehicles going to and from each of these localities during the maximum hour of the day. In this table, the population figures are those of the 1920 Federal Census, the distance figures are in miles to the downtown business center of Cincinnati along the normal radial thoroughfares, and the unit factor figure is obtained by dividing the population by the distance.

To obtain the number of vehicles from each community per maximum hour, the unit factor was divided by 14. This divisor was obtained as follows:

Observations made of the traffic crossing the Ohio River bridges from Kentucky and at several other points in Cincinnati as well as a series of observations made in New York City, show that the traffic ratio which is obtained by dividing the sum of the observed traffic in both directions during the 24 hours by the number of automobiles owned per mile of distance from the point of observation equals

approximately 5. This traffic ratio of 5 should be divided by 10 in order to reduce it from the average 24 hour basis to the average maximum hour basis, and it should be divided further by 7, which is approximately the number of people per car in the surrounding district. Thus 5 divided by 7 times 10 gives one-fourteenth.

The next step was to determine the number of vehicles per maximum hour entering and leaving Hamilton County. To that end the three Kentucky counties were grouped together and the observed traffic over all of the Ohio River bridges used as a basis for the computations. The only cities near enough and large enough to affect travel in and out of the County were assumed to be Hamilton, Dayton and Columbus. The four adjoining and nearby counties in Ohio and Indiana were also listed.

The computations for determining the number of vehicles per maximum hour entering and leaving Hamilton County are given on the accompanying table. The ratio of the number of automobiles to the population in each city and county were determined from the known ratio in Kentucky, Dayton and Columbus. The index factor was determined by dividing the number of automobiles owned by the distance of the community from the center of Cincinnati. For the Kentucky counties this gave an index factor of 1,450. The observed traffic throughout the 24 hours over all of the Ohio River bridges together amounted to 8,214 vehicles. Dividing this latter figure by the index factor of 1,450 we obtain a traffic ratio of 5.7. This compares very favorably with the average of 5.0 to 5.5, determined as the traffic ratio about New York. Traffic ratios were then assigned to each of the other communities and counties in the table; for each community and county, the index factor was multiplied by the traffic ratio to obtain the total traffic through 24 hours to and from each. Dividing the 24 hour traffic in each case by 10 gives a maximum hour traffic.

Then in order to observe the cumulative effect of outside and local traffic on each of the thoroughfares outside of the city limits but within the county, the number of cars per

Table of Traffic Counts—Cincinnati, Ohio—Comparison with Emanation Studies

LOCATION	TRAFFIC COUNTS				Relationship of Traffic between 5 and 6 P.M. to 10-Hour Traffic		Figures from Emanation Studies for 1970		Unit Factors for Traffic between 5 and 6 P.M.	
	—Outbound—		—Inbound—		Outbound	Inbound	Outbound	Inbound	Outbound	Inbound
	10 Hours	Max. Hour 5 to 6 P.M.	10 Hours	5 to 6 P.M.			bound	bound	bound	bound
Reading Rd. at Elsinore.....	3,771	597	4,189	320	15.4 %	7.65%	487	616	1.04	0.57
Gilbert Ave. at Court.....	7,603	1,982	7,801	519	26.00%	6.65%	1,108	1,378	1.74	0.49
Sixth St. at So. Ry. Bridge.....	269	40	242	23	17.05%	11.45%	1,102	936	1.13	0.86
Eighth St. Viaduct.....	3,264	609	3,121	358						
Colerain Ave. north of Harrison.....	2,615	352	2,623	227	13.46%	8.65%	680	726	0.88	0.65
Spring Grove Ave. n. of Harrison.....	1,976	278	1,839	303	14.06%	16.50%	691	665	0.92	1.23
Vine St. n. of McMillan.....	2,103	395	2,339	160	18.80%	6.85%	1,026	923	1.24	0.51
Pearl St. at Martin.....	1,280	166	1,540	310	12.98%	20.00%	1,440	1,116	0.85	1.50
Totals.....	22,881		23,694				6,534	6,360		
McMillan St. at Gilbert Ave.....	*2,094	*256	†1,418	†164	*12.26%	†11.58%	*1,598	†1,162	*0.84	*0.76

\* denotes Eastbound      † denotes Westbound

maximum hour as given in the accompanying tables for each outside and inside community. county and township were added together progressively from the outside in order to obtain the total number of vehicles passing a given point on any thoroughfare in the county during the maximum hour. The sum of these vehicles down to the city limits is shown along each thoroughfare, where it enters the city limits on the accompanying traffic flow diagram.

HAMILTON COUNTY TRAFFIC EMANATION TABLE

Name of City, Town or Township	Population 1920 Census	Miles to Center of Cincinnati	Factor (Population by Distance)	Vehicles Per max. hour in both directions
Addyston.....	1448	13	111	8
Cheviot.....	4108	8	514	36
Camp Dennison.....	280	19	15	1
Cleves.....	1454	16	91	6
College Hill.....	1979	8	247	18
California.....	440	10	44	3
Carthage.....	3618	7	517	36
Delhi.....	872	10	87	6
Deer Park.....	824	11	75	5
Elmwood.....	3991	7	570	40
Fernbank.....	305	12	25	2
Glendale.....	1759	13	135	9
Groesbeck.....	200	11	18	1
Hazelwood.....	181	16	11	1
Hartwell.....	2823	9	313	22
Harrison.....	1309	27	60	4
Ivorydale.....	100	6	17	1
Kennedy.....	610	10	61	4
Loveland.....	1557	21	74	5
Lockland.....	4007	10	401	28
Madeira.....	600	12	50	4
Madisonville.....	5193	11	472	33
Miami.....	295	16	18	1
Montgomery.....	378	15	25	2
Mt. Airy.....	510	9	55	4
Mt. Healthy.....	2255	11	205	15
Mt. Washington.....	1000	9	111	8
New Burlington.....	400	12	33	2
New Haven.....	200	21	9	1
Newtown.....	534	12	44	3
North Bend.....	597	15	40	3
North College Hill.....	1104	9	123	9
Norwood.....	24968	7	3567	250
Oakley.....	1639	8	205	14
Plainville.....	214	11	20	1
Pleasant Ridge.....	1800	8	225	16
Pleasant Run.....	155	15	10	1
Reading.....	4540	10	454	32
Rossmoyne.....	289	13	23	2
Sayler Park.....	900	11	82	6
Sharonville.....	753	14	54	4
Silverton.....	795	10	80	6
Springdale.....	237	14	17	1
Sycamore.....	839	14	60	4
Terrace Park.....	410	14	30	2
St. Bernard.....	6312	6	1052	74
Taylor's Creek.....	170	13	13	1
Woodlawn.....	260	12	22	1
Warsaw.....	488	5	98	7
Wyoming.....	2323	10	232	16

In the downtown district, a special method was used for computing the 1970 traffic flow and the relative density of traffic in each of the downtown streets. From the traffic flow diagram of the whole city, the traffic was noted for the maximum hour in both directions at each point where traffic enters the Basin. This was found to be as follows:

Name of Street	Vehicles in Both Directions per Maximum Hour
Eighth St. Viaduct.....	1,540
Liberty St. Viaduct.....	55
Western Ave. and Tremont Ave.....	555
Central Ave.....	1,100
Elm St.....	689
Vine St. and Walnut St.....	1,580
Reading Road.....	836
Gilbert Ave. Viaduct.....	1,880
Fifth St. Extension.....	1,700
Pearl and Second Sts.....	225
Total number of vehicles.....	10,160

A detailed study was made of the distribution of traffic entering the downtown business section along each of these streets to determine how it would normally distribute itself among the streets bounded by Ninth Street and Third Street and by Broadway and John Street. The method of distributing this traffic and following it through cumulatively along each street, was similar to the method used in the emanation studies for the whole city.

These studies were based on the assumption that a union station will eventually be built in the Mill Creek Valley, that Reading Road will be widened to its full traffic lanes and that Fifth Street will be widened and continued by means of a viaduct over Eggleston Avenue to connect with Eastern Avenue and Columbia Avenue.

These studies give the following results: (In each case the figure given is for the maximum number of vehicles in both directions per maximum hour and the particular block indicated is the one at which the maximum traffic will occur.)

North and South Streets	Vehicles in Both Directions per Maximum Hour
John St. bet. Eighth and Ninth.....	188
Central Ave. bet. Sixth and Seventh.....	282
Plum St. bet. Sixth and Seventh.....	365
Plus.....	1600
Elm St. bet. Sixth and Seventh.....	484
Race St. bet. Sixth and Seventh.....	657
Vine St. bet. Seventh and Eighth.....	980
Walnut St. bet. Seventh and Eighth.....	920
Main St. bet. Sixth and Seventh.....	550
Sycamore St., bet. Sixth and Seventh.....	284
Broadway, bet. Fourth and Fifth.....	777
Broadway, bet. Sixth and Seventh.....	580
Broadway, bet. Seventh and Eighth.....	1700
Total number of vehicles.....	9,367

County or Community	Population 1920	Car Ratio	Auto-mobiles	Miles to center of Cincinnati	Index Factor	Traffic per Max. hour in both directions	Traffic Rates
Boone Co., Ky.	9572						
Kenton Co., Ky.	73453						
Campbell Co., Ky.	61868	10.0	14490	10	1450	821.4	5.7
Dayton, O.	152559	4.5	34080	50	682	341.0	5.0
Hamilton, O.	39675	5.0	8000	20	400	200.0	5.5
Columbus, O.	237031	5.9	39930	100	399	200.0	5.0
Batavia, O.	1088	6.0	180	25	7	3.5	5.0
Clermont Co., O.	28291						
"    exclud. Batavia	27203	10.0	2720	30	90	51.3	5.7
Warren Co., O.	25716	10.0	2572	30	86	49.0	5.7
Butler Co., O.	87025						
"    exclud. Hamilton	47350	7.0	6764	25	270	149.0	5.5
Dearborn Co., Ind.	20033	10.0	2003	25	80	40.0	5.0

The exceptionally large figures on Plum Street are due to the exceptional outside traffic which probably will come from the north and west, and the exceptionally large figure on Broadway is due to the large outside traffic coming down Gilbert Avenue and Reading Road. In either case, these exceptional amounts of traffic can be distributed in part over the nearby parallel streets.

East and West Streets	Number of Vehicles per Maximum Hour in Both Directions
Ninth St. bet. John and Central	1590
Ninth St. bet. Walnut and Main	950
Eighth St. bet. John and Central	2310
Eighth St. bet. Walnut and Main	690
Seventh St. bet. John and Central	23
Seventh St. bet. Walnut and Main	1140
Seventh St. bet. Sycamore and Broadway	1470
Sixth St. bet. Sycamore and Broadway	268
Fifth St. bet. Vine and Walnut	119
Fourth St. bet. Vine and Walnut	70
Fifth St. bet. Sycamore and Broadway	1485
<b>Total number of vehicles</b>	<b>10,115</b>

The exceptionally high traffic at Fifth Street and Broadway is due to the traffic that will come from the east with the widening and extension of Fifth Street. The exceptionally large traffic on Eighth Street, near Central Avenue, is due to the large traffic coming from the north and west.

In applying these figures to the existing street cross sections in the downtown district, we can assume as we have above, that 400 vehicles per maximum hour can be handled in each street car lane and that 600 vehicles per maximum hour can be handled in each lane where there are no street car tracks. Thus if a roadway is 40 feet wide, with parking allowed on both sides of the street, and the street car tracks off center, 400 vehicles per maximum hour could be handled in one

moving traffic lane and 600 vehicles in the other traffic lane, or a total of 1,000 per maximum hour.

In the Basin outside of the central business district the problem is merely one of studying the relation of the present roadway width of the principal through streets to see if they will be able to carry the eventual traffic that must pass over them. If not, then it is a question whether roadway widening at the expense of the sidewalks will meet the demand, and if not, whether it is possible to divide the traffic over several parallel streets in such a way as to avoid street widening.

It is obvious, of course, that these calculations of future traffic are not and cannot be definite and exact. No method of traffic calculation can be exact at the present state of the art. However, the method above described is believed to be the only practical one in use today. Furthermore a series of test traffic counts made in each of the five cities where this method has been used, checks with it remarkably well. Therefore in order to avoid committing the City to a thorough-



**PUBLIC STREET USED FOR PRIVATE BUSINESS**  
Both roadway and sidewalks almost impassible

fare system based solely on guess and local experience, this method of calculating traffic requirements was adopted.

All the conclusions that follow have been checked, as they should be, by the City Engineer and his associates and by the Engineer of the Park Board. Their intimate knowledge of local conditions and tendencies has led them to make many desirable improvements in the thoroughfare plan and program as originally proposed. The City is to be congratulated on this wholehearted and indispensable co-operation on the part of the City Engineers.

#### The Thoroughfare System Inside City Limits

The thoroughfare system should be as indicated on the accompanying Thoroughfare Map (City and three mile belt) and as described in the accompanying tables. Streets or roadways should be widened, streets should be extended, new streets laid down, building lines imposed, and parking or traffic regulated as indicated in detail on this map and in these tables. In each case, the improvement should be executed at about the date determined in the table, unless an unforeseen increase or decrease in the rate of growth of population warrants a corresponding advance or retard of the date given.

It is obvious that while the exact location of the proposed new street lines can sometimes be determined accurately enough from this Thoroughfare Map where they involve merely the widening of existing streets or short connections between existing streets, nevertheless for all other proposed widened, new, or extended streets, the exact street lines can only be fixed on the ground, by a detailed field survey. It is strongly urged that the City Engineer should be requested to locate definitely all thoroughfare lines as fast as needed to permit the City to conform fully with the law with regard to the full establishment of the thoroughfare system.

In the following notes the various needed improvements are discussed in detail, except that no mention is made other

than on the maps of those streets which will serve adequately without change as thoroughfares or parkways for 50 years to come.

In general all roadways which, in accordance with the plan are to be widened should on repaving be widened to a minimum of 20 feet with 10 feet for each traffic lane that is likely to be needed during the life of the new pavement. A roadway 32 or 33 feet wide cannot carry two parked and two moving traffic lanes effectively without greatly retarding and often blocking traffic. Experience shows that 40 feet is best for good speed and the avoidance of accidents. On the other hand, 38 feet, and, if there are no car tracks, even 36 feet will do if 40 feet is prohibitively costly, or if it reduces the sidewalks to a width too narrow for their traffic, or even if fine trees would be destroyed by such narrowing.

No two-way thoroughfare should contain less than two moving traffic lanes, that is, one in each direction.

If for any physical reason, it is impossible to make the roadway at least 35 feet wide, parking should be limited to one side of the street.

At least 18 feet and preferably 20 feet of clear, hard roadway should always be maintained, even on country highways. On such highways, parking and even stopping should always be restricted to hard earth or surfaced shoulders.

No outlying main thoroughfare should have any radius of less than 300 feet. Less is dangerous for visibility and turning control at country speed. The only alternative, even partial, is proper banking.

Building lines, where not already fixed by the Building Zone Ordinance, should be established by the city wherever money can thereby be saved by preventing the erection of permanent buildings within a thoroughfare widening before the city is ready to carry out the improvement.

In the cases that follow the radial thoroughfares are considered in turn from the center outward starting with Eastern Avenue and ending with Lower River Road. The cross connecting thorough-



WHOLE "BASIN" FROM EAST  
Aeroplane view of Third and Fifth Street improvements

fares and the branching radials are considered in sections between the main radials and from the center out.

#### Third and Fifth Street Viaducts and Extension to Kemper Lane.

Obviously there is no adequate access today from the central business district to Eastern and Columbia Avenues and beyond. It is by far the worst radial connection in the city. Unquestionably the proper growth of the eastern section is being retarded through lack of proper access.

Fifth Street, east of Broadway, should be widened eventually and by 1960, at latest, to at least 88 feet, preferably 100 feet, giving six vehicular lanes including two parking lanes. It should be extended across or around the Pugh Building, over Eggleston Avenue by a high viaduct with

a 40 or 38 foot roadway and two 8 foot sidewalks, and continued to Martin Street with a 48 or 46 foot roadway along the side hill just south of Third Street, with one 12-foot sidewalk and parking and stopping allowed only on one side.

When the Pennsylvania Railroad is ready to extend its yards to the north, Front Street should be abandoned and a new street 60 feet wide, constructed parallel with Front and Third Streets and half way between them. It should have a roadway 40 or 38 feet wide, as should also Martin Street from Eastern Avenue extension down to Pearl Street. Eastern Avenue extension should also connect into Fifth Street extension at Martin Street. All car tracks on Third Street should be removed to Eastern Avenue extension.

Martin Street and Third Street should be widened to 66 feet to Collard Street. The roadway should be 48 or 46 feet wide with parking and stopping allowed on one side only. It should be connected to Gladstone Street, which should also be widened to 66 feet with a 48 or 46 foot roadway to Kemper Lane and with parking on one side only. From Pike Street, East Third Street should be connected with the main viaduct by an inclined viaduct the full width of Third Street. Within 50 years, traffic here should reach 2100 vehicles per maximum hour in one direction with not over 700 vehicles for the same hour in the opposite direction. Four moving lanes would carry 2800 vehicles per hour where there are as few intersecting streets as there are here. Any excess can be carried by Eastern Avenue and Pearl Street up to 400 vehicles per hour in each direction. The street widths are kept as narrow as possible (by omitting one sidewalk and prohibiting parking and stopping on the heavier



FIFTH STREET, EAST OF BROADWAY  
Eventually must be widened, and extended to the east over Eggleston Avenue to Third Street

traveled side) to avoid prohibitive cost in steep hillside construction.

It is obvious that the Fifth Street widening east of Broadway and the viaduct to Martin Street is the most costly and the least urgent part of the project to Martin Street and that fully half of the total cost can be saved by concentrating now on a Third Street viaduct starting just east of Pike Street. By 1930, the Third Street Viaduct should be built with its connection to the east as above described and the roadways of Fourth Street from Lawrence Street to Pike Street and of Pike Street from Fifth Street to Third Street, should be widened to 40 or 38 feet or else all parking and stopping should be prohibited on the side of greater travel.

#### Columbia and Eastern Avenue

The Pennsylvania Railroad crosses over Eastern Avenue so that the latter can be widened part way only on one side and part way only on the other side. East of the crossing, any widening can best be made on the river side throughout the distance to Torrence Road. However, if Eastern Avenue is to be widened at all, it should be widened at least two full moving traffic lanes or 20 feet. As it is probably wide enough now to carry any increase in truck traffic of the future, all increase in passenger automobile traffic could best be segregated on Columbia Avenue, widened to take care of it.

Throughout the length of Columbia Avenue, parking and stopping can be restricted to one side, probably for all time,

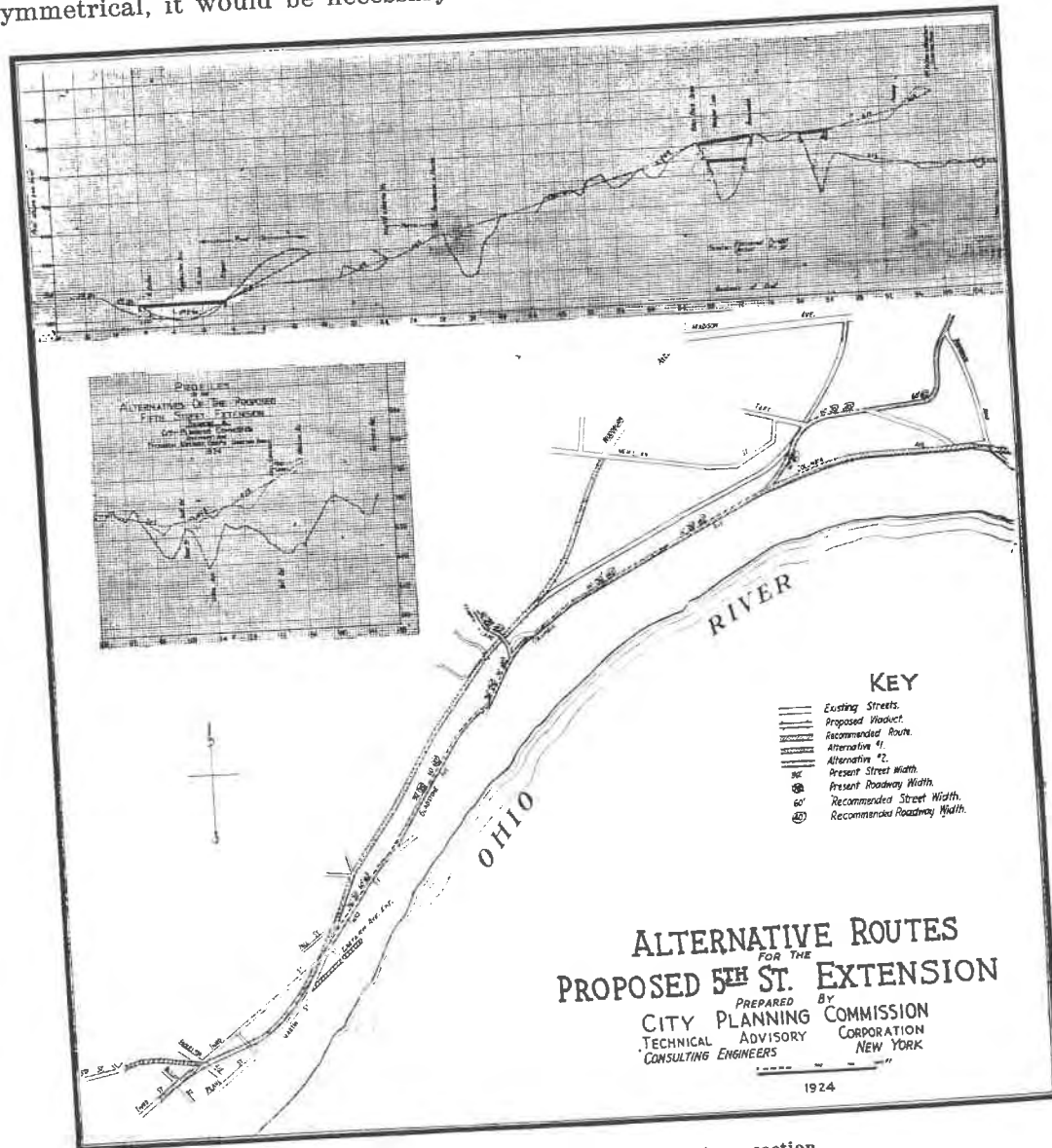


PARIS, APPROACH TO THE ALEXANDER III BRIDGE  
A striking bridge entrance

without great hardship. The houses are almost without exception, so located that any widening can take place on either or both sides according to least cost. While real estate values on Eastern Avenue are higher than on Columbia, the topography is worse on Columbia for widenings, so that it is possible that the costs of widening each would be practically equalized. Unless any widening of Eastern Avenue is symmetrical, it would be necessary to

relocate the car tracks, unless parking were prohibited on the side not widened. The latter course seems inadvisable, except possibly adjacent to the railroad and to the park west of Lewis Street.

The sidewalk might also be omitted from one side of Columbia Avenue. No parking, no stopping and no sidewalk on one side would save 17 to 20 feet. The street is now 50 to 60 feet wide and should be widened to a uniform 60 feet through-



Most urgent to give access to the eastern section

out. Columbia Avenue should be widened by 1930 to a uniform 60 feet where less now, with no sidewalk on one side and a roadway 48 feet wide. This involves restricting parking and the sidewalk to one side. Probably the cheaper side to widen Columbia Avenue is the south side toward the Pennsylvania tracks. Such a road would carry at least 2800 vehicles, which, with the 750 on Eastern Avenue would give 3550, which is ample for the total requirement for the two thoroughfares.

Columbia Avenue should be straightened by 1930 at Kemper Lane and at Torrence Road. Fortunately the land needed for these two straightenings is now owned by the city.

East of Stanley Avenue, Stanley Avenue and Grandin Road extension to Eastern Avenue, will provide for the probable future traffic to Linwood.

Kemper Lane roadway from Columbia Road to the viaduct and Francis Lane roadway up to the parkway should be widened on repaving to 40 or 38 feet and until then stopping and parking on one side should be prohibited.

**Torrence Road**

By 1930 Torrence Road should be carried through straight under the Pennsylvania tracks to Eastern Avenue at its present roadway width of 30 feet with stopping and parking prohibited on one side.

A connection between Columbia Avenue and Madison Road is greatly needed near Torrence Road. As Torrence Road is too steep, a new road with an easy grade and street width of 60 feet and roadway width of 40 feet should be cut along the hillside by 1930, from one quarter mile west of Collins Avenue to Taft Road and from Taft Road east of Collins Avenue to Torrence Road just below the viaduct, and Torrence Road to Madison Road increased to the same widths.

**Gilbert Avenue and Reading Road Out to McMillan**

Gilbert Avenue must be considered in connection with Reading Road, Florence Avenue (when straightened and properly paved) and the Parkway through Eden Park.

Direct access to Gilbert Avenue from the downtown business center exists today by the Gilbert Avenue Viaduct. The normal approach to the viaduct is along Broadway, which serves as a collector from the east and west streets. A logical feeding street is Seventh Street, which unfortunately has now a roadway only 17 feet wide between Main Street and Broadway. Seventh Street between Main Street and Broadway should be widened before 1940 (or at latest 1950) to 66 feet with a 46 foot roadway. By 1930 Ninth Street from Sycamore to Broadway should be widened to 66 feet with a 46 foot roadway. This is especially urgent, as west bound street cars should be routed through this block from the viaduct.

The approach to Reading Road is tortuous and has today a traffic capacity of only 750 vehicles. Fortunately, direct access to Reading Road is being provided by extending Central Parkway to Cheapside at its present width of 130 feet and then continuing it diagonally to the intersection of Reading Road and Broadway. Thus only can Reading Road play its real part as one of the main radials. Fortunately the Eggleston Avenue extension to the Parkway and Cheapside is also being carried out.

Broadway thus becomes the general collector and distributor of traffic and street cars to Gilbert Avenue, Reading Road and also to the Fifth Street Viaduct, the Pennsylvania Station, the Central Bridge, the L. & N. Bridge and the Municipal Dock. During the maximum rush hour, over 1700 vehicles will actually use Broadway, nearly 1600 of which will be in one direction. This means that, including the street car lane, a total of three moving traffic lanes should be provided. This traffic can in part be shifted to Sycamore Street or Main Street, but they too, are gradually filling up to capacity. Therefore, during rush hours, all parking, including stopping even for a few minutes, must be prohibited now on the heavy traffic side of Broadway from Court Street down to Fourth Street and also on Fifth, Sixth, Seventh, Eighth and Ninth Streets from Main Street to Broadway. The same must be done on Sycamore from Central Parkway to Fifth

Street. It is most important that all stopping as well as parking should be prohibited. "Chapter V" the "Downtown Traffic Problem" gives further solutions of this problem.

Reading Road should be widened by 1950 to 80 feet, with a 60 foot roadway, up to Morgan Street. Building lines should be imposed by 1935. Its capacity per maximum hour will thus be raised from 750 to 2,000 vehicles. The two thoroughfares would thus have a combined capacity of 4000 vehicles against a requirement of 5870 vehicles including 650 from outside the city. They might be operated up to 4500 or 4800 vehicles per maximum hour, owing to the few intersecting streets, but they are still deficient even then. Stringent parking regulations with no stopping or parking whatsoever on the heavy traffic side during rush hours should therefore be enforced immediately on Reading Road up to Forest Avenue and on Gilbert Avenue up to Eden Park Drive and from Peebles Corner to Locust Street. This will relieve the situation until the physical improvements can be carried out. Any additional thoroughfare would be exceedingly costly, if not impossible. In any case no parking or stopping should be permitted on the Viaduct and, as described in Chapter VI, "Transit," the car tracks leaving the north end of the Viaduct should be racked over to the west by 1930 to allow two full moving traffic lanes between the street car lanes and the vehicles parked along the curb.

In order to carry the excess of traffic over its capacity which would normally travel on Gilbert Avenue, Victory Parkway should be provided with a paved roadway of the following widths, and parking prohibited.

From McMillan Street to Madison Road Extension, 56 feet.

From Madison Road Extension to Lincoln Avenue, 40 feet.

Reading Road out to Paddock Road has been widened to 70 feet and the roadway to 50 feet. Reading Road roadway north of McMillan Street should be widened by 1950, to 60 feet and the street to 80 feet. This will require street widening which

should be undertaken by 1950 at latest. In any case, building lines should be placed by 1935 on Reading Road.

By also straightening, paving and widening Florence Avenue to 48 feet by 1930 and widening Kenton Street six feet (from 30 to 36) by 1930, the combined street system will be sufficient to meet all needs.

#### McMillan Street - Taft Road

This can best be considered in connection with Locust Street and Lincoln Avenue. Locust Street must be widened to 60 feet and its roadway to 40 feet and extended to Reading Road by 1940. Lincoln Avenue roadway should be widened to 40 feet by 1950 and extended as a parkway as proposed. McMillan Street roadway, now 35 feet, must be widened to 40 feet on repaving from Reading Road to Melrose Avenue. Locust Street should have the jogs cut off at Ashland Avenue. McMillan Street roadway from Taft Road to Woodburn Avenue should be widened by 1930 to 40 feet. Then it will take 1,200 vehicles east of Woodburn Avenue, leaving only 522 for Taft Road between Woodburn Avenue and McMillan Street, which it can carry at its present width. However, Taft Road will have to be widened to a 40-foot roadway from Woodburn Avenue to Columbia Avenue by 1940, and its connection with Woodburn Avenue should be rounded off.

#### Woodburn Avenue

A parkway extension of Madison Road should connect it with the extension of Victory Parkway, which latter will roughly parallel Woodburn Avenue. There should be a widening of the roadway on Woodburn Avenue to 40 feet on repaving where it is now 36 feet. By this and the creation of the proposed parkways, the traffic can be accommodated. The presence of the Victory Parkway paralleling Woodburn Avenue will care for the latter's deficiency in traffic capacity, Durrell Avenue serving as a cut-off where the parkway veers to the west. The roadway of Durrell Avenue (now 30 feet) should be widened by 1940 to 40 feet and the connection with Gilbert Avenue rounded off. The street is 60 feet wide

Woodburn Avenue has jogs at Blair and Brewster Avenues, which should be eased off.

#### Madison Road

Madison Road has a roadway 60 feet wide, which is wide enough.

Traffic will be especially dense between Torrence Road and Erie Avenue. Therefore, between Torrence Road and Erie Avenue parking should be prohibited during rush hours on the side of the heaviest traffic by 1940.

Madison Road is now paved at varying widths beyond the B. & O. tracks. It should be repaved at 40 feet beyond the B. & O. tracks at Oakley.

#### Erie Avenue and Observatory Road

Erie Avenue can carry as much traffic as it is likely to have. Observatory Road may be considered sufficiently wide. Erie Avenue should be considered the main thoroughfare, with Observatory as the parkway overflow street. Erie Avenue beyond Paxton Road should be repaved at 30 feet between the car tracks. The street is now 80 feet wide.

Ault Park Road must be extended by 1935 through to Wooster Pike. A 30-foot roadway should be provided throughout and parking confined to one side.

#### Red Bank Avenue

Red Bank Avenue, when repaved, should be improved with a 30-foot roadway and one-side parking. It is generally 60 feet wide. The Maple Avenue connection with Wooster Pike should be carried out by 1940.

#### Observatory Road Extension

So much traffic is to be expected on Observatory Road and its extension that any use of Madison Road for even a short distance would heavily overload that thoroughfare. Observatory Road should therefore be carried across Madison Road into Huron Avenue by 1940. The extension of Observatory Road into Huron Avenue will require a heavy viaduct, but the necessity of detouring 6,400 vehicles per day a matter of nearly a mile will pay interest on over \$3,000,000.

#### Kellogg Avenue

Kellogg Avenue should be extended immediately from Congress Avenue to

Stanley Avenue. Parking should not be permitted on the paved roadway except where at least 26 feet wide.

#### Brotherton Road

Brotherton Road has now a 20-foot roadway, which is ample for the present if parking is definitely confined to one side of the road. However, on repaving, the roadway of Brotherton Road should be made 30 feet wide where now less than 27 feet wide.

#### Montgomery Road

Montgomery Road up to Brewster Avenue is only two moving traffic lanes wide, while at the rush hour it should provide six lanes more to take care of the eventual load on it. From Brewster Avenue to Norwood it is now four narrow moving lanes wide. On repaving and by 1935 at latest, the roadway of Montgomery Road should be increased to 54 feet wherever less. Building lines should be imposed now below Brewster Avenue to widen it from 60 to 70 feet.

Fortunately, Victory Parkway, which is parallel, has a roadway 36 to 38 feet wide, with a capacity (with parking prohibited) of four full moving lanes. Generally speaking, this would provide for the deficiency in traffic capacity in Montgomery Road if proper cross connections are available.

The proposed connection of Observatory Road, Huron Avenue and Blair Avenue will provide one such, just north of the bend on Gilbert Avenue. The proposed parkway extension of Duck Creek Road through Jonathan Avenue, if the latter is extended by a viaduct over a deep gully just west of its present terminus, will serve as a second connection between the Parkway and Montgomery Road. Dana Avenue is a good existing connection, while Herald Avenue (especially if it is opened through, direct to the Parkway) constitutes an additional facility. A half mile farther north, Hopkins and Asmann Avenues exist, but possess seven and eight per cent grades.

Montgomery Road in Pleasant Ridge, now 70 feet wide, with an effective 32-foot roadway, will have to have its roadway widened to 54 feet on repaving and

by 1935 at latest. Beyond Kennedy Avenue it should be 40 feet wide.

#### Huron Avenue

The Huron-Ruth-Blair Avenue proposed connection between Madison Road and Reading Road should be provided with a 40-foot roadway by 1940.

#### Dana Avenue

Dana Avenue Roadway from Woodburn Avenue to the Parkway should be widened to 40 feet on repaving (the street is now 60 feet wide). It would also be wise to widen the roadway all the way to Reading Road. The extension of Dana Avenue from Duck Creek Road to Madison Road and Edwards Road should be paved 40 feet wide by 1940.

#### Vista and Madison Avenues

The combination of Vista Avenue, Duck Creek and S. Madison Avenue, from Madison Road to Williams Avenue, will serve as a cut-off. It will have to carry so much traffic that a 30-foot roadway will be needed by 1940. The present pavements are some of them as narrow as 15 feet.

#### Williams Avenue

Williams Avenue will have to be extended eastward to Markbreit Avenue, and between Forest Avenue and Duck Creek Road it will have to be widened to 30 feet by 1935. At this width the extension should be paved.

The combination of Williams, Forest and Robertson, with roadways of 35 feet and upward, is generally wide enough. Where Robertson approaches Duck Creek Road it is only 30 feet wide, and should be increased to 36 feet.

#### Mitchell Avenue Extension

The extension of Mitchell Avenue from Clinton Springs Avenue to North Crescent Avenue and the latter from this intersection to Reading Road at Dana Avenue, all by 1940, should be provided with roadways 40 feet wide.

#### Paddock Road

Paddock Road pavement should be widened to 40 feet wherever narrower and parking prohibited during rush hours on the heavy traffic side south of Laidlaw

Avenue by 1930 and an additional track installed. No street car should operate contrary to the vehicular traffic. Even then there will eventually be congestion. Steps should be taken to secure a wider street (80 feet) and to repave to 56 feet by 1950 or possibly 1940, south of Laidlaw Avenue. Fortunately Reading Road acts in part as a relieving street, but its present capacity will be needed for inter-urban automobile travel.

#### Tennessee Avenue - Ross Avenue

Tennessee Avenue has a bad jog at Reading Road, which should be removed by 1950. Ross and Tennessee Avenues are now practically county roads. Where not now so paved they should by 1950 be given roadways 30 feet wide. The cross connections comprised by Tennessee Avenue, Highland Avenue and Duck Creek Road will require connections just east of Montgomery Avenue in Norwood and easterly of Lester Road in Oakley. These thoroughfares will need widening at several points — all in these municipalities.

#### Langdon Farm Road

The proposed cross connection which would include Center Hill Avenue, Township Avenue, Towne Avenue and Langdon Farm Road, will require some heavy grading to reduce the present steep stretches, together with new bridges over creek, railroad and canal. When improved, Towne Avenue and Langdon



MAIN STREET, EAST ORANGE, N. J.  
The roadway recently widened from 40 feet to 52 feet, despite the fact that the street is only 66 feet wide, as shown, and the cost assessed locally. The property owners have since petitioned that the street itself be widened to 80 feet or more.

Farm Road should be at least 60 feet wide, with a 30-foot roadway. At no point are either the streets or the roadways of such widths. A part of Center Hill Avenue and all of Township Avenue are in Elmwood Place.

#### Carthage Pike

The 34-foot stretch of Carthage Pike should be widened on repaving to 38 or 40 feet. The street is there 66 feet wide.

#### Vine, Walnut, Main, Race, Elm; The Parkway; Central and McMicken Avenues

Vine, Walnut, Main, Race and Elm Streets at their present width will carry among them the probable future traffic. However, Walnut Street should be widened where it now has a 36-foot roadway and Central Avenue, where it now has a 36-foot roadway, to 40, or at least 38 feet, as soon as repaving takes place, as should also McMicken. The latter is now 30, 35 and 40 feet in different portions. While a 40-foot roadway is not theoretically wide enough even for the future travel on McMicken west of Vine, any excess can be diverted from Vine Street and its neighboring streets through Liberty and Findlay to Central Parkway.

#### Vine Street

Between McMicken and Clifton Avenues, Vine Street must be widened to 84 feet (now 66 feet) and its roadway to 58 feet by 1930 at latest. It is the bottle neck, and there is no less costly way of securing relief.

Even with Clifton as a relief street, Vine will be inadequate by two traffic lanes for the eventual traffic which it will be called upon to carry. From Clifton Avenue to Erkenbrecher Avenue a widening to 84 feet with a 60 or 58-foot roadway (where now less), with two car tracks, is the absolute minimum which will eventually be adequate. By restricting all stopping and parking (which will be something of a hardship) on the heavier traffic side, the widening can be delayed from 1930 to 1950. Building lines should be placed by 1930. Vine Street can be widened adjacent to the park, and parking along it can be prohibited without hardship. Elimination of parking

without shifting the car tracks will, however, be of little avail. Since the park does not extend to McMillan Street, it will be essential to widen at that intersection under any scheme. Sycamore Street and Auburn Avenue will give little relief at best on account of the grades. The best scheme for permanent relief north of McMillan is a short tunnel under Jefferson Avenue from the intersection of McMillan and Vine to about Charlton. The diversion of traffic to Jefferson Avenue, either through the proposed tunnel mentioned above or by filtration through lateral streets will care for the excess of traffic over the capacity of Vine Street north of Corry Avenue to Rochelle Avenue, as Vine Street has a 60-foot roadway here.

#### Vine Street and Jefferson Avenue

Vine Street north of St. Clair has a roadway only 36 to 39 feet wide. Even in combination with Jefferson and Ruther Avenues, it will eventually be deficient by at least two lanes. It can be amplified only by widening. Vine Street north of St. Clair Avenue should be made as wide as it is south, viz., 84 feet, with a 60 or 58 foot roadway. This should be done by 1950 and building lines placed by 1935 at latest, and after 1930, until widened, all stopping and parking should be prohibited on the heavier traffic side. A widening of Vine Street will help Jefferson Avenue where the two are practically parallel. Jefferson in combination with Ruther Avenue is a parallel to Vine Street as far as Glenmary Avenue. Ruther Avenue, however, has heavier grades. If it is found cheaper to widen Jefferson and Ruther Avenues than to widen Vine Street, that alternative is open. Beyond Glenmary, an eventual widening of Vine Street seems the only possible solution. Jefferson Avenue has an acute angled jog at St. Clair, which should be removed by 1930, probably most cheaply by taking a part of the city land and also a small piece of the acute angle.

#### Erkenbrecher, Ludlow, Julia Ann Avenues

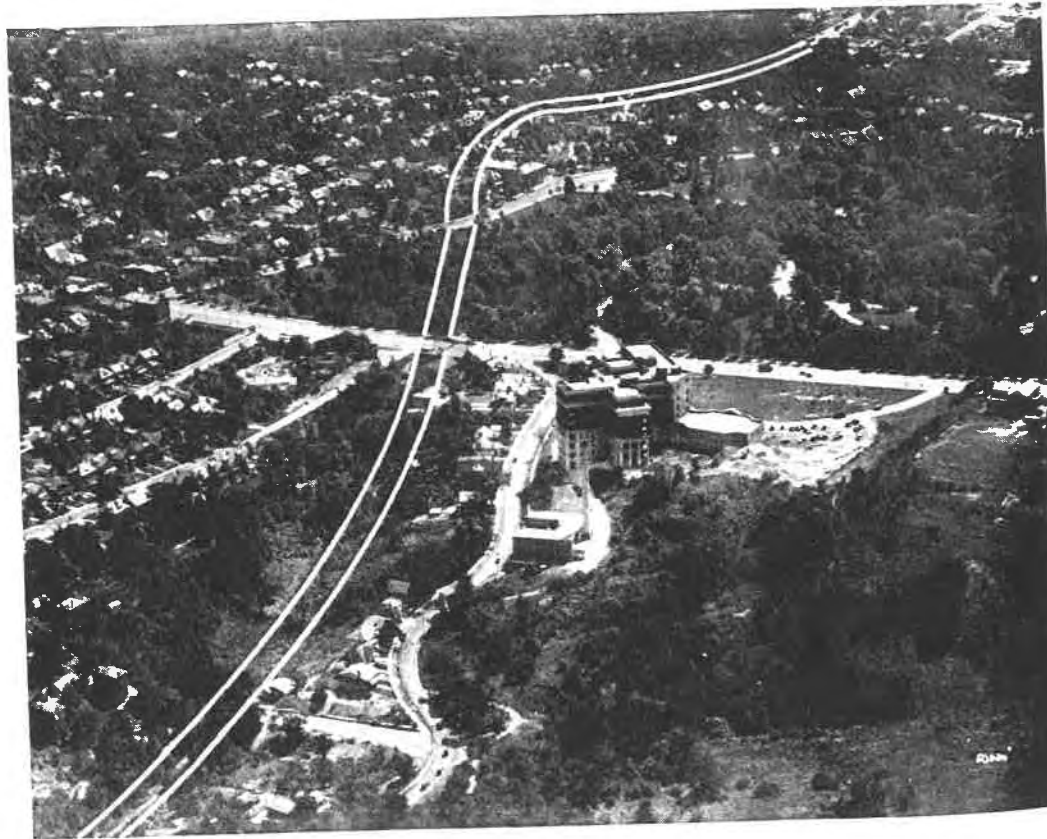
Erkenbrecher Avenue should be extended by a viaduct to Ludlow Avenue by 1930. Fifteen thousand vehicles per day

will thus be saved a detour of a quarter to a half mile over congested streets. The capitalized value of this saving will be three to five million dollars, which would thus be a legitimate expenditure for the viaduct and approaches.

The further extension of Erkenbrecher Avenue across the upper end of Burnet Woods to reach Julia Ann Avenue extended up the valley to Terrace Avenue, will be advisable by 1930. Even were Ludlow to be widened, there would be a sharp turn at Clifton Avenue and all vehicles would be required to traverse two sides of a triangle instead of only one. The saving to traffic would eventually warrant nearly one million dollars capital expenditure.

#### Baymiller, Freeman

By making Baymiller by 1930 a one-way street in combination with Freeman, the latter will probably prove adequate.



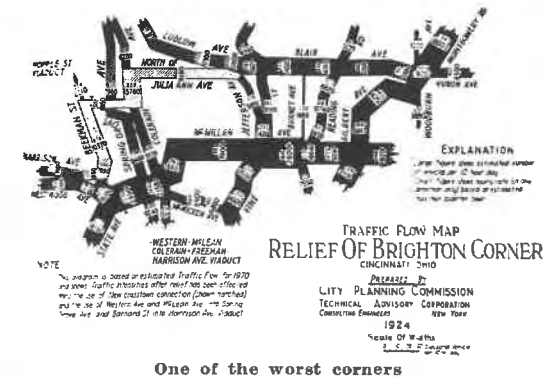
NORTH END OF BURNET WOODS  
Aeroplane view of Erkenbrecher Avenue extension to Julia Ann Avenue

#### Harrison Avenue East of Viaduct

Harrison Avenue must be widened to 86 feet and provided with a 60-foot roadway by 1940. Building lines should be imposed immediately. However, a final decision on this should be reserved until a detailed study can be made of the whole Brighton Corner problem.

#### Brighton Corner

One of the most congested and most dangerous points in the city today is where eight main thoroughfares meet at Brighton Corner. The development of the parkway and the rapid increase of crosstown traffic alone will make it intolerable. Within 25 years delays and accidents there can safely be estimated at a capitalized value of \$5,000,000. There is no simple solution. Manifestly crosstown traffic must be separated from radial traffic. By 1940 or at latest by 1950, Mc-



Millan Street should be extended by a viaduct 60 feet wide from the foot of the incline to Harrison Avenue Viaduct. A cut-off should be made between Colerain and Harrison Avenues near their intersection. This will have to be studied in detail in order to arrive at a final conclusion.

Brighton Corner will be called upon to handle almost 50,000 vehicles during a ten-hour day and around 5,500 during the maximum hour. The Harrison Avenue-McMillan Street Viaduct as indicated on the Thoroughfare Map would seem to be the permanent solution of the traffic problem at this corner, but it probably would not be justified economically for at least ten or fifteen years.

Therefore an attempt was made to find an immediate and cheaper method of relief. The accompanying traffic flow diagram was worked out to show the effect of a new crosstown thoroughfare consisting of an extension of Julia Ann Avenue from Clifton Avenue to McMicken Avenue and continuing south on McMicken to Hopple Street and over the Hopple Street Viaduct and along Beekman Street to Harrison Avenue. The accompanying diagram shows also the improvement in the traffic conditions at Brighton Corner that could be brought about by the use of Western and McLean Avenues in addition to Freeman and Baymiller Streets as approaches to Harrison Avenue Viaduct and to Spring Grove Avenue.

#### Julia Ann Avenue

Julia Ann Avenue must be extended east to Clifton Avenue at Terrace Avenue

by 1930 and its roadway should be widened to 40 feet.

#### McMillan, East Auburn, Calhoun, Corry Streets

In order to relieve McMillan it will be necessary to develop parallel streets. East Auburn and Calhoun should be connected around the water tanks between Auburn Avenue and Vine Street by 1930, and the roadways, wherever less than 36 feet wide, should be widened to 40 feet or at least 36 feet on repaving. By 1940 all parking and stopping will probably have to be prohibited on one side of Calhoun and East Auburn. On Clifton Avenue between Calhoun and McMillan Streets all parking and stopping should be prohibited immediately.

McMillan Street from Vine to Auburn should be widened to a 40-foot roadway immediately and the street widened to 60 feet. The roadway to the east should be increased to 40 feet on repaving.

In addition, McMillan Street from Clifton Avenue west should be widened on repaving, or by 1950 at latest, to 56 or 58 feet, with an 80 or 84 foot street. Building lines should be placed by 1935 on the north side. By 1930 all parking and stopping should be prohibited on the heavier traffic side.

#### Second Street

Second Street rather than Third Street should be continued as a crosstown trucking thoroughfare through the Bottoms.

Beginning at the intersection of Third and Front Streets, the portion of Third Street situated between Front and Baymiller Streets was vacated by the city some time ago, the bridge across the tracks was removed, and hardly any trace can be found today of the original street. Evidently it would be necessary to reappropriate this portion of the street and to construct a new bridge, with probable difficulties arising in connection with the proposed terminal plans of the railroads. Between Baymiller and Rose Streets the street is only 50 feet wide, with a 30-foot roadway, the greater portion of which is used throughout the day by trucks and wagons backed up against the platforms



of freight stations. A rather costly widening of this section is imperative if Third Street is to be used as a trucking thoroughfare. East of the Dixie Terminal, street car tracks occupy most of the roadway as far as Broadway, while east of Broadway, Third Street crosses residential territory. In addition, Third Street is often lined with parked pleasure vehicles throughout the day, thereby cutting down greatly the effective roadway width.

Second Street, on the other hand, is well paved and 66 feet wide from Front Street to Lawrence Street, with a 40-foot roadway, and 60 feet wide between Lawrence and Butler Streets, with a 36-foot roadway. Second Street is particularly well adapted for thoroughfare use.

The only problem to be solved is the proper connection of Second Street with Pearl Street and over the latter with Eastern Avenue and Columbia Avenue, and thus with the eastern and northeastern sections of the city. This is accomplished by using Broadway as a connection.

Both Second and Third Street roadways, on repaving, should be made 46 or 48 feet wide, to allow trucks to back up to the curb without blocking the two moving traffic lanes, otherwise all parking or loading, other than parallel to the curb, must be prohibited.

#### Ludlow Avenue

The western part of Ludlow Avenue fortunately has been widened and straightened. It should be given a roadway width of 60 or at least 58 feet on paving. Thus only can it carry the two extra lanes that will be imposed on it. The eastern end from Cornell Avenue east should be widened to 80 feet, with a 58-foot roadway by 1950, and building lines should be imposed now.

#### Spring Grove Avenue

Spring Grove Avenue, where it has less than 60 (or 58) foot roadway, should be widened to 60 feet on repaving or at latest by 1950, and by 1930 the three short blocks from Colerain Avenue to Hamilton Pike should be widened so as to give a 90-foot street and a 60-foot roadway.

#### Mitchell Avenue

Mitchell Avenue north of Spring Grove can be made adequate for its prospective traffic by restricting parking during the rush hours to the open side. By 1940 the roadway, where narrower, should be widened to 28 feet. It must be extended by 1950 to Edgewood Avenue and the latter extended to Winton Road.

#### Ross Avenue

Ross Avenue and its extension through Beech Street to Spring Grove now have roadways of 27 and 30 feet, respectively. Grade crossings must be eliminated at the railroads by 1950. Thirty-six-foot pavements will be required by 1950 also.

#### Seventh, Eighth, Ninth and Gest Streets

Seventh, Eighth and Ninth Streets west of Central Avenue all have roadways varying from 30 to 40 feet wide. As each is repaved, the roadways should be made uniformly 40 or 38 feet wide, and by 1930 Seventh Street should be connected through beyond Carr Street. Ninth Street should be made westbound and Seventh Street eastbound. On repaving, car tracks should be removed from these two streets west of John. This will take care of most of the eventual traffic, but not of all, nor of the extra traffic coming to a Union Station. An obvious way to obtain more lanes is to widen Eighth Street roadway to 60 feet. This would be far more costly than widening and extending Gest Street and would have also the great disadvantage of concentrating still more traffic on State Avenue, which can not be widened very much at best. Therefore, Gest Street should be extended and widened to 100 feet, with a 60-foot roadway from Central Parkway and Plum Street to a Gest Street Viaduct when a union station is built, and surely by 1940. Building lines should be placed now. It would serve both as parkway and traffic way.

#### Eighth Street and Gest Street Viaducts

A viaduct could well be constructed on Gest Street when a Union Station is built, or at latest by 1940. This should be kept

free of street car tracks and be made with a roadway 40 or at least 38 feet wide. It would then be able to take the two lanes of overflow from Eighth Street. Moreover, when the Eighth Street Viaduct requires reconstruction, it should be rebuilt with a roadway of 56 feet. This entails the widening of Eighth Street roadway to 60 feet west of the viaduct to State Avenue.

#### State Avenue, South of Eighth Street

State Avenue can be relieved to some extent by by-passing some traffic along Sixth Street and Burns Street, but it will still have to carry as a two-way street all through north-south traffic. In any case parking and stopping should be prohibited all day on one side of Sixth Street and Burns Street and on the heavy traffic side of State Avenue during rush hours. Building lines should be established by 1935 on State Avenue. Widening would be wise on both sides by 1950, to 86 or 84 feet, with a 60 or 58 foot roadway. The connection of Burns Street into Eighth Street should be remodeled.

#### Sixth Street, Liston and Hillside Avenues

Sixth Street, Liston Avenue and Hillside Avenue will together carry all the probable traffic if each is provided with a roadway of proper width. Where car tracks exist, the roadway should be 40 or 38 feet. Where no tracks exist, the pavement should be 20 feet, with one or two eight-foot shoulders for parking purposes. This should be done at the time of repaving.

#### Elberon Avenue and Eighth Street

With the creation of a Gest Street Viaduct leading directly to the top of the hill, most of the through traffic which would take Elberon Avenue and Eighth Street through to Addyston and beyond would be provided with a shorter route and could be diverted from Elberon, over Warsaw and the proposed parkway. This would remove the necessity of widening Elberon Avenue and Eighth Street.

Elberon Avenue north of Eighth Street should have its roadway widened to at least 36 feet on repaving.

#### State Avenue North

Widening of State Avenue north from Eighth Street to 80 feet, with a 58-foot roadway, is indicated by 1940, in which case building lines should be established now. Meanwhile, no parking and no stopping on the heavier traveled side will have to be resorted to unless and until widening takes place. There is no alternative which can be developed through this bottle neck.

#### Liberty Street Viaduct and Extension

The proposed curved street up the western hills nearly opposite the end of Liberty Street should be developed if physically practicable by 1950, with a width of 50 feet and a 36-foot roadway and no car tracks. The Liberty Street Viaduct should be rebuilt when structurally necessary, and by 1930 at latest, to connect with this street at a high elevation, and the new street should also extend south to meet State Avenue. The present Liberty Street on the hills and the portion of Elberon north of Glenway should be given pavements 40 or 38 feet wide. Liberty Street from Sycamore Street to the Viaduct should have its roadway increased to 36 feet on repaving.

#### Harrison Avenue West

Harrison Avenue from the viaduct to Queen City Avenue is a bad bottle neck, and as it is fortunately 75 feet wide, its 45-foot roadway should be increased to 56 feet on repaving and by 1935 at latest. A partial alternative is the construction of an extension of State Avenue adjacent to and parallel with the railroad tracks, to Beekman or to Queen City, or at least to Brighton Street, which latter would then have to be opened. The extension along the tracks to Beekman near Knox would appear to be the best. In any case the present dangerous west end of the viaduct should be re-designed when the viaduct is rebuilt, as it must be by 1935 at latest.

#### Beekman Street, Runnymede Avenue

With the extension of State Avenue, as suggested above, Beekman Street would not require widening except north of

Knox Street. As State Avenue probably can not be extended, then Beekman Street must have all stopping and parking prohibited on the heavier traveled side from Harrison Avenue to Cummins Street and Cummins Street roadway widened to at least 28 feet on repaving and by 1930 at latest, and all parking and stopping confined to one side. Beekman Street between Cummins Street and the Hopple Street Viaduct should be widened so as to afford a uniform roadway 40 feet wide when repaved, and in any case when the Julia Ann Avenue cut-off is constructed. Runnymede Avenue should be extended south with a 40-foot roadway by 1930 (and widened to a 36-foot roadway between Colerain and Hoffner) so as to carry Beekman Street traffic and the new street car line and so as to intersect Dremman Street at its angle where it turns west about half way between Edgewood and Cass Avenues. The Beekman Street roadway from Hopple Street Viaduct to Dremman Street should be widened by 1930 to 40 feet.

**Blue Rock Street**

Blue Rock Street between Spring Grove and Hamilton Avenue, where the roadway, is now only 22 feet wide, should be widened on repaving and at least by 1930 to 28 feet, and all stopping and parking on one side should be prohibited.

**West Fork Road and Montana Avenue**

As the traffic increases on West Fork Road and Montana Avenue, all parking on the present paved space will have to be prohibited and shoulders provided for parking and stopping as demand arises. The east end of Montana Avenue should be re-located to afford a lighter grade.

**Colerain Avenue from Cumminsville Northwest**

Colerain Avenue must have its paved width increased to 18 (or, better, to 20 feet) and shoulders added for parking and stopping by 1930.

**Virginia Avenue**

Virginia Avenue and Kirby Road are not wide enough to carry their pros-

pective traffic unless one-side parking is eventually prohibited. They might be extended by 1935 to reach Hamilton Avenue north of Rockford Place with a roadway at least 28 feet wide, but Otte Avenue will serve well enough for a decade or two.

**The Thoroughfare System Outside the City Limits**

Existing roads now used as thoroughfares should be continued as at present laid out, except for the following: All roadways should be provided with hard shoulders 8 feet wide on at least one side or at frequent intervals, and as soon as possible the paved portion, wherever less, should be made 20 feet wide. All bridges should be made 26 feet wide, with at least 20-foot roadways, as soon as restoration or extensive repairs are required. All parking and stopping of any sort should be prohibited on all bridges and viaducts.

**Indian Hill Road**

Indian Hill Road roadway should be widened to 20 feet as soon as repairs are required.

**Batavia Pike**

The short stretch of Batavia Pike which is now 18 feet wide should be increased to 24 feet on repaving to make it like most of the rest of the road.

**Salem Pike**

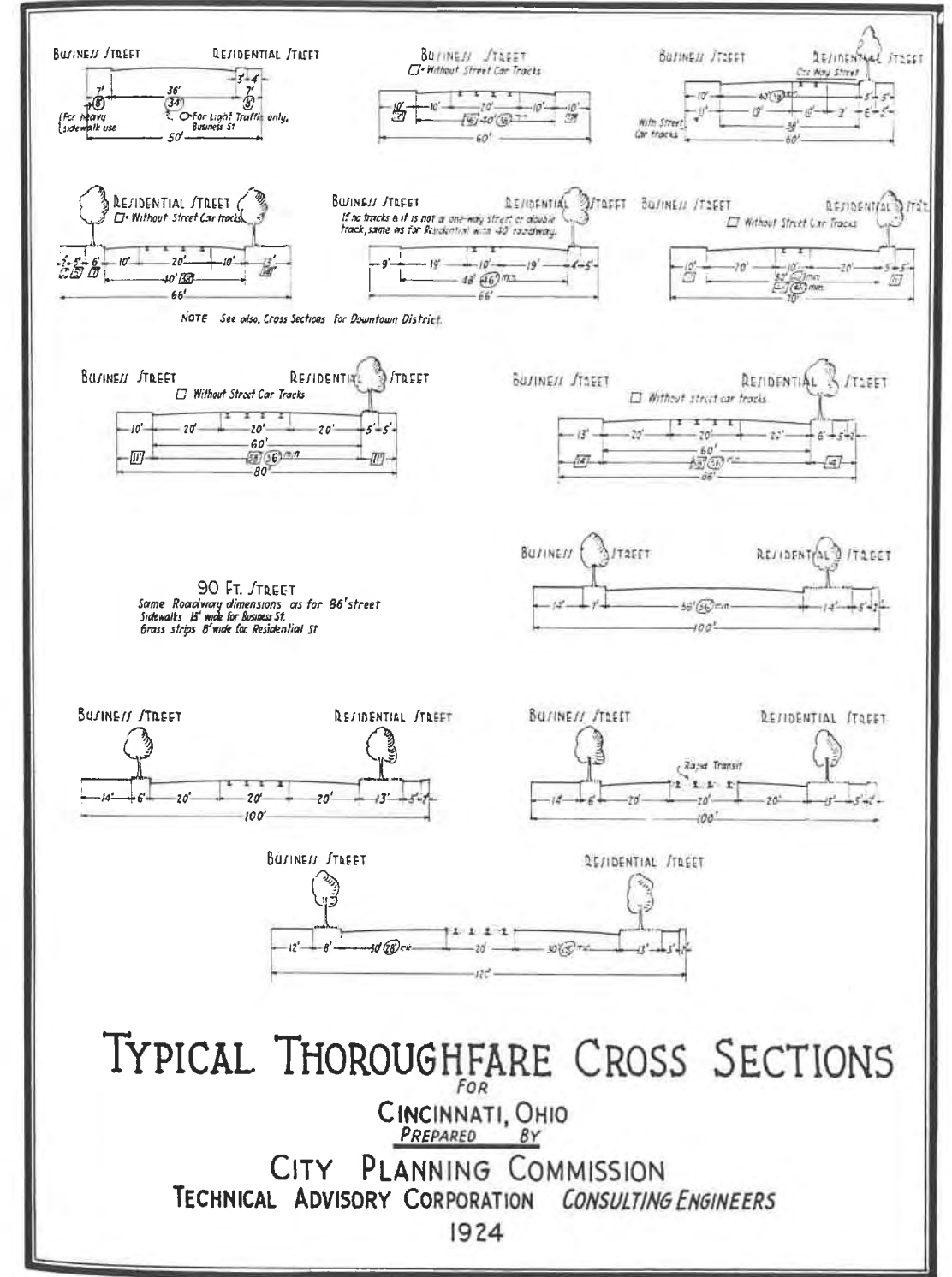
Salem Pike has heavy grades, but many of these can and should be improved and the roadway widened to at least 20 feet on repaving.

**New Richmond Pike**

While probably sufficiently wide to carry all present traffic, New Richmond Pike should have its roadway widened on repaving to 20 feet, so as to prevent accident.

**Ridge Road**

Ridge Road or Ridge Avenue, is an excellent cross connection, and should have its present heavy grades and narrow width improved. The roadway of Ridge Road should be leveled down and be made



20 feet wide on repaving, with ample shoulders for parking off the line of travel.

#### Winton Road

Wherever Winton Road is only 12 or 15 feet wide, it should be arranged with ample shoulders of such a hard character that vehicles can turn out without danger. When the road is repaved it should be at least 20 feet wide, even though the traffic will never be heavy.

#### Blue Rock Road

Blue Rock Road as a cut-off to New Baltimore should be improved with a 20-foot roadway.

#### Warsaw-Cleves Pike

Where now under 20 feet wide, the roadway of Warsaw and Cleves Pike should be made 20 feet on repaving.

#### Trolleys, Buses and Trucks

Throughout all of these studies, consideration has been constantly given to the effect of street car lines, of bus lines and to through automobile trucking routes. It is true that an excess of buses and trucks would tend to slow down traffic, even on outlying thoroughfares, and thereby make necessary a greater roadway width. As a matter of fact, however, with the growth of Cincinnati as restricted as it is likely to be, the total maximum number of buses or trucks which it would be profitable to operate on any given thoroughfare outside of the congested area could be readily taken care of by the factor of safety allowed in the proposed width of the thoroughfares.

With regard to trolleys, due allowance for their presence and frequency of service has been made in the calculations noted on the accompanying thoroughfare table. In this table a traffic lane occupied by a trolley track where there is a car service during the maximum hour of at least every ten minutes has had its normal capacity of 600 vehicles per hour reduced to 375 or 400 vehicles per hour. This is in accordance with traffic observations and counts made in various cities. If the trolley service is bound to be light,

even in the future, the latter number of vehicles per trolley traffic lane was correspondingly increased. On the other hand, the number of vehicles per lane per hour has been increased from 600 to 700 or 800 where there is little intersecting traffic.

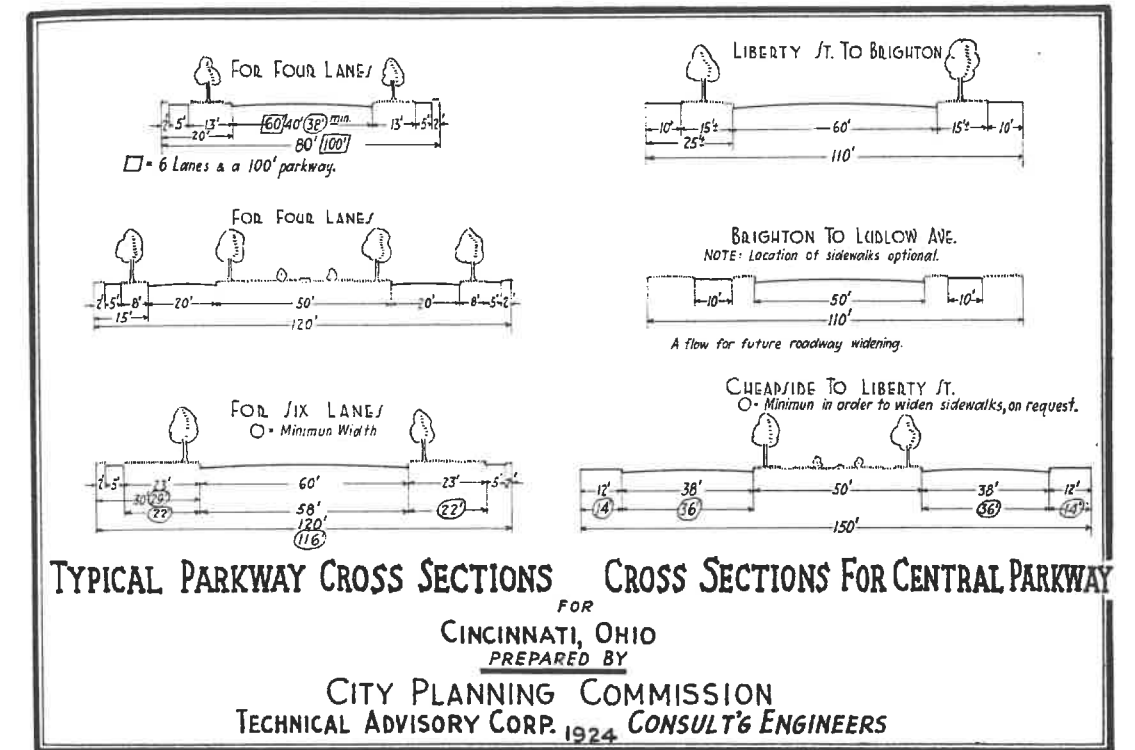
#### Typical Thoroughfare Cross Sections

The cross sections of all thoroughfares and parkways should approximate the standards indicated on the accompanying diagrams entitled "Typical Thoroughfare Cross Sections" and "Typical Parkway Cross Sections."

All moving traffic lanes should be 10 feet wide. Universal experience shows that if a reasonable speed of traffic is to be preserved and if due allowance is to be made for poor driving or careless driving, 10 feet of clear width in each moving traffic lane is none too large. On the other hand, if it is impossible to obtain 10 feet of width without too great an expenditure of money, 9 feet minimum will have to do.

Each street car traffic lane should be at least 10 feet wide. Street car lanes also serve as traffic lanes, and, therefore, should be fully as wide as other moving traffic lanes. As the average street car is wider than most automobiles or trucks, proper clearance demands that the width of the street car lane should never be reduced below 10 feet.

The width of the traffic lane for vehicles parked along the curb should also be 10 feet. As a matter of fact, the average automobile is not much over 6 feet wide. Many are less than 6 feet wide. However, there are many trucks and auto buses which are between 7 and 8 feet wide, and many private automobiles in parking along the curb take a foot or two clearance or park at a slight angle, which means that the actual space occupied is usually nearer 8 feet than 6 in width. With due allowance for clearance at good speed, 10 feet of width for the parked lane is none too much. On the other hand, if the securing of 10 feet per parked lane is prohibitively costly, or if it would interfere with fine existing trees,



it is possible in emergencies to get along with a width of 9 feet, and if absolutely necessary, even 8 feet of width for the parked lane.

Sidewalks on thoroughfares through residence districts should never be less than 5 feet wide and except on promenades and apartment house streets they should rarely be wider than 5 feet. Five feet of smooth sidewalk pavement is plenty wide enough for two people to walk abreast comfortably. A third person can pass them without difficulty on 5 feet of width. The balance of the space between the curb and the lot line is much more effectively used for grass borders than as paved sidewalk.

The grass and tree border between the curb and the sidewalk should be as wide as possible for effective appearance and for watering the roots of trees. No grass border should be less than 5 feet wide. Wherever possible, a 2-foot grass strip should be preserved between the sidewalk and the lot line to allow for the burying

of pipes and conduits, where access to them will not interfere with the roots of trees or with the roadway or sidewalk paving. The wider the grass strip the more attractive the street from a residential standpoint. On the other hand, if it is impossible to secure a 5-foot grass strip and a 5-foot sidewalk, the sidewalk can be reduced to 4 feet and the grass strip to 3 feet as an absolute minimum, but anything less than 5 feet in either case should be avoided wherever possible.

On a business street the sidewalk should be at least 10 feet wide, but rarely needs to be more than 13 or 14 feet wide. If it is impossible to obtain 10 feet of sidewalk width on a business street, it can be reduced to 8 feet, or even 7 feet if absolutely necessary, although a minimum of 10 feet is most desirable to allow for the loading and unloading of goods and to allow people to stand in front of shop windows without blocking the circulation along the sidewalk. On the other hand, as has been described in detail, in

Chapter V. on the "Downtown Traffic Problem," there is nothing in Cincinnati's downtown sidewalk traffic that warrants a greater sidewalk width than 13 feet for some time to come.

A five-traffic lane street should be used only where traffic is restricted to one direction. Obviously a street with two moving traffic lanes in one direction and one in the other is bound to lead to constant confusion. On the other hand, where all vehicles and street cars are moving in the same direction, a five-traffic lane street can carry 25 to 50 per cent more traffic than a four-traffic lane street.

#### Relation to Zoning

In determining which street should be used as a thoroughfare and in fixing its ultimate width, due consideration has been given to the character of each neighborhood that the thoroughfare serves, as determined by the building zone ordinance. If the zoning ordinance had not been in effect, this determination would have been much more difficult and certainly much more indefinite. In Residence "A" districts thoroughfares are much farther apart than in Residence "B" districts and in the latter they are farther apart than they are in Residence "C" districts.

#### Relation to Local Centers

Due consideration has been given to the locating of neighborhood centers as determined by the zoning ordinance. As far as possible, every attempt has been made to intersect thoroughfares with other thoroughfares at local centers, thereby concentrating access to the local center along existing or proposed thoroughfares.

Other things being equal, thoroughfares are kept as wide as practicable at the local centers to allow for the parking of automobiles.

At the two most important local centers, that is, Peebles Corner and Brighton Corner, a special solution of the traffic problem is presented.

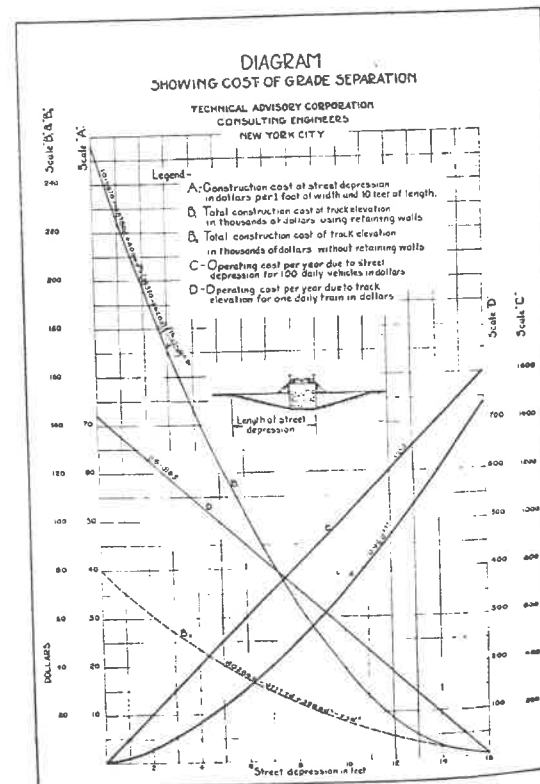
#### Relation to Parks and Recreation Grounds

It is realized that proper access must be provided to the larger parks, to reservations, to golf courses, and to the other larger tracts used for recreation. Therefore, in every case either the thoroughfares or parkways or both have been adapted to give access to these areas.

As a rule, thoroughfares do not traverse parks or other large areas, so as to avoid a long dead stretch through territory which the traffic way can not specifically serve.

#### Relation to Public Building Groups

Wherever possible, the thoroughfares and parkways have been adapted to serve centers or groups of civic or cultural buildings. Furthermore, in various cases the thoroughfares or parkways have been so oriented, as to bring an improvement



Based on experience in other cities

or semi-public building on the axis, thereby creating an interesting terminus for the vista down the street.

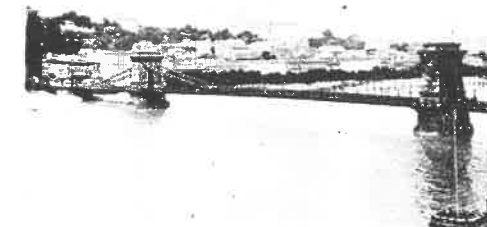
#### Grade Separation

The question of grade separation is at present in the hands of the city engineer, who is making a complete study of the problem for the Department of Public Service. In view of this fact, no special study of grade separation has been made in this report. It is a matter which can be worked up independently of the rest of the city plan, and is largely a matter of agreement between the city and the railroads.

#### Viaducts

With regard to viaducts, special conclusions have been reached as a part of the general study of thoroughfares. These are all treated above in this chapter. They consist primarily of the following:

- 1—A Gest Street viaduct across Mill Creek.
- 2—A McMillan-Harrison Avenue viaduct.
- 3—A raised Liberty Street viaduct.
- 4—A viaduct from the Zoo entrance to near the Northeast corner of Burnet Woods.
- 5—A viaduct for the extension of Ault Park Road eastward to Wooster Pike.



PIEST, ACROSS THE DANUBE FROM BUDA  
Effective treatment of a river hillside

6—A viaduct for the extension of Third Street across Eggleston Avenue over Third Street east.

7—A viaduct extending from Huron Avenue to Madison Road.

#### Bridges

The four bridges across the Ohio River provide vehicular traffic lanes as follows:

- 1—The C. & O. bridge, two lanes each 8 feet, 6 inches wide.
- 2—The Louisville & Nashville bridge, two lanes together 17 feet wide with an approach 21 feet, 6 inches wide.
- 3—The Central bridge, two lanes including two car tracks 23 feet, 6 inches wide over all.
- 4—The Suspension bridge, three traffic lanes including two car tracks 28 feet, 6 inches wide over all.

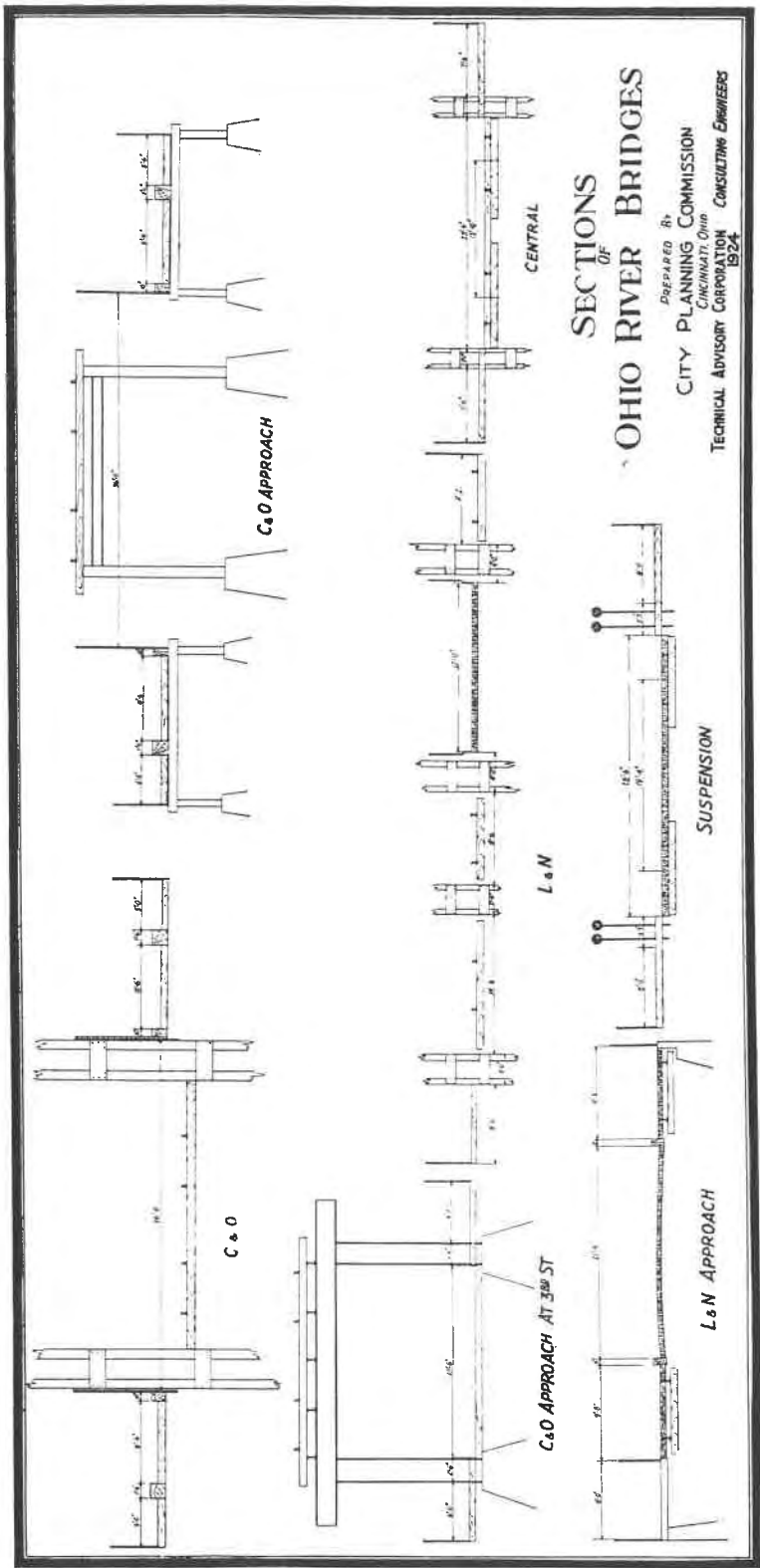
This gives a total of nine traffic lanes in both directions. As four of these lanes are encumbered by car tracks, their effectiveness would be cut in halves, therefore, the nine traffic lanes are reduced to seven actually.

These seven traffic lanes are capable of carrying 600 to 1,000 automobiles per hour or a total of 4,200 to 7,000 for all four bridges.

Actual traffic counts show that today the normal use is only 900 vehicles. Even at the time of the Latonia Derby this has rarely exceeded 1,500 vehicles per hour.

With the probable increase in the use of automobiles going to and from Kentucky and with the increased ownership of automobiles on the Kentucky side even after ample allowance is made for the growth of the Kentucky communities, it is hardly conceivable that during the next 50 years the maximum use of the bridges would exceed three or at most, four times the present use. Three times the present use would give 2,700 vehicles and four times 3,600 vehicles per maximum hour.

No increase in vehicular traffic lanes across the Ohio River is likely to be needed for fifty years to come.



Plenty adequate for 50 years to come

CITY PLANNING COMMISSION  
Cincinnati, Ohio  
TECHNICAL ADVISORY CORPORATION  
Consulting Engineers

**THOROUGHFARE IMPROVEMENT TABLE**  
Cincinnati, Ohio, and Hamilton County

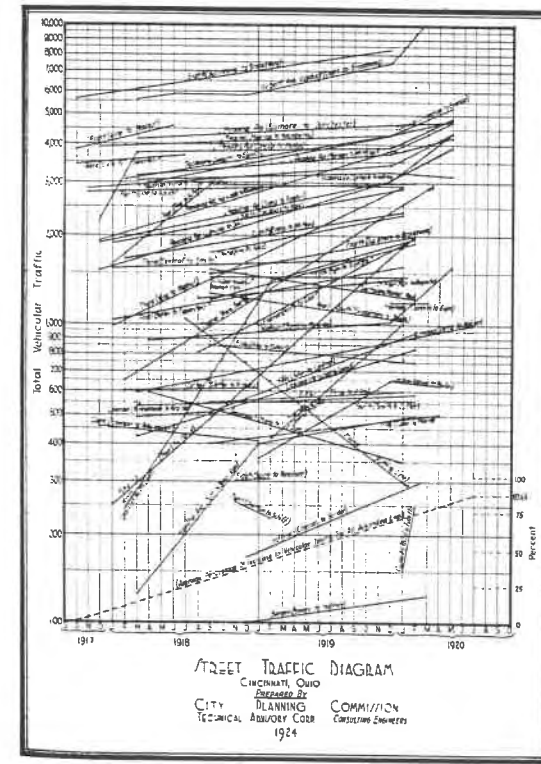
(NOTE: All other thoroughfares shown on the Thoroughfare Map are wide enough now in both street and roadway widths to carry the estimated future traffic, except that where roadways are less than 18 feet wide they should be made 20 feet wide on repaving, with occasional wide shoulders for parking.)

NAME OF STREET	From	To	Number of Trolley Tracks	1970 Capacity Max. Hr. M'g. Tr's 2 Dir'n's	1924 Capacity Hr. M'g. Tr's 2 Dir'n's	Roadway Width—		Street Width—		Stopping and Parking Prohibited	Date of Improvement	Remarks
						Present	Future	Present	Future			
Amity Rd. Ext.	Amity Rd.	Kugler Mill Rd.	.....	.....	.....	20	30	.....	60	One side	1950	
Ault Park Rd. Ext.	Ault Park Rd.	Wooster Pike	.....	.....	.....	18	30	.....	60	One side	1935	
Baltimore Ave.	West Fork Rd.	Carl St.	.....	.....	.....	18-27	Uniform 24	40	50	.....	1950	
Batavia Pike	Beechmont Ave.	Hopple St. Viaduct.	448	1200	.....	36	40	50 - 60	60	Heavier traffic side	.....	On repaving.
Beckman St.	Cummins St.	Cummins St.	854	400	.....	40	40	60	60	.....	1940	
Beckman St.	Harrison St.	Runnymede Ave.	460	600	.....	30	40	60	60	.....	1940	
Beckman St.	Hopple St. Viad. Ext.	Erkenbrecher Ave.	920	400	.....	30	40	60	60	.....	1940	
Blair Ave.	Reading Rd.	Erkenbrecher Ave.	.....	.....	.....	22	28	40	60	.....	1940	
Blair Ave. Ext.	Blair Ave.	Ruth St.	.....	.....	.....	20-27-36	30-36	40	60	One side	1930 and on repaving	
Blair Ave. Ext.	Blair Ave.	Spring Grove Ave.	.....	.....	.....	27	40	50	60	.....	1940	
Blue Rock St.	Hamilton Ave.	Spring Grove Ave.	.....	.....	.....	27	40	50 - 60	60	.....	1940	
Brotherton Rd.	Madison Rd.	Spring Grove Ave.	1016	400	.....	30-36	40 - 36	40	60	.....	1940	
Calhoun St.	Clifton Ave.	Vine St.	.....	.....	.....	35	40	60	60	.....	1930	On repaving
Carthage Pike	Vine St.	Auburn Ave.	.....	.....	.....	36	40	60	60	.....	1950	On repaving
Columbia Ave.	Mitchell Ave.	Spring Grove	2800	1800	.....	20-36	48	60	66	One side	1950	On repaving
Columbia Ave.	Kemper Lane	Taft Rd.	2800	1200	.....	20-36	48	60	66	One side	1950	On repaving
Columbia Ave.	Taft Rd.	Torrence Rd.	1600	600	.....	15-25	20 min.	30	66	One side	1930	On repaving
Colerain Ave.	Torrence Rd.	Stanley Ave.	420	600	.....	21	28	40-50	60	One side	1930	Shoulders for pkg.
Cummins St.	West Fork Rd.	Beekman St.	.....	.....	.....	.....	.....	.....	60	.....	1930 and on repaving	
A new street	Columbia Ave.	Beekman St.	.....	.....	.....	.....	.....	.....	60	.....	1940	
A new street	Caldwell Park	Taft Rd.	.....	.....	.....	.....	.....	.....	60	.....	1930	On repaving
A new street	Cleves-Bridgetown	Center Hill Rd.	.....	.....	.....	.....	.....	.....	60	.....	1950	On repaving
Dana Ave.	Reading Rd.	Cut-off	.....	.....	.....	.....	.....	.....	60	.....	1950	On repaving
Dana Ave.	Montgomery Rd.	Montgomery Rd.	820	600-1200	.....	30-40	40	60	60	.....	1940	On repaving
Dana Ave. Ext.	Dana Ave.	Duck Creek Rd.	440	1200	.....	30-40	40	60	60	.....	1940	On repaving
Deerfield Rd. Ext.	Dana Ave.	Madison Ave.	.....	.....	.....	.....	.....	.....	60	.....	1940	On repaving
Durrill Ave.	Yonontse Ave.	Woodford Rd.	.....	.....	.....	.....	.....	.....	60	.....	1940	On repaving
A new street	Victory Parkway	Montgomery Rd.	.....	.....	.....	.....	.....	.....	60	.....	1940	On repaving
East Auburn Ave.	Duck Creek Rd.	Madison Rd.	.....	.....	.....	.....	.....	.....	60	.....	1940	On repaving
Eastern Ave.	Auburn Ave.	Burnet Ave.	.....	.....	.....	25-30	40-36	50-60	60	.....	1940	On repaving
Eastern Ave. Ext.	Front St.	Torrence Rd.	800	750	.....	36	40	60	60	.....	1930	On repaving
Edgewood Ave. Ext.	Martin St.	Eastern Ave.	800	750	.....	.....	.....	.....	60	.....	1950	On repaving
Eastern Ave.	Edgewood Ave.	Winton Rd.	.....	.....	.....	.....	.....	.....	60	.....	1950	On repaving
Eastern Ave.	Corbin St.	Delta Ave.	800	750	.....	30	40	50	60	.....	1940	On repaving
Eastern Ave.	Eighth St.	Warsaw Ave.	500	800	.....	30	36	50	60	.....	1940	On repaving
Eighth St. Viaduct	Hill Rd.	Beechmont Ave.	.....	.....	.....	.....	.....	.....	60	.....	1940	On repaving
Erkenbrecher Av. Ex.	Erkenbrecher Av.	Wayside Ave.	.....	.....	.....	36	40	50	60	.....	1940	On repaving
A new street	Erkenbrecher Av.	Wayside Ave.	.....	.....	.....	.....	.....	.....	60	.....	1940	On repaving
A new street	Erkenbrecher Av.	Wayside Ave.	.....	.....	.....	.....	.....	.....	60	.....	1940	On repaving
Fifth St. and Ext.	Broadway	Third St. Viaduct.	.....	.....	.....	.....	.....	.....	60	.....	1940	Viaduct
Francis Lane	Kemper Lane	Parkway	1800	1200	.....	40	56	66	88	Both sides viaduct	1960	On repaving
Floral Ave. Ext.	Dana Ave.	Madison Ave.	.....	.....	.....	33	40	60	60	1 side until widened	1950	On repaving
Florence Ave.	Reading Rd.	Gilbert Ave.	.....	.....	.....	36	46	60	60	.....	1930	Viaduct, 40' roadway repaving



### THOROUGHFARE IMPROVEMENT TABLE—Continued Cincinnati, Ohio, and Hamilton County

NAME OF STREET	From	To	Number of Trolley Tracks	1924 Capacity		Roadway Width		Street Width		Stopping and Parking Prohibited	Date of Improvement	Remarks
				Max. Hr. in Yr.	Per 2 Dir'n's	Present	Future	Present	Future			
Vista Ave.	Ivy St.	Madison Rd.	2	2000	800	34	34	50	50	One side	1940	
Vista Ave. Ext.	Ivy St.	Duck Creek Rd.	2	1500	800	24	30	40	40	One side	1940	
Wasson Rd. Ext.	Marburg Ave.	Erie Ave.	2	980	400-800	24	30	40	40	One side	1950	
Wasson Rd. Connec'n	Wasson Rd.	Portland Ave.	2	980	400-800	24	30	40	40	One side	1950	
Werk Rd. Ext.	South Rd.	Fiddler's Green Rd.	2	2000	800	18-28	30	60	60	One side	1935	
Williams Ave.	Forest Ave.	Duck Creek Rd.	2	2024	800	36-40	40	60	60	One side	On repaving	
Woodburn Ave.	McMillan St.	Madison Rd.	2	1270	800	35	40	60	60	On repaving	1950	
Woodburn Ave. Ext.	Plainfield Pike	Montgomery Rd.	2	1400	800	20	20	60	60	On repaving	1950	
A new street	Washington Ave.	Alaska Ave.	2	2800	800	20	20	60	60	On repaving	1950	
A new street	Woods Ave.	Corby Rd.	2	2800	800	20	20	60	60	On repaving	1950	
A new street	Wooster Pike, east	Proposed Rd.	2	2800	800	15	20	35	50	On repaving	1950	
Yononte Ave.	Woodford Ave.	Deerfield Rd.	2	2800	800	15	20	35	50	On repaving	1950	
<b>DOWNTOWN MAJOR STREET IMPROVEMENTS</b>												
Baymiller St.	Sixth St.	Central Ave.	2	2000	800	30	46	50	50	One side, northbound	1935	1960 widen to 88 ft.
Broadway	Fourth St.	Reading Rd.	2	1500	800	36	40	66	66	One side, rush hour	On repaving	On repaving
Central Ave.	Third St.	Coleman Ave.	2	980	400-800	40	46-42-40	66	66	Heavier traffic side	On repaving	On repaving
Elm St.	Broadway	Vine St.	1	2000	800	27	42	66	66	Heavier traffic side	On repaving	1950 widen to 66 ft.
Eighth St.	Central Ave.	Central Ave.	2	2000	800	30-40	40	66	66	On repaving	1930	1960 widen to 88 ft.
Fifth St.	Main St.	Viaduct	2	1400	800	40	60-44	66	66	On repaving	1930	Building lines now
Fifth St. and Ext.	Broadway	Broadway	2	2800	800	40	60-40	80-60	80-60	On repaving	1930	Vine to Plum Sts.
Fourth St.	Lawrence St.	Pike St.	2	2800	800	40	46	66	66	On repaving	1930	Viaduct, 40 ft. r'dway
Fourth St.	Broadway	Main St.	2	2800	800	40	46	66	66	On repaving	1930	
Freeman Ave.	Central Ave.	Central Ave.	1-2	2800	800	36	60	66	66	Southbound	1940	
Gladstone Ave.	Central Parkway	Kenner Lane	2	2800	800	18	48	50	50	One side	1930	
Gladstone Ave. Ext.	Collard St.	Baum Place	2	2800	800	27-30	36	66	66	One side	1930	
Liberty St.	Sycamore St.	State Ave.	1-2	2800	800	36-40	46	66	66	One side	1930	
Martin St.	Pearl St.	Liberty St.	2	2800	1000	28	40	60	60	One side	1930	
Martin St. Ext.	Fifth St.	Eastern Ave. Ext.	2	2800	1000	28	48	60	60	One side	1930	
Martin St. Ext.	Third St.	Third St.	2	2800	1000	30	30	60	60	One side	1930	
McMicken Ave.	Main St.	Mohawk Place	2	1160	800	25	38	60	60	One side	1930	
Ninth St.	Broadway	Sycamore St.	1	430	800	30	46	45	45	1 side until widened	1930	
Ninth St.	Sycamore	McLean Ave.	1	1400	700	30	40	60-66	60-66	On repaving	1930	1960, widen to 88 ft. north of Fifth St.
Pike St.	Fifth St.	Third St.	2	1910	800	36-40	46-40	66	66	On repaving	1930	1940, widen to 66 ft. E. way to Main St.
Plum St.	Third St.	Central Parkway	2	2800	800	40-36	40-48	66	66	On repaving	1930	
Race St.	Third St.	McMicken Ave.	2	940	400-800	17-40	46	33-56	33-56	On repaving	1930	
Second St.	Lawrence St.	Central Ave.	1	600	600	40	40	50	50	On repaving	1930	
Seventh St.	Broadway	Central Ave.	2	1350	800	40	40	66	66	On repaving	1930	
Seventh St. Ext.	Carr St.	Harriet St.	2	2800	800	40	46-40-46	66	66	On repaving	1930	
Sycamore St.	Harriet St.	Liberty St.	2	2800	800	40	48	66	66	On repaving	1930	
Sixth St.	Central Ave.	Broadway	2	2800	800	40	48	66	66	On repaving	1930	
Third St.	Broadway	Central Ave.	2	2800	800	27-30	48	66	66	On repaving	1930	
Third St.	Collard St.	Eastern Ave.	2	2800	800	27-30	48	66	66	On repaving	1930	
Third St.	Martin St.	Collard St.	2	1000	1000	48	48	60	60	One side	1930	One sidewalk
Third St. New	Viaduct	Martin St.	2	2800	800	48	48	66	66	On repaving	1930	
Third St. Viaduct	Pike St.	Fifth St. Viaduct	2	1710	800	48	48	66	66	On repaving	1930	
Third St. Viaduct	Fifth St.	New Third St.	2	2800	800	48	48	66	66	On repaving	1930	
Vine St.	McMicken Ave.	McMicken Ave.	1-2	1160	800	40	46-44-40	66	66	On repaving	1930	
Walnut St.	Third St.	McMicken Ave.	1-2	1160	800	36-40	46-44-40	66	66	On repaving	1930	



Street traffic is growing rapidly

## CHAPTER V Downtown Traffic Problem

The agreement between the City Planning Commission and the Technical Advisory Corporation, in the second section, provided that the City Plan is to ".....include the location and general scheme of development of.....public structures" including ".....(a).....classification and segregation of streets as regards character of traffic....."

Acting under this requirement, a special study was made of the streets and street traffic in the downtown congested area.

### Problem

The downtown traffic problem as distinct from the general thoroughfare problem, should be confined to the cen-

tral business district, which is roughly bounded by Broadway, Ninth Street, Central Avenue and Third Street. Outside of these 48 blocks or squares, the traffic is spread out enough and there is so little central business congestion that no special study need be given to the subject other than the general thoroughfare study.

Within this congested area, the problem is briefly this: It is obvious that the movement of vehicles and, to a lesser extent, of pedestrians within this district is becoming slower every year. This means a considerable loss of time, energy and money to those who have to use the congested area. It is possible to measure roughly the amount of this loss. It is possible to balance against this aggregate loss, the cost of making improvements that would eliminate or decrease the loss. If the aggregate gains created by the improvement exceed the loss, the improvement is warranted.

The cost of congestion results from slow movement and from accidents. In order to measure loss of time, a value must be placed upon the time of the vehicle with its occupants or its load of merchandise. A five-ton motor truck can now be hired for \$3.00 per hour or 5 cents per minute. The present taxi rate is 3-1-3 cents per minute for the car and driver. Where congestion is known to exist and a vehicle owner makes a detour to avoid it, the extra cost of gasoline and wear of tires is again measurable. The cost of operation of a light car on city streets has been found to average one-quarter of a cent per minute for gasoline. Heavy cars will run much higher, the average being around one cent. Tires cost about ten per cent additional. To these figures the pro-rated cost of the car must be added, bringing the total above two cents per minute on the average. A person who is so delayed as to miss a train would often have been willing to pay handsomely to have escaped the congestion which was the cause of it. Taking all these elements into account, the result is five cents per minute of delay per vehicle on the average.

An indirect method can be used even to estimate the value of time to street car riders. It is well known that real estate values and rents decrease generally with the distance from the center of a community. Certain in-

dividuals prefer to ride further going to and from work, so as to save on rent. Thus can be secured a measure of the value of the time of street car patrons. Studies along this line indicate roughly one cent per minute as the value of such time.

1,045 street accidents were reported to the Police Department in Cincinnati during the year 1922. A study of these accidents, as to their location, time and character disclosed the fact that 15 per cent of them occurred in the congested area and five per cent of them can be attributed primarily to prevailing congested conditions. \$250.00 is roughly the average damage caused by each of these reported accidents to vehicles and human life. They represent an actual annual loss of \$13,000.00. If these accidents could be obviated by methods involving a cost not exceeding \$13,000.00 capitalized, it is believed there would be little doubt as to the justification of such expenditures.

The automobile accident death rates for the years 1921 and 1922 in Cincinnati were 18.8 and 18.2 respectively per 100,000 population. Placing a value of only \$2,500.00 on each human life, gives an annual loss of \$145,000.00. Capitalizing this annual loss at six per cent, gives a potential loss of \$2,600,000.00. It has been ascertained from reports of the Police Department, for the year 1922, that fully five per

cent of the fatal automobile accidents took place in the congested districts and can be regarded as largely the result of traffic confusion caused by congested roadway conditions. A large part of this sum could legitimately be spent to offset such accidents.

The benefits which must be secured to make any street widening economically worth while, can be computed. Assume that the average cost of widening throughout the whole of the present congested district is \$500,000.00 per block. The principal vehicles which would be benefited would be those actually using the streets during the congested hours. Based on traffic counts of a number of Cincinnati streets, a figure of 1,700 vehicles per daily congested hour was reached. At 300 days of congestion per year, the total number of vehicles affected would be 510,000 per year. Assuming interest on \$500,000.00 at six per cent, the annual time saving would have to amount to \$30,000.00 or 5.9 cents per vehicle. Assuming five cents per minute, a saving of 1.18 minutes per block must be secured. As the average block length is 460 feet, it is easily computed that the increase in average speed must be 4.4 miles per hour along the widened streets to justify the expense.

Observations of the actual average speed through the congested district are shown in the following tables:

TABLE

Showing Average Speed of Travel and Amount of Automobile Parking in the Congested District, Bounded By Broadway, Third St., Central Ave. and Ninth St.

Table with columns: Name of Street, Time at the Beginning of Trip, Number of Parked Vehicles (A, B, C), Time at the End of Trip, Time Required for Trip in Seconds, Distance, Average Speed Miles per Hour. Rows include Ninth, Eighth, Seventh, Sixth, Fifth, Fourth, Third, Broadway, Sycamore, Main, Walnut, Vine, Race, Elm, Plum, Central.

Total in shopping district..... 407 parked vehicles
Total in entire area..... 1,251 "
Average speed of entire trip..... 10.87 miles per hour

\*For East and West Streets

\*For North and South Streets

A—Between Broadway and Main St.

Between Third St. and Sixth St.

B—Between Main St. and Race St.

Between Sixth St. and Seventh St.

C—Between Race St. and Central Ave.

Between Seventh St. and Ninth St.

Note:—Length of entire trip — 10.8 miles

The shopping district is bounded by Main St., Third St., Race St. and Sixth St.

Table with columns: Name of Street, Time at the Beginning of Trip, Number of Parked Vehicles (A, B, C), Time at the End of Trip, Time Required for Trip in Seconds, Distance, Average Speed Miles per Hour. Rows include Ninth, Eighth, Seventh, Sixth, Fifth, Fourth, Third, Broadway, Sycamore, Main, Walnut, Vine, Race, Elm, Plum, Central.

Total in shopping district..... 613 parked vehicles
Total in entire area..... 1,953 "
Average speed of entire trip..... 11.00 miles per hour

Table with columns: Name of Street, Time at the Beginning of Trip, Number of Parked Vehicles (A, B, C), Time at the End of Trip, Time Required for Trip in Seconds, Distance, Average Speed Miles per Hour. Rows include Ninth, Eighth, Seventh, Sixth, Fifth, Fourth, Third, Broadway, Sycamore, Main, Walnut, Vine, Race, Elm, Plum, Central.

Total in shopping district..... 643 parked vehicles
Total in entire area..... 2,111 "
Average speed of entire trip..... 10.08 miles per hour

Table with columns: Name of Street, Time at the Beginning of Trip, Number of Parked Vehicles (A, B, C), Time at the End of Trip, Time Required for Trip in Seconds, Distance, Average Speed Miles per Hour. Rows include Ninth, Eighth, Seventh, Sixth, Fifth, Fourth, Third, Broadway, Sycamore, Main, Walnut, Vine, Race, Elm, Plum, Central.

Total in shopping district..... 683 parked vehicles
Total in entire area..... 2,387 "
Average speed of entire trip..... 10.65 miles per hour



Name of Street	Time at the Beginning of Trip	Number of Parked Vehicles			Time at the End of Trip	Time Required for Trip in Seconds	Distance	Average Speed Miles per Hour
		A*	B*	C*				
Ninth	1:28:40	24	69	80	1:32:05	205	3,725 ft.	12.39
Eighth	1:32:30	44	65	47	1:36:15	225	3,725 "	11.27
Seventh	1:37:12	4	66	84	1:40:50	218	3,725 "	11.62
Sixth	1:41:23	37	88	60	1:46:25	302	3,725 "	8.40
Fifth	1:47:03	42	160	78	1:54:03	420	3,725 "	6.05
Fourth	1:54:35	39	98	110	2:02:05	450	3,725 "	5.64
Third	2:04:30	30	60	70	2:08:23	233	2,480 "	10.90
Broadway	2:08:23	34	12	12	2:11:08	165	2,480 "	10.22
Sycamore	2:11:43	35	13	17	2:13:58	135	2,480 "	12.52
Main	2:14:22	73	31	15	2:17:12	170	2,480 "	9.94
Walnut	2:17:42	68	38	30	2:21:02	200	2,480 "	8.45
Vine	2:21:23	69	31	25	2:26:17	289	2,480 "	5.85
Race	2:26:57	76	35	43	2:30:12	195	2,480 "	8.67
Elm	2:30:50	70	29	25	2:34:38	228	2,480 "	7.4
Plum	2:34:53	98	19	45	2:37:10	137	2,480 "	12.3
Central	2:37:40	46	10	25	2:39:58	138	2,480 "	12.24
Total in shopping district					721	parked vehicles		
Total in entire area					2,388	"		
Average speed of entire trip								9.07 miles per hour

Name of Street	Time at the Beginning of Trip	Number of Parked Vehicles			Time at the End of Trip	Time Required for Trip in Seconds	Distance	Average Speed Miles per Hour
		A*	B*	C*				
Ninth	3:04:30	22	61	49	3:08:30	240	3,725 ft.	10.58
Eighth	3:09:00	37	83	42	3:13:05	245	3,725 "	10.35
Seventh	3:13:25	17	81	72	3:17:20	235	3,725 "	10.80
Sixth	3:17:55	42	77	95	3:21:25	210	3,725 "	12.10
Fifth	3:28:00	40	145	92	3:28:03	363	3,725 "	7.00
Fourth	3:28:45	41	71	98	3:37:46	541	3,725 "	4.68
Third	3:38:12	30	62	50	3:41:55	223	3,725 "	11.38
Broadway	3:41:55	30	16	20	3:44:05	130	2,480 "	13.00
Sycamore	3:44:55	36	15	17	3:46:54	119	2,480 "	14.21
Main	3:47:15	49	29	30	3:49:45	150	2,480 "	11.28
Walnut	3:50:20	66	25	19	3:54:12	232	2,480 "	7.30
Vine	3:54:45	68	33	26	3:58:05	200	2,480 "	8.45
Race	3:58:30	79	23	30	4:01:04	154	2,480 "	10.98
Elm	4:01:30	77	24	27	4:04:30	180	2,480 "	9.40
Plum	4:05:10	13	7	24	4:07:15	125	2,480 "	13.52
Central	4:07:40	44	9	12	4:09:40	120	2,480 "	14.10
Total in shopping district					617	parked vehicles		
Total in entire area					2,157	"		
Average speed of entire trip								9.95 miles per hour

Name of Street	Time at the Beginning of Trip	Number of Parked Vehicles			Time at the End of Trip	Time Required for Trip in Seconds	Distance	Average Speed Miles per Hour
		A*	B*	C*				
Ninth	4:23:15	29	65	46	4:27:00	225	3,725 ft.	11.27
Eighth	4:27:20	23	55	54	4:30:30	190	3,725 "	13.34
Seventh	4:31:20	2	64	70	4:34:30	190	3,725 "	13.34
Sixth	4:35:05	40	75	66	4:39:40	275	3,725 "	9.23
Fifth	4:40:05	50	138	73	4:48:00	475	3,725 "	5.35
Fourth	4:48:55	43	94	91	4:55:20	385	3,725 "	6.70
Third	4:56:55	19	56	52	5:00:23	208	3,725 "	12.20
Broadway	5:00:23	35	10	11	5:05:10	287	2,480 "	5.90
Sycamore	5:06:00	38	16	23	5:07:53	113	2,480 "	14.92
Main	5:10:00	56	32	45	5:14:45	285	2,480 "	5.94
Walnut	5:15:20	71	25	7	5:18:05	165	2,480 "	10.22
Vine	5:19:00	61	30	12	5:22:30	210	2,480 "	8.05
Race	5:23:00	87	28	19	5:27:10	250	2,480 "	6.76
Elm	5:27:45	38	11	13	5:31:55	250	2,480 "	6.76
Plum	5:33:00	26	4	7	5:35:00	120	2,480 "	14.10
Central	5:35:25	22	6	15	5:37:40	135	2,480 "	12.52
Total in shopping district					632	parked vehicles		
Total in entire area					1,952	"		
Average speed of entire trip								8.71 miles per hour

Name of Street	Time at the Beginning of Trip	Number of Parked Vehicles			Time at the End of Trip	Time Required for Trip in Seconds	Distance	Average Speed Miles per Hour
		A*	B*	C*				
Ninth	5:37:40	7	30	20	5:42:20	280	3,725 ft.	9.05
Eighth	5:43:00	8	28	9	5:46:40	220	3,725 "	11.52
Seventh	5:47:20	45	49	28	5:50:50	210	3,725 "	12.08
Sixth	5:51:30	26	63	57	5:55:30	240	3,725 "	10.55
Fifth	5:56:00	20	90	44	6:02:35	395	3,725 "	6.42
Fourth	6:03:00	24	66	15	6:07:00	240	3,725 "	10.57
Third	6:07:35	3	23	5	6:10:40	185	3,725 "	13.70
Broadway	6:10:40	40	1	0	6:13:15	155	2,480 "	9.15
Sycamore	6:14:00	11	5	1	6:16:00	120	2,480 "	14.10
Main	6:16:15	22	7	15	6:18:15	120	2,480 "	14.10
Walnut	6:18:50	75	33	1	6:21:15	145	2,480 "	11.66
Vine	6:21:30	45	26	26	6:23:45	135	2,480 "	12.52
Race	6:24:15	81	12	28	6:26:15	120	2,480 "	14.10
Elm	6:26:30	10	6	12	6:28:30	120	2,480 "	14.10
Plum	6:30:00	7	2	4	6:32:00	120	2,480 "	14.10
Central	6:32:30	15	2	6	6:34:30	120	2,480 "	14.10
Total in shopping district					485	parked vehicles		
Total in entire area					1,153	"		
Average speed of entire trip								11.40 miles per hour

It is apparent that it would not pay to widen all the downtown streets. The first cost would exceed \$25,000,000.00

Were the blocks of worst congestion to be considered, it is evident that the cost of widening would be much higher than the average. On Fourth Street, for example, the cost would probably be at least twice the average assumed, and thus the necessary increase in speed to make the widening pay, would be 12.4 miles per hour. In other words, the speed after the widening had been made, would have to be fully 19.1 miles per hour, which is obviously impracticable where there are so frequent cross streets.

Relief from traffic congestion can be secured in several ways:

(a) The streets can be physically widened between building lines.

(b) Additional overhead or underground roadways can be constructed for:

1. Vehicles.
2. Street cars.

(c) The roadways can be widened at the expense of the sidewalks, the latter being:

1. Narrowed permanently.
2. Placed in arcades within existing buildings.
3. Placed overhead or under ground.

(d) The roadways can be widened in effect by:

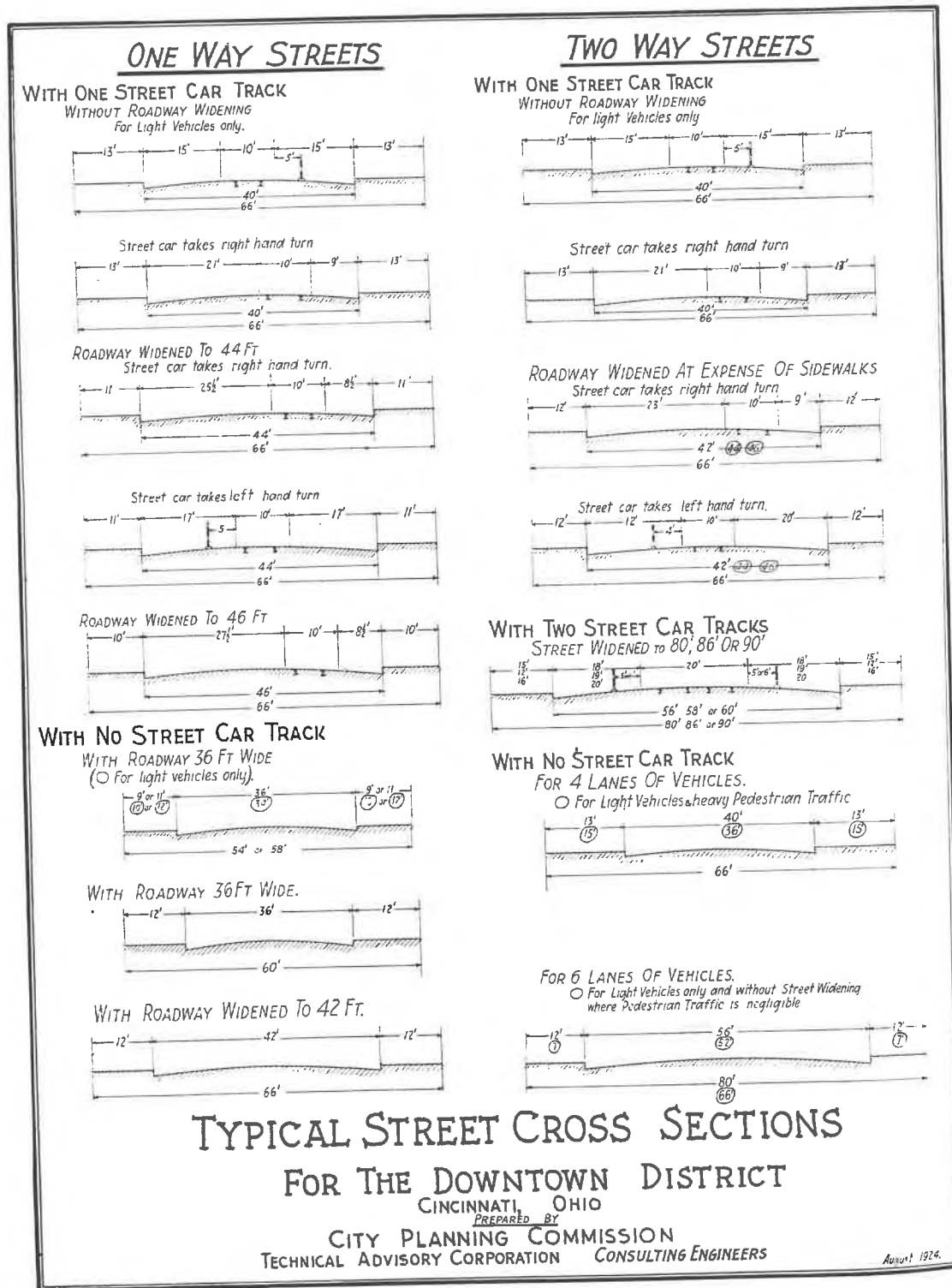
1. Prohibiting parking.
2. Prohibiting merchandise delivery during congested hours.

(e) Traffic congestion can be partially relieved by:

1. Segregation of slow moving and fast moving vehicles.
2. Limiting the direction of movement to one way only.
3. Prohibiting left hand turns.
4. Prohibiting all turns.
5. Re-routing street cars.
6. Re-routing buses.

Street Cross Sections

The widening of a street should be such as to give the roadway a width which is a multiple of vehicle width, plus necessary clearance. Measurements of the widths of thousands of vehicles, investigation of the history of the growth of vehicle width and its control by State laws and observations of the speed which an average driver will employ with various clearances, have led to the adoption of a standard of ten feet as the least practicable width of each traffic lane, moving at 10 to 20 miles per hour. This can be raised to 11 feet to provide for higher velocities and for the occasional extra wide vehicle, and for greater safety. At least a ten-foot lane is imperative for each line of street cars. Roadway widths should therefore be in multiples of ten (or sometimes more). The over-all width can be reduced, at the expense of speed and safety, by two or even four feet where costs would be excessive, or fine trees



should be preserved, especially where vehicles are made to park tight along the curb.

Typical street cross sections which are proper for use in the congested district, are shown on the accompanying diagram. Except on one-way streets, roadways should be made up of an even number of traffic lanes. Where a roadway is now 24 feet wide, there are at least two feet of waste room except for speed. A widening to 28 or better, 30 feet, would provide for three lanes of traffic instead of two. On narrow roadway streets, only one direction traffic should be permitted, unless parking is restricted to one side only, when two direction travel may be permitted, if the roadway is at least 27 feet wide. Street car tracks should be placed so as to lie within the lanes, not to straddle them. In the case of a single car track on a roadway of even multiple width, the car track should be off center.

**Overhead Roadways**

Overhead roadways would cost at least \$10.00 per square foot. A block 460 feet long with a roadway, 40 feet wide, would thus cost \$184,000. Compared with the physical street widening computations made above, it is seen that an increase of speed of 1.3 miles per hour would be necessary to justify the overhead roadway. Since not all vehicles would want to use such an elevated roadway and since damages would almost certainly be collected because of darkening the first floors of stores, the complete costs of an overhead roadway would at least equal the cost of physical street widening. In addition, the difficulty of securing proper approaches at each end of any such elevated street would be very great. Therefore, overhead roadways should be considered only as a last resort.

**Sub-Surface Roadways**

The cost of constructing subways, as compared with elevated structures for rapid transit use, shows a ratio of about 1.5 to 1 based on recent estimated costs of work in Philadelphia, and 1.4 to 1 based on estimates made by B. J. Arnold, for the Cincinnati Rapid Transit scheme.

In other words, sub-surface roadways would cost so much that physical street widening would be much less expensive for Cincinnati with her present average building heights and street widths.

**Widening Roadways Into the Sidewalks**

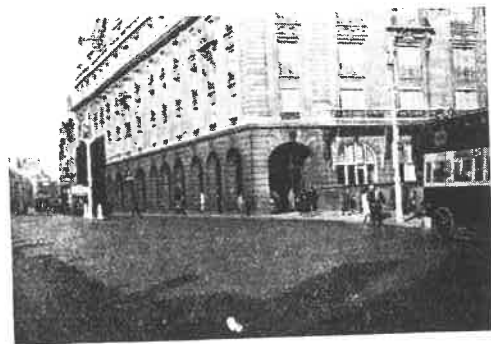
The next alternative to be considered is the widening of roadways at the expense of the sidewalks. Where the latter are not now and are not likely in the future to become congested with pedestrians, the sacrifice of a part of the sidewalk is highly advantageous.

Observations and tallies have been made to determine the present use of sidewalks in the congested area. It has been found that with the exception of a very limited number of points, and even at those for comparatively short periods only, the sidewalks are not overloaded at the present time. Obviously, the maximum pedestrian traffic, which the sidewalks will be called upon to accommodate, is directly dependent upon the height, area and use of buildings in the congested area.

Assuming 12 feet as the average width of sidewalks and the walking speed of pedestrians as 200 feet per minute, (2.3 miles per hour,) and, as has been found from studies here and elsewhere, six square feet per pedestrian as the necessary sidewalk space, the capacity of such a 12-foot sidewalk can be calculated at 400 persons per minute.

It is evident that the rate at which the tenants of office buildings flood the sidewalks during the rush hour, is a function of the capacity of elevators serving such buildings. Existing conditions in several of the recently built office buildings, corroborate the reasonableness of assuming three per cent of the total number of tenants as the customary capacity of elevators per minute. On this basis, 13,333 tenants within the tributary area of the 12 foot sidewalk would create saturated conditions; the gross floor area of buildings in such area, at the rate of 100 square feet per office worker, will have to amount to 1,333,300 square feet. The average block in the congested district is 460 feet, 90 per cent of which, i. e., 144,000 square feet can be taken as the building area of the same.

If we assume such routing of transit lines and such distribution of automobile parking facilities, that few persons will have to walk more than three blocks to reach them, the average building height limit, corresponding to saturated side-



SIDEWALK ARCADE ON  
PICADILLY, LONDON  
Roadway widened by pushing sidewalks  
back under building

walk conditions, is found to be 6.65 stories. In case the facilities mentioned above are so distributed as to increase the walking distance to four blocks, the corresponding building height would become 5.0 stories. The average building height in the downtown business district at present time does not exceed 3.8 stories. Thus, there can be nearly a 50 per cent increase in the average height and area of buildings without overcrowding 12-foot sidewalks. (The Zoning Ordinance permits a 400 per cent increase in average height and area.)

The cost of widening roadways at the expense of sidewalks is only a small fraction of that for setting back buildings, and thus the former is hereafter specified for most streets, rather than the latter. The work can often be done to excellent advantage at the time the street is repaved. Estimated on the basis of the published schedule of prices for Restoration of Pavements, dated May 1st, 1920, furnished by the City Engineer, and assuming a widening of three feet on each side of a street, the widening of a block 460 feet long would cost about \$4,000.00.

#### Arcades

Experience in Philadelphia with the construction of arcades shows them to be almost as costly as physical street widening. The land value is practically the same in either case. The construction cost, which can be saved, is largely that applying to the upper stories, which is it-

self partially offset by the cost of placing a proper ceiling over the sidewalk, and of supplying extra illumination, both in the arcade and in the first floor of stores. It is estimated that an arcade would cost at least \$350,000.00 per downtown block. Therefore an arcade in an average block must produce an additional speed of 4.35 miles per hour, which would rarely warrant the cost.

#### Overhead Sidewalks

Overhead sidewalks have been tried only for very short stretches, and then they are not used because of the necessity of climbing up to them. They darken the first floors of stores and prove troublesome to the fire department in case of fire. Supports have to be provided in the roadway area, which are comparable with the elevated columns on some New York City streets. Traffic tallies on the latter streets, show that the columns cause a great reduction in traffic flow. While overhead sidewalks do physically widen the roadway, they actually reduce the street usefulness and, at even a very small cost, would be inadvisable.

#### Sub-Surface Sidewalks

Sub-surface sidewalks present the same drawback to pedestrians who must climb to the surface again. Experience in New York City, with short stretches built adjacent to subway entrances, shows that they are so little used that show windows along them are practically valueless. Their cost would make them comparable with sub-surface roadways and with physical street widening.



PRAGUE, ARCADE SIDEWALKS  
In hot or rainy weather they are welcome



TYPICAL TWO CAR TRACK DOWNTOWN CINCINNATI STREET  
Stopping street car blocks traffic



SIMILAR DOWNTOWN STREET BUT WITH ONE CAR TRACK  
Two clear moving traffic lanes outside of car tracks

**Parking Regulation**

The elimination of the privilege of parking vehicles is effective and is coming into extensive use in many cities. The only objection to such regulation is from drivers who are forced to walk (and thus lose time,) and from store owners and tenants who claim they lose business thereby. Street congestion also causes loss to vehicle operators and to store tenants.

Observations made in January, 1924, upon the streets comprised within the district bounded by Broadway and Central Avenue and by Third Street and Ninth Street showed 2,388 vehicles as the maximum number of vehicles moving and parked between 1:30 and 2:30 P. M. The maximum number of parked vehicles within the shopping district—as shown in the preceding table—occurred at the same period and amounted to 721, at about 25 feet net frontage per vehicle. Were no parking of any length of time to be permitted within the shopping district bounded by Main Street, Third Street, Race Street and Sixth Street, and were all vehicle owners to park outside and close as possible to their destinations, the average walk to the vehicles would be only three blocks. The time lost by such a driver, assuming an average walking speed of three miles per hour, would be only 5.4 minutes. The number of vehicles which pass through the same streets during the daily periods of congestion is fully 10,000. Dividing the average 5.4 minutes for the 721 among the 10,000, shows that if they were to be saved only 11.7 seconds apiece, there would be a net community saving, since it is fair to assume that the time saving to a vehicle with its average 2 occupants, is at least worth twice as much as that of the driver's walking time. That the saving would be much greater than this is evident from the fact that an increase of only one mile per hour for the traveling public, over the average speed as observed in the shopping area, would mean a saving of about 20 seconds per vehicle.

The merchants on Fifth Avenue in New York, at first objected to all traffic regulation and believed that a crowded street condition was good for business. They have reached the conclusion, after careful comparison with the present regulated condition, that the latter is much better for their interest. An increase of street velocity from seven to eight miles per hour, would make it possible for 15 per cent more vehicles to pass any given point, and speaking generally, would reduce the difficulty of reaching

any given store by that same percentage. Assuming an average of 600 vehicles per traffic lane per hour, (which is an average for such conditions,) it is evident that 200 more vehicles could pass any given store, were the vehicle speed increased from seven to only 9.1 miles per hour. It would seem more than probable (and experience in New York has demonstrated the fact) that the loss of a certain number who could not park near a store, was more than compensated for by the 200 vehicles increase per hour. Furthermore, on a community basis, there is no actual loss of business, because what one merchant loses another gains, and any individual is apt to gain from others as much as he loses. There is simply a redistribution of custom.

**Control of Goods Delivery**

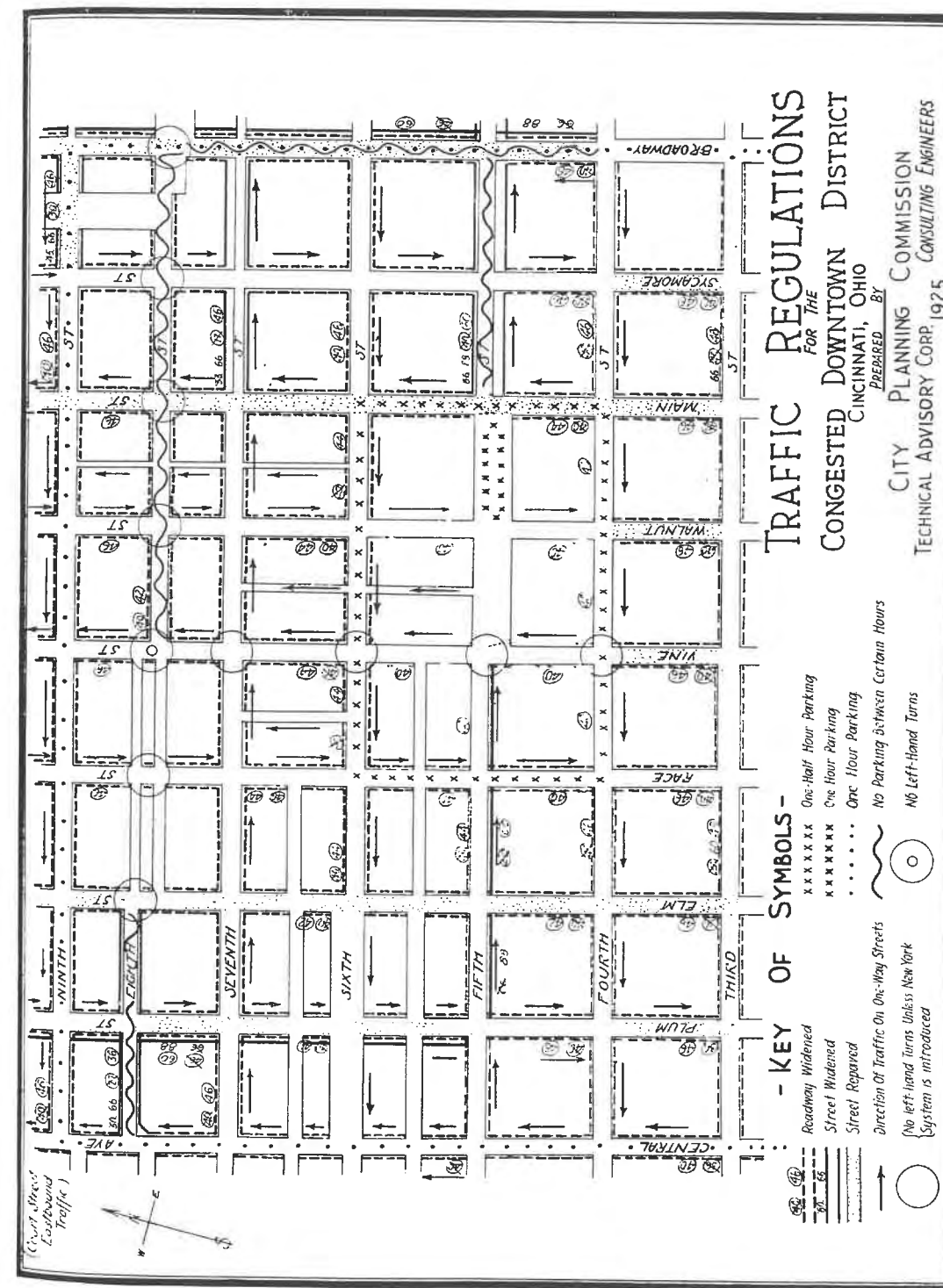
The prohibition of merchandise delivery during congested hours is very old. It was practised in Rome about the time of Christ. It simply requires a re-arrange of trucking hours, of routes and of store clerk working time. It is generally advantageous to truckmen and merchants through the reduction of the time involved in making a delivery.

**Segregation of Fast and Slow Vehicles**

Great improvement in traffic conditions is often obtainable through a separation of the heavy and the light, that is, the slow moving and the more rapid moving vehicles. Where both are permitted on a street, the slower vehicle sets the pace to the detriment of the others. While individual losses are very small, the aggregate during a day is large. A truck moving at five miles per hour and holding back ten automobiles, which otherwise would move at seven miles per hour, would cause an aggregate loss of approximately three minutes to the ten vehicles per block traversed, whereas the truck could go a block out of its way and back again at a loss to it of only two minutes. This is the primary reason for the creation of the parkway system.

**One-Way Streets**

The creation of one-way streets has been found to be a similar time-saver. In gen-



eral, the table shows much higher speeds on one-direction streets in the down-town district than on those on which two directions are permitted.

Careful study of diagrams of complete one-way street operation throughout a large district, shows that the average vehicle has to operate only 1.23 blocks further than is the case with two-direction streets. Observation of taxicab operation shows an average trip of about 1.5 miles. 1.23 blocks extra would be 0.11 miles, or an addition of only about 7 per cent. The table shows the average speed on one-way streets to be higher than on the others. To compensate for the extra distance, the increased speed would have to be only the same, 7 per cent. Assuming seven miles per hour as the present rate, the increase would have to be only to 7½ miles per hour. Thus the time saving is seen to more than compensate for the extra distance.

#### Left Hand Turns

The elimination of certain turns at intersections is a partial step toward one direction traffic and involves the same average extra distance if the eliminated turns are logically grouped. The same logic applies with reference to the extra distance and the time saving, as in the case with one-way streets. In Newark, N. J., it was found that the left-hand turns constituted one-tenth of the traffic, but created 40 per cent of the delay at the intersections.

#### Re-Routing of Street Cars and Buses

Re-routing of street cars and buses is similar in effect to the segregation of light and heavy vehicles. Obviously, also, where a street is made one direction, the street car and bus travel must also be made one direction. Otherwise, extra accidents are certain to occur.

#### Conclusions

These general principles have been noted in detail to show their application to Cincinnati's down-town conditions. Special studies have been made of each block, of its present and probable future traffic and of the best methods of improving and controlling it. The conclusions reached from such studies, based on the general principles given above, are contained in the following paragraphs, and other specific recommendations are indicated on the accompanying map.

All of the improvements indicated on the accompanying downtown traffic map and all on the downtown street car re-routing map should be carried out as fast as practicable.

#### One-Way Streets

At least within the area bounded by Third and Ninth Streets and Broadway and Central Avenue, the following streets should be made one direction:

1. Sycamore and Walnut and eventually Race and Plum, southbound.
2. Main and Broadway, and eventually Vine and Central Avenue, northbound.
3. Fourth, Sixth and Ninth, westbound.
4. Fifth and Seventh and eventually Court, eastbound.

This arrangement of one-way streets is merely an extension of that, so successfully in operation at the present time. In every case alternate streets are in the opposite direction. Eighth Street is retained temporarily at least as a two-way street because of its exceptional service to the Gilbert Avenue Viaduct. Vine Street can be retained as a two-way street for the present, at least, because it is the axis about which the rest of the street system revolves. Vine and Race Streets can remain two-way for the present; however, by 1930 Vine Street should be made north, and Race Street southbound. Elm Street and the streets to the west of it are kept as two-way streets because traffic is not heavy enough on them to demand one-way traffic regulation, at least for the present. By 1935 Plum Street should be made southbound and Central Avenue northbound.

#### Heavy Trucking

No heavy trucking or deliveries should be permitted during restricted hours on any of the streets named above as one-way streets, nor on Vine Street or Eighth Street.

Certainly during the busy hours trucking should be kept off of the busy downtown streets. Through trucking should be by-passed around the congested district, while trucking for local delivery should be concentrated at special hours in the early morning or late at night.

#### Parking Regulations

In addition to the regulations shown on the Downtown Traffic Map, which gives the specific recommendations, the following supplements should be put into effect downtown in the near future.

1. No parking in the area bounded by Broadway, Second, Central and Ninth, inclusive, between 6 A. M. and 8:30 A. M.
2. No parking or stopping of any sort except momentary, on the south side of Fifth Street from Main Street to Broadway and on the east side of Broadway from Fourth Street to Eighth Street between 4:30 and 6:30 P. M. The same in the opposite direction between 8:00 and 9:30 A. M. The same on the heavier traffic side of Eighth Street between 8:00 A. M. and 6:30 P. M. from Vine Street to Broadway.
3. No parking within 30 feet of any corner (same to be indicated by small sign post or white lines during educational period).
4. No parking within 20 feet of the rear of any street car multiple station loading point, except for local delivery.

5. One-half hour parking within the area bounded by the following streets, inclusive: Sixth Street, Main Street, Fourth Street and Race Street, and by 1930 at latest all parking and all except momentary stopping must be prohibited within this area.

6. One hour parking on Government Square, at least for the present.

7. One hour parking from 8:30 A. M. to 6:30 P. M. inside the area bounded by the following streets, inclusive: Central Avenue, Ninth Street, Broadway and Second Street, except for the several blocks on Main, Walnut, Vine, Race, and Fourth, Fifth and Sixth Streets, which are above limited to one-half hour parking.

8. Eventually no parking on left-hand side of any one-way street.

Obviously no parking is allowed in the shopping area before 8:30 o'clock in the morning, so as to force those who come down to their stores or offices in their own automobiles to park their cars outside of the shopping area, and to allow trucks to load and unload.

No parking is allowed along Eighth Street, from Vine Street east on one side, at any time, or on Fifth Street or Broadway during the rush hours approaching the Gilbert Avenue Viaduct, so that there may be free access throughout the full roadway width to or from the Viaduct.



FRONT, SECOND AND THIRD STREETS TRUCKING CONGESTION  
Tail loading often leaves only one clear traffic lane

Parking and probably stopping will have to be prohibited eventually on the left-hand side of many one-way streets, so as to leave a minimum of three moving lanes of vehicles on each of those streets. If the roadway is then widened to 44 feet, or, better, to 46 feet, it will be possible to park on both sides of the street and still retain three moving lanes at least for some years to come.

Parking is prohibited within 30 feet of a corner and 20 feet of the rear of any general street car loading station, so as to allow ample space to turn the corners and to swerve around the loading station. Where there are two trolley tracks and a 40-foot roadway the curb should be set back three feet behind and for 20 feet on either side of the loading island, to allow vehicles to move between it and the curb.

Parking is limited to one-half hour in the central shopping district bounded by Race, Sixth, Main and Fourth Streets, so as to allow as many people as possible to approach the stores, offices and hotels in automobiles. However, as sidewalk congestion prevents roadway widening on Fourth, Fifth, Race, Vine and Walnut Streets within this area, within two or three years, and by 1930 at latest, not only all parking, but even all stopping except the minimum necessary for dropping or taking on passengers should be prohibited.

The parking time limit is increased to one hour on Government Square, on account of the extra space there available.

Parking is limited to one hour within the area bounded by Broadway, Second Street, Central Avenue and Ninth Street, so as to prevent car owners from usurping any of this congested space for all-day or even half-day parking.

#### Safety Zones

Safety zones should be established when a single track exists in the center of a roadway and on double-track streets.

Where one car track lies in the center of the street a safety zone for trolley car loading and unloading should be provided at least five feet wide beyond the 10-foot trolley lane; that is to say, 7½ feet wide outside of the outside rail. When the streets are repaved and the roadway

widened, the single car track should be moved so that the outside rail will be at least 11 feet and preferably 11½ feet from the right-hand curb. In this case no safety zone is needed, because the automobile parking lane between the street car lane and the curb serves as a loading station for the trolley car, especially as parking would be prohibited within 20 feet of the loading station.

#### Traffic Regulations

The officer's station should be in the center of the street. Portable traffic posts should be used, equipped with lights at sufficient height to be seen at least one block away.

Key points should control traffic. As an example, Eighth Street should be controlled by the Sycamore Street intersection, all other officers along Eighth Street synchronizing.

Do not prohibit turns at the intersection of two one-way streets.

The New York system for left-hand turns should be used, vehicles desiring to take left-hand turns pulling up in the center of two-way streets and the nearer side of one-way streets and proceeding with the change of traffic movement. Even this system can not be used at the corner of Vine Street and Eighth Street.

Left-hand turns, except by the New York system, should be prohibited at the following corners:

Eighth Street and Broadway	} Until Vine Street is one way
Eighth Street and Sycamore Street	
Eighth Street and Main Street	
Eighth Street and Walnut Street	
Eighth Street and Race Street	
Eighth Street and Elm Street	
Seventh Street and Vine Street	
Sixth Street and Vine Street	
Fifth Street and Vine Street	} one way
Fourth Street and Vine Street	

All illegal signs, "No Parking," etc., should be removed.

No bus should load or unload except at the curb. Bus safety zones should be established two or three blocks apart, preferably in the center of the block, and not at or near trolley stops.

Slow-moving vehicles should keep to the right.

of controlling left-hand turns is at the junction of two important two-way streets; that is, at the corner of Vine Street and Eighth Street.

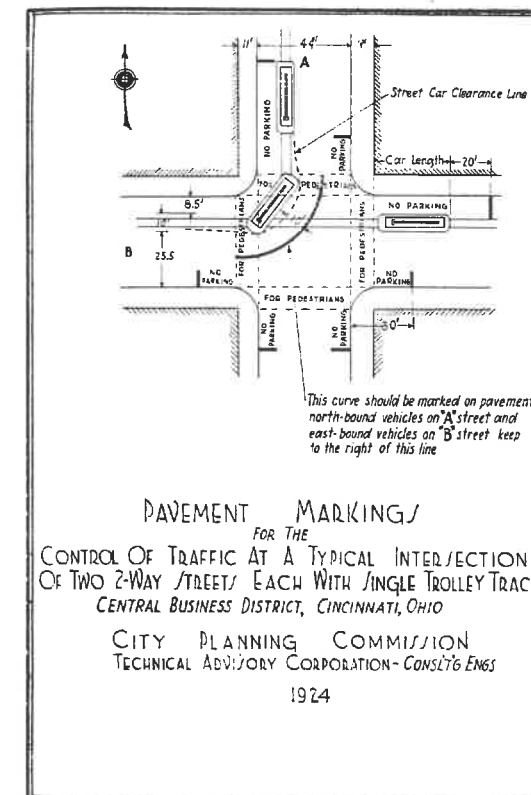
#### Pedestrian Traffic

All sidewalk encroachments should be removed, including poles of street railways, in the congested pedestrian district. The rule that pedestrians must not cross streets indiscriminately should be enforced. Bands for passage at street intersections should be set aside for pedestrians crossing the streets, marked with white lines within which vehicles should not stop. Crossing points for pedestrians, when provided near the center of blocks, should be free of parking for a width of at least 15 feet and so marked.

#### Street Car Re-Routing

The complete scheme of re-routing street cars in the downtown congested section is described in Chapter VI. on "Transit." In general all two-way street car lines are changed to one-way lines to conform with the traffic regulations for one-way streets, as indicated on the accompanying Traffic Regulation Map. The principal street car loading points are to be removed from the most congested streets. Almost all left-hand turns are avoided. In general, the re-routing arrangement will be more convenient to the great majority of trolley users. It will decrease the effect of the street cars on general traffic congestion in the downtown district and will not impose any material burden on the street car company.

Obviously the street railway company and the city should co-operate in carrying out the comprehensive plan for the relief of congestion in the downtown area. All track relocations and street resurfacing or roadway widening should be done simultaneously. The street railway company might work out a program for minimizing the inconvenience to the public during the necessarily extended transition period while the new street car routing is being gradually carried out.



To permit vehicles to turn freely

At intersections where a narrow roadway cross-section has a single car track placed off center, and where the car tracks turn to the right, vehicles using the other half of the roadway should follow a course parallel to the curve described by the overhanging rear of the street car at such turns. This curve should be marked on the pavement. (See accompanying diagram.)

Left-hand turns should be prohibited except by the New York method along Eighth Street and Vine Street, because these are the only points in the congested district where one-way traffic intersects two-way traffic. Obviously, left-hand turns do no harm where two one-way traffic streets intersect, especially when the left turning vehicle follows the left curb.

The only place where it is impracticable to use even the New York method

The city's street improvement program could well be brought into harmony with the street railway company's, as vehicular traffic is more flexible than trolley traffic.

The street railway company's assistance is needed in the educational campaign for reasonable traffic regulation throughout the downtown district as a means of relieving congestion.

An advertising campaign should be conducted to establish better understanding between the public and the street railways. There could well be an extended use of such notices and slogans as are employed so effectively in various other cities. These include such as "Step lively," "Reach your home early," "Move forward, please," etc., etc.

#### Permanent Street Improvements

There is need of actual physical widening of the street between building lines on only seven block frontages. The following blocks should be widened:

1. Ninth Street should be widened from Broadway to Sycamore Street from 45 feet to 66 feet on repaving and by 1930 at latest.
2. Seventh Street should be widened from Broadway to Main Street from 33 feet to 66 feet by 1940, or by 1950 at latest.
3. Eighth Street should be widened from Elm Street to Central Avenue from 50 feet to 66 feet by 1950.
4. Fifth Street should be widened from Broadway to Main Street from 66 feet to 88 feet, or if possible to 100 feet, as soon as the city's finances will permit, without jeopardizing any other urgent improvements.

The need of eventually widening each of these blocks is obvious. It is bound to become worse as time goes on. The block



KINGSWAY, LONDON, NEW MAIN ARTERY  
Widening entirely paid for by "excess condemnation"

on Ninth Street should be widened very soon, as it is a logical approach to the Gilbert Avenue Viaduct, and it is also needed as a part of the street car re-routing plan. The Seventh Street block should be widened, but can wait for fifteen or twenty years. The two blocks of Eighth Street from Elm Street to Central Avenue need not be widened for twenty-five years, but it would be desirable to impose a building line on the south side by 1935 to control any new construction there which might jeopardize the eventual widening. In any case, Eighth Street roadway should be widened to 36 feet by 1930 at latest and all parking and stopping should be prohibited immediately on the left side.

#### Roadway Widening and Repaving

From a traffic standpoint, there is only a limited number of roadways in the downtown district that need repaving during the next five years. The roadways which should be repaved before 1930 are the following:

1. Broadway from Fourth Street north.
2. Main Street from Third Street north.
3. Walnut Street from Third Street to Fourth Street.
4. Vine Street from Third Street to Fourth Street.
5. Fifth Street from Vine Street to Central Avenue.

It is evident to anyone who is familiar with the life of pavements that most of the rest of the streets in the congested area will have to be repaved within ten or fifteen years.



FIFTH STREET, EAST OF GOVERNMENT SQUARE

25 foot widening on south side now authorized to Broadway, trolley pole on south line of street



BANK STREET, NORFOLK, VA.  
Street recently widened twenty feet on the right side, by property owners agreeing to give land, provided the city would pay the cost of setting back the facades.

At such time as they are repaved, the widening of the roadway could well be undertaken. Most of the roadways in the 48 squares, now 40 feet wide, could be widened on repaving to 42 feet if retained as two-way streets, to allow more ample clearance and therefore greater speed on all four traffic lane streets, except Third Street. The pedestrian traffic on Fourth and Fifth Streets between Main and Race Streets and on Race, Vine and Walnut Streets between Fourth and Sixth Streets is so large in proportion to the vehicular traffic that it would not be wise to decrease the width of the sidewalks, even by one foot. Elsewhere traffic observations show that a reduction of the present width from 13 to 11 feet and often to 10 feet would probably not inconvenience even future pedestrian traffic.

The exact width to which each roadway should be widened is indicated on the accompanying Traffic Regulations Map of the downtown district.

All of the roadways in the north and south blocks between Third Street and Fourth Street should be given a 46-foot roadway on repaving. This will give 10-foot sidewalks, which are plenty wide enough for all pedestrian use south of Fourth Street and at the same time will make it possible to park cars perpendicularly to one curb and parallel to the other, thereby increasing the available parking space by at least 50 per cent.

When Plum Street and Central Avenue are ready for repaving, the roadways should be widened to 46 and 40 feet, respectively, and traffic made northbound on Central Avenue and southbound on Plum Street. This will make it possible to handle three moving traffic lanes on Plum Street and two on Central Avenue, and will take care of the rapidly increasing traffic to the north and west and to a possible Union Station. Reducing the sidewalks to 10 feet will not inconvenience pedestrian traffic on these streets.

Observation in various cities shows that it is difficult to persuade or train auto drivers to form any more than two traffic lanes side by side in the same direction. Thus it is probable that the third moving traffic lane provided by the 46 or 44 foot roadway, would serve primarily to allow certain vehicles to pass ahead of those normally in the two moving traffic lanes. Even that would be difficult, because the two moving lanes would tend to spread over the full 30 feet of clear roadway. Therefore, the added value of a 46 or 44 foot roadway as compared with a 40-foot roadway, implies patient education of the drivers to keep to their lanes. It is recommended as a stop-gap in order to postpone for several decades the time when traffic to the north, east and west will necessitate the widening of Broadway and Plum Streets to 88 or even 100 feet. The franker solution, and one which would probably prove more eco-



MAIN STREET AND HARRISON STREET  
EAST ORANGE, N. J.

The corner was recently cut off, as shown, to provide direct circulation across Main Street, and most of the cost was assessed locally.

nomical in the long run would be to widen Plum Street and Broadway in the near future to a full width of 88 feet with a 60-foot roadway.

On repaving and on trolley re-routing the roadways on Broadway and Sycamore Street should be widened from 40 feet to 46 feet, and Sycamore Street kept for southbound traffic and Broadway limited to northbound traffic. This will increase the carrying capacity of these streets by at least 25 per cent, and will considerably facilitate access to the Gilbert Avenue Viaduct and to the eventually widened Reading Road. There is not likely to be any pedestrian traffic demand which will make 10-foot sidewalks impracticable.

The same reasoning that applies to the widening of Sycamore Street and Broadway applies also to Plum Street and Central Avenue and the widening of Ninth Street to 46 feet. It would undoubtedly be more satisfactory in the long run to definitely widen Broadway to 88 feet with a 60-foot roadway some time in the near future.

On repaving, Ninth Street should have its roadway widened from 40 feet to 46 feet and the traffic continued in a westerly direction, with the understanding that Court Street will be made an eastbound street. This increase in the carrying capacity of Ninth Street would somewhat relieve the congestion on Eighth Street. The sidewalk width of 10 feet will be ample on Ninth Street.

#### Cross Sections of Downtown Streets

Whenever any downtown street is repaved, and in any case within 15 years, each downtown street should be laid out according to the appropriate cross section on the accompanying diagram of typical street cross sections for the downtown district. In principle, these cross sections for the downtown district are similar to those recommended in Chapter IV "Thoroughfares" for streets in general. The principal differences are where the sidewalks have been reduced from 13 to 12 feet (this being done merely to speed up traffic). Where the sidewalks are reduced to 10 or 11 feet, the roadway is increased to 46 or 44 feet. The roadways except on Third Street are changed from four traffic

lanes to five traffic lanes, and the streets must become one-way streets and the street car tracks should be moved from the center of the roadway to nearer the curb so as to allow for only a lane of parked vehicles between the street car lane and the curb. The primary reason for doing this, especially where a street car takes a right hand turn, is to avoid forcing vehicles to cross the street car tracks at the turning. In a few cases where a street car makes a left hand turn, the tracks are kept in the center of the roadway.

#### Curbs at Street Intersections

The radius of the curb at a street corner should be no greater than the average width of the two intersecting sidewalks, and in few cases should be increased to more than 20 feet. At the National Conference on Street and Highway Safety, it was unanimously agreed that the radii of curbs at corners should be at least 15 feet, but rarely over 20 feet. Fifteen feet was felt to be a good average.

#### Relation to Parkways and Fountain Square

There are no parkways in the congested business district, the nearest one being Central Parkway to the north. Two blocks of Eighth Street and Fountain Square are now parkways, in fact. Unquestionably they should be preserved as such and everything possible done to enhance their attractiveness. They are discussed more in detail in Chapter XIII "Street Structures and Appearance."

#### Taxicabs

As the downtown roadways are changed from four to five traffic lanes and the street car tracks moved out of the center lane, taxicab stands should be installed temporarily with markers, in the centers of the least used roadways. This will be a great convenience to the public until such time as the congestion in the streets requires some other solution of the problem. At the same time, keeping the taxicabs in stands instead of cruising in the busy streets, considerably reduces the congestion on these streets. It is unanimously felt by the National Conference on Street and Highway Safety, that cru-

ing cabs should be eliminated and stands provided for them wherever possible. Eventually these stands may have to be removed from the center of the street to the curb, where standing cabs would least inconvenience abutting property owners.

#### Relation To Architectural Studies

In the studies which have been made for a civic center and other public building groups in the downtown district, it is felt that the attractiveness of the downtown district could be greatly enhanced if there were to be a ring of broad boulevards surrounding the central business district. To this end, it is desirable that Fifth Street be widened, not only to the east, but also to the west, as far as Plum Street, and that Plum Street be widened to 88 feet or more up to Central Parkway, and Broadway be correspondingly widened from Fourth Street to the Parkway. This should be considered within 25 years and building lines imposed. This widening is from a traffic standpoint, highly de-

sirable, and if carried out, it would materially help traffic circulation and would unquestionably bring an openness into the congested district that should materially affect the business character of the downtown district. It is conceivable that it would be well worth while for the downtown property owners and merchants to assume the cost of this boulevard ring among themselves, apportioning the cost over the district in proportion to the distance of each property from the actual improvement, with the expectation that it would prove a good business investment.

#### In General

It is confidently believed that the above conclusions with regard to the relief of congestion in the downtown business district will adequately solve existing difficulties and those which are likely to arise for several decades to come, and that no further physical improvements will be needed other than those proposed on the Traffic Regulation Map.



FIFTH STREET EAST  
Aeroplane view of Fifth Street widening



## CHAPTER VI

### Transit

#### Street Railroads and Auto Buses

The agreement between the City Planning Commission and the Technical Advisory Corporation provides in the Second Section that the City Plan is to:

"... include the location and the general scheme of development of"

"(e) Street railroads, including their routes, terminals and connections. This shall include traffic lines in the whole metropolitan district of Cincinnati on the Ohio side."

"(f) Auto buses and trackless trolley lines, including routes, terminals, storage facilities and connections. This shall include trunk lines in the metropolitan district of Cincinnati on the Ohio side."

#### The Problem

Today the street railroad and the auto bus problem must be considered together, because they serve the same general purpose. They either compete with one another or they supplement one another. It has been recognized that the rapidly growing competition between street railroads and auto buses was wasteful to all concerned, and there has been of late a marked attempt all over the country to avoid duplication of service and to develop plans of co-operation or common ownership, whereby the street railroads and the auto buses would supplement each other as part of one unified system. In at least 200 cities street railways are now operating bus lines.

It is generally felt by traction experts that a trolley or bus line should be near enough to the people whom it serves, so that no one will be required to walk more than a quarter of a mile, or at the outside half a mile, to reach the trolley or bus. This means that at best each route will serve effectively a strip not over a mile wide. When such mile wide strips have

been laid down, centering along each trolley and bus line, all territory lying outside of these strips can be assumed to be inadequately served.

Each of these outlying unserved territories presents its own problem for solution. In each case the question is:

1. Should this outside territory be served by an extension, or possibly by a relocation of one of the existing trolley lines?
2. Should it be served by a bus line running to the center of the city?
3. Should it be served by a bus line which acts as a feeder to a near-by existing trolley or rapid transit line?
4. Can it be served by commuting service on an existing steam railroad, or possibly by boats along the Ohio?

#### Maximum Daily Traction Travel

Trolley travel (total) for December 1st, 1920, (data from Traction Co.)

5-6 (A. M.)	13,000
6-7	29,000
7-8	52,000**
8-9	34,000
9-10	15,000
10-11	13,000
11-12	13,000
12-1	15,000
1-2	20,000
2-3	20,000
3-4	23,000
4-5	25,000
5-6	68,000!!
6-7	29,000
7-8	19,000
8-9	12,000
9-10	10,000
10-11	12,000
11-12	8,000
12-5 (Owl)	3,000
	Total. 433,000

\*\*Approximately 39,000 or 75 per cent of these may be considered as incoming.

!!Approximately 57,800, or 85 per cent of these may be considered as outgoing.

#### Passengers Leaving Dixie Terminal for Kentucky (via Covington or Newport bridges)

Total for year, December 1, 1921 to December 1, 1922

Covington, ... 7,084,857 (from Cincinnati only)

Newport ... 4,698,465 (from Cincinnati only)

Evening traffic, Thursday, February 16, 1922

Covington 4-5 2,604

5-6 5,394

Newport 4-5 2,083

5-6 3,548

Maximum hour (from Dixie to Covington and Newport), 8,942.

#### Steam Railroads

To determine first the part which the steam railroads play in the local transportation, a special count of commuters was made in the summer of 1921. At that time it was found that including all of the railroads coming into Cincinnati from the Kentucky side as well as the Ohio side, there was a total of only 3,167 commuters per day. In proportion to the total population of the whole Cincinnati metropolitan district, this number of commuters by the steam railroads is so small as to be negligible, and therefore, the steam railroads can be readily left out of account, except for considering their possible competition with the interurban trolley or bus lines.

#### River Transportation

There are no commuters and virtually no local transportation of passengers on the Ohio River, except to Coney Island. Therefore, local transportation by water can also be left out of the account except to the latter resort.

#### Trolley Service

This reduces the local public carriers to the trolley lines and the bus lines.

It is generally agreed by traction specialists that unless there is enough available clientele along a route to warrant an average of a 10 or at most, of a 12 minute headway, auto buses are more economical than street cars, (operating and overhead expenses both included.)

In view of the present cost of construction, maintenance and operation of street car lines, good practice indicates that unless there is an average contributory population along a street car route of 1,500, or at a minimum 1,250 people per

square mile, a 12-minute headway is not warranted, and bus service pays better than trolley service, where both services charge the same fare.

In Cincinnati it might appear at first thought that the unusual fact that at rush hours the trolleys and buses are almost equally full, both inbound and outbound, would tend to reduce this factor of 1,250 people per square mile. However, the rapidly decreasing downtown population is making this factor less important each year. At best it serves only to permit a small decrease in frequency of service or a small decrease in operating cost, both of which have already been discounted.

The use of one man instead of two-man cars might be thought to extend the range of the trolley, but in practice, the saving in labor is so small in proportion to the total cost of plant and operation, that at best it would serve only to lower the above 12-minute headway to 11½ or at most 10 minutes.

#### Trolley Bus

There is a possible intermediate service between the street car service and that of the bus. It is what is popularly known as the trolley-bus or the trackless trolley. This type of service was tried experimentally during 1922, 1923 and 1924 in Staten Island, New York and Norfolk, Virginia, as well as in several other cities, but with indifferent success. This lack of success has been due largely to the fact that the auto service is much more quickly and cheaply installed, and still more to the fact that the auto bus has been greatly improved in construction and economy of operation during the last year or two.

On the other hand, in one of these cities, the traction company, on popular demand, has agreed to install trolley buses in now unserved territory where there are at least 600 people per square mile (which corresponds to a 27 to 30-minute schedule), provided such service be subject solely to the State Utilities Commission and be required to pay no more for paving than do the auto buses. The city government refused, however. In the light of these experiences, we be-

lieve that today we are justified in assuming that where it is not economical or practicable to extend the trolley service, the only other service that should be considered is the auto bus, at least until such time as the trolley-bus has demonstrated its efficiency.

#### Rapid Transit

The rapid transit service although intimately related to the trolley and bus service is being considered in a separate following chapter, where its effect on the local transit situation is developed in detail. As a matter of fact, however, there is no part of the city within a quarter or half mile of the proposed rapid transit route which is not within a corresponding distance of one of the existing street car or bus lines, except for a few hundred acres now undeveloped between Bond Hill and Ivorydale, about fifty acres now undeveloped between Bond Hill and Norwood and about fifty to a hundred acres now undeveloped between Oakley and Norwood Heights. Therefore, the rapid transit system actually reaches almost no territory that is not already reached by street cars or buses.

#### Trolley Route Improvements

A map has been prepared showing half-mile and mile strips centering on each trolley and bus line now existing within Cincinnati and for several miles outside, and another map was prepared showing corresponding strips along all interurban and bus lines and around each railroad commuting station throughout all of Hamilton County.

On the assumption that it requires a population of at least 1,250 people per square mile to make a trolley service pay, a comparison of these half-mile and mile service strips along the existing trolley lines with the 1920 population spot map, shows almost at a glance, that there are virtually no areas now existing within Cincinnati and even within the county, that would warrant immediate extension of any existing trolley line.

On the other hand, a comparison of the 1970 population spot map with the existing trolley service strips, indicates various new territories now unserved by trol-

ley or bus or served by bus only, which it would probably be profitable to serve with extensions of the existing trolley lines or to re-route them, at a date to be calculated, but at any rate within the next fifty years.

Trolley lines should be extended or re-routed as a part of the City Plan as indicated on the accompanying Trolley and Bus Map.

1. The Warsaw Avenue Line should be extended by 1930 over Bridgetown Pike and Glenmore Avenue to Cheviot, connecting with the existing trolley line on Montana Avenue.

The area between Price Hill, Westwood and Cheviot is bound to have a considerable development in the future. The population is already over 1,000 people per square mile. There is probably no area within equal distance of the center of the city now unserved by transit, that has as good a chance of growth as this area, therefore, it can be safely assumed that eventually a trolley line will pay through this region. This line will also help Cheviot and Westwood, in that it will give them another means of traveling to and from the center of the city.

2. The College Hill Line should be relocated by 1930 from Spring Grove Avenue, over the Hopple Street Viaduct and thence along Beekman Street, Runnymede and Chase Avenues, to connect with the existing route again on Hamilton Avenue. However, whenever Virginia Avenue is extended to Hamilton Avenue, as proposed on the Thoroughfare Map, the trolley line should be re-routed over Virginia Avenue to Hamilton Avenue instead of along Chase Avenue.

Beekman Street and the Runnymede Avenue area on the west side of Mill Creek, are now relatively inaccessible, and yet there is no good reason why this area on the west side of the valley should not have just as good a development as the east side, once access to it is provided. The population is over 1,000 per square mile. Therefore, it is most important that the street car lines now running on Colerain Avenue

THE CITY PLAN

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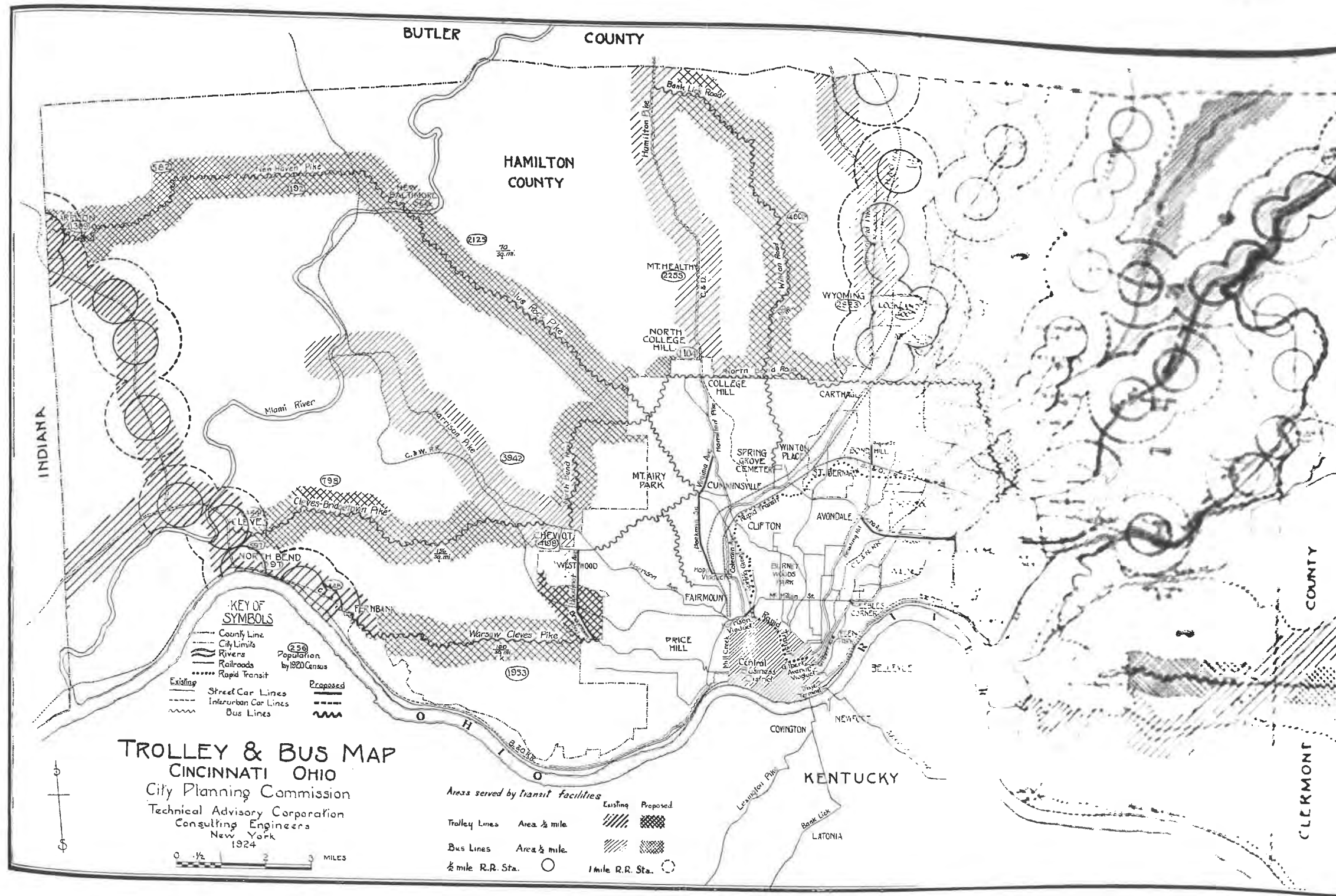
Beekman Street and the Runnymede Avenue area on the west side of Mill Creek, are now relatively inaccessible, and yet there is no good reason why this area on the west side of the valley should not have just as good a development as the east side, once access to it is provided. The population is over 1,000 per square mile. Therefore, it is most important that the street car lines now running on Colerain Avenue

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should be transferred to Beekman Street and Runnymede Avenue. One of these two lines terminates in Cumminsville and the other at College Hill. In either case, going up the west side of the valley only makes the trip a trifle longer and if a person is in a hurry, there is always the possibility of going to Cumminsville directly by the subway instead of continuing on the trolley car down Beekman Street. As soon as Virginia Avenue is extended to Hamilton Avenue, the total distance from College Hill to the city will be hardly any longer by Beekman Street than it is now by Colerain Avenue.

Attention should also be called to the fact made evident by reference to the flood maps, that the route via the Viaduct and Beekman Street is the only one which is above high water at all times.

**3. The Sixth Street Line should also be relocated by 1930 over Hopple Street Viaduct, Beekman Avenue and Runnymede to Cumminsville, replacing the present Colerain Avenue Line from Hopple Street Viaduct north.** In order to accommodate the business along Colerain Avenue, between Spring Grove and Virginia Avenues, a shuttle service could be instituted, or the present Sixth Street cars might be turned east on Colerain at Runnymede and operate through Colerain to a terminus near Spring Grove Avenue.

**4. Whenever the Hopple Street Viaduct, Beekman Street and Runnymede Line is in operation, the Colerain Avenue Line from Hopple Street Viaduct to Cumminsville should be abandoned, releasing Colerain Avenue for trucking. This should be undertaken as soon as the Rapid Transit Line is in operation.**

When the subway is in operation there will be no need for trolley lines paralleling it on Colerain Avenue as well as on Spring Grove. As Spring Grove Avenue is wider, it is better to leave the trolley line on it and abandon that on Colerain Avenue. This

abandonment will greatly relieve the trucking situation and the traffic conditions up Mill Creek Valley.

**5. The Bond Hill Line, which now stops at the B. & O. tracks, should be extended north over Paddock Road to Regent Avenue in Bond Hill as soon as the railroad grade separation is finished. It ought to be extended immediately.**

There can be no question in any one's mind that the Bond Hill trolley line should be extended at least to the center of Bond Hill as soon as the grade separation over the B. & O. tracks is completed.

Until such time as tracks need to be laid in Paddock Road, buses could doubtless be operated to advantage. This might continue to be the case for a long time to come. Many passengers would doubtless transfer to the Rapid Transit line, as soon as it is in operation. If a large majority of the passengers do so, it might be found wise to operate a shuttle service from Bond Hill for them and turn the Reading Road cars easterly at Dana Avenue as an alternative to the suggestion hereafter made for the Winton Place cars (see 8 below).

**6. Mariemont should be reached by 1935 at latest; either by an extension of city service over the Cincinnati, Milford and Blanchester Line or by an extension of the present Madisonville Line over Plainville Pike, or both.** This trolley extension to Mariemont is sure to be warranted by the growth of this new territory within the next ten years. Until then a temporary bus line feeder to the trolleys in Madisonville will be sufficient.

**7. The Crosstown Line should be extended west of Clifton Avenue, down the new McMillan Street extension and across the viaduct proposed on the Thoroughfare Map from the foot of the trolley inclined railway just above McMicken Avenue, over to Harrison Avenue at the eastern entrance of the present Harrison Avenue Viaduct, thence across the present Harri-**

son Avenue Viaduct and southwardly over State Avenue. This line is needed now. It should be extended as soon as the viaduct is built.

Whenever the proposed viaduct from the McMillan Street extension to the Harrison Avenue Viaduct is carried out, the Crosstown Line should be extended over it and so on out to connect with the existing Harrison Avenue Line on the west, and on down State Avenue. The sooner this improvement is carried out the better.

8. The Bond Hill Line might be extended from Reading Road over Dana Avenue, the proposed Wasson Road extension, thence along Edwards Road, Erie Avenue, Ault Park Road and Ault Park Road extended to Wooster Pike and possibly to Mariemont, thus creating an outer cross-town trolley line. Some such cross-town connection should be created by 1940. Meanwhile this route should be served by a bus line.

It is now impossible to go cross town by trolley in Cincinnati, except for the short cross-town line on McMillan Street. The more the city grows and the more it spreads out, the more necessary it is to have means of crossing directly from one outlying part of the city to another.

9. The Madisonville Line should be re-routed over Delta Avenue to Eastern Avenue. This should be done by 1930.

In order to relieve the trolley traffic situation at Peebles Corner, it would be most helpful to re-route the Madisonville Line over Eastern Avenue to Delta Avenue, and so out Erie Avenue to Madisonville. This implies no new trackage. It should not take any longer time to go from Madisonville to the center of Cincinnati by the new route than it does by the existing one. This could be done to good advantage now. It should certainly be done by 1930.

#### Bus Lines

In April, 1924, when a special study was made of the bus line situation in

Cincinnati, it was found that there were 23 distinct bus lines in operation, carrying a total of a little over 10,000 people per day. The service and equipment varied from one bus a day to one bus every 15 minutes and the seating capacity from nine seats to thirty, with an average of about twenty seats per bus. The tendency, however, in Cincinnati, as all over the country, is to use larger and better buses.

The greatest asset of the motor bus is its mobility.

The following are among the principal reasons why the motor bus is popular with the people it serves in every city where capably managed systems are operated.

1. Faster movement is possible through congested traffic, not subject to delays by others breaking down or getting in their path.
2. Express service may be run without affecting normal operation.
3. Individual breakdowns have no general effect on balance of service.
4. "Switchbacks" may be effected at any point to meet temporary and unusual requirements of traffic.
5. Diversion may be made from regular routes in case of fire, accidents, etc.
6. Special service may be inaugurated over entirely new routes to hospitals, picnics, camp meetings and the like on a moment's notice.

7. Less boarding and alighting accidents, since buses may be stopped adjacent to the sidewalk.

8. Each unit being self-contained, service less liable to interruption.

9. Quieter operation.

Single deck trolley cars, as compared with single deck buses, can provide about twice as much mass transportation per vehicle and per unit of street space. Where the problem is solely one of modernizing the rolling stock of a street railway or of operating buses, the cost per vehicle is less for a modern street car than for a bus of equal carrying capacity.

Operating costs per vehicle mile are less for street railroads than for buses after a certain traffic density is reached.

At present almost all of the bus lines run into the center of the city and, therefore, act as competitors for the trolley lines. It is a recognized fact that buses, which are growing heavier each year, have a harmful effect on street pavements. Therefore, it has come to be conceded generally over the country that bus lines should contribute their share to the cost of paving and paving upkeep along the routes which they traverse. If this were done consistently, the bus lines would probably find it less profitable to run into the center of the city and would tend more and more to confine their service to those parts of the city not already served by the trolley lines. In other words, they would logically follow the arteries, thoroughfares and traffic ways serving new districts where there are no trolley lines. It is felt quite generally today, that the most effective use of the auto bus is as an extension, supplement or feeder to the existing, well-developed trolley line.

A study of the facts in many other cities, as well as Cincinnati, shows that a bus system is not likely to pay unless there are at least 250 people per square mile in the territory within a half mile on either side of the bus route.

#### Bus Route Improvements

With this standard in mind, the accompanying map, showing mile-wide strips, served by the existing bus and trolley lines was compared with the population spot maps for 1920 and 1970, and the conclusions which follow with regard to new or extended bus lines and the date at which they should be put in operation, is based on this detailed study.

Bus lines should be extended or new bus lines installed as a part of the City Plan, as indicated on the accompanying Trolley and Bus Map.

The Oakley-Carthage Bus Line should be started within the next few years, from

the end of the Oakley trolley line at Madison Avenue and Marburg Avenue, over Marburg Avenue, Ridge Avenue, Pleasant Ridge, Country Club or Galloway Roads and over the extension of the latter as indicated on the Thoroughfare Map, to Carthage Pike. This line will open up a new and rapidly developing territory now unserved by any transportation, lying between Madisonville and Pleasant Ridge, and between Pleasant Ridge and Carthage. There are already over 250 people per square mile along this route and the number is rapidly increasing. The need of this line should stimulate the improvement of the poorer pavements along this route.

The Carthage-Mt. Airy Line should be established by 1950, starting from the end of the Oakley-Carthage Line at the corner of Carthage Pike and Galloway Road, extending and continuing over North Bend Road to College Hill and thence along the North Bend Road to Colerain Avenue, where it would connect with the proposed Westwood-Mt. Airy Bus Line. It will probably be at least 25 years before there will be 250 per square mile within this territory, which is half inside and half outside of the city limits. It is the most logical way of opening up a large territory, which must eventually come into the market, and also serve as a necessary connecting link in the third outlying crosstown line of communication. With these connections to Westwood on one side and to Oakley on the other, it would also form a connecting link of an interesting sightseeing trip.

The North Fairmount-Mt. Airy Westwood Line should be established immediately from North Fairmount, along Baltimore Avenue to Mt. Airy and back along Montana Avenue to Westwood, and the pavement improved. Along Baltimore Avenue there are at present 425 people per square mile and along Montana Avenue, 180 people to the square mile. This is enough to warrant an hourly service along this line. In any case, it would serve to open up the nearest large territory to the center of the city, as yet unserved by transit. This line could con-

nect with other bus lines now existing and could also serve as a feeder to the trolley lines.

A Westwood-Mt. Airy-Cumminsville-North Fairmount Bus Line should be established by 1930 at latest. It should follow Baltimore Avenue, north from North Fairmount and then follow West Fork Road into Cumminsville, then out to the north along Colerain Pike and then west and south along North Bend Road to Cheviot and Westwood. This line should be operated in conjunction with the Westwood-North Fairmount Line, by looping the buses around the longer route and back along the shorter route, and vice versa. This outer route around Mt. Airy Forest would serve today, at least 180 people per square mile, and would open up a large and very attractive undeveloped territory between Cheviot and College Hill. It could connect with the existing trolley lines and bus lines at Westwood, Cumminsville and North Fairmount.

A Covedale-Fernbank Bus Line via the Warsaw-Cleves Pike, from the end of the Glenway Avenue and Eighth Street Trolley Lines to Fernbank, should be established by 1935. At present there are less than 100 people per square mile through this territory, so that the line would have no immediate advantage, but eventually, it is the only logical way of serving a large inaccessible territory most desirable for residence.

A Westwood-Cleves Bus Line over the Bridgetown-Cleves Pike from Westwood to Cleves, should be established in the near future, certainly not later than 1930. There are already 156 people per square mile along this route, and including Cleves and North Bend, the average amounts to over 200 people per square mile. Across this region, there is today no means of transit, it is growing rapidly, and more than any possible route will serve a territory that is now ripe for a good class of development. This route would provide much shorter access to Cincinnati from Cleves and North Bend, than that now existing, which follows along the river. One bus could undoubt-

edly handle this service on a two-hour schedule, with 16 miles for the round trip.

A Cumminsville-New Baltimore-Harrison Bus Line from Colerain Avenue and Blue Rock Pike, along New Haven Road, should be established by 1940. There is at present an average of about 70 people per square mile throughout this region. Even the communities of New Baltimore and Harrison only contain 566 and 1,309 inhabitants, respectively, so that immediate service to this region should not prove profitable. Within 15 years, however, at the present rate of growth, it should be worth while.

A Winton Place-Hamilton Bus Line via Winton Road and Bank Lick Road to Hamilton Pike should be established by 1935 and possibly by 1930. At present there are about 100 people per square mile along this route, while within the city limits, there are about 170 people along the route. While this route opens up an entirely new territory now unserved between College Hill and Carthage, and between Mt. Healthy and Wyoming, nevertheless the rate of growth would not warrant the operation of a bus line here for at least five years and probably not before ten years. Furthermore, Winton Road would have to be regraded and resurfaced before it could be used for heavy buses.

A Mt. Washington-Batavia Bus Line via Corbly Road and Clough Pike should be established by 1940, or possibly by 1935. This route serves an area between the existing interurban line and the two existing bus lines running west from Mt. Washington and the Beechmont Avenue Causeway. There are at present less than 100 people per square mile in this region, nor is it growing rapidly enough to warrant the operation of another bus line through it inside of ten years.

All the rest of the outlying region within the county is now adequately accessible by existing interurban trolley lines, or by bus lines, or by commuting service on the railways, so much so that no new or extended bus service anywhere else within the county could be expected to pay for at least 20 years to come, if ever.



REVENUE PASSENGERS ON INTERURBAN RAILWAYS  
Buses are drawing them away

#### Interurban Trolley and Bus Lines

Two of the seven interurban lines coming into Cincinnati have been recently discontinued. The Cincinnati and Columbus Line was discontinued in 1919 and the Interurban Railway & Terminal Company was discontinued in 1922. Data was obtained from the Public Utilities Commission, from the old Public Service Commission and the old Railroad Commission in Ohio as to the annual number of revenue passengers carried on each of the lines during the last 15 years. As is shown on the accompanying diagram on three of the lines, the Cincinnati, Lawrenceburg & Aurora Line, the Cincinnati, Milford & Blanchester Line and on the Cincinnati, Georgetown & Portsmouth Line, the number of passengers carried has been decreasing steadily, while the cost of operation and the competition has been increasing steadily.

The number of passengers carried by the Ohio Traction Company has remained

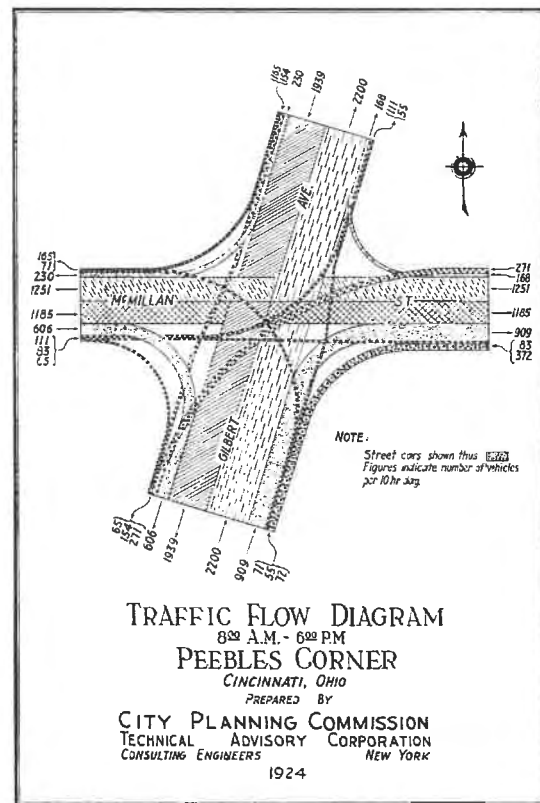
about constant, while the number carried by the Cincinnati & Dayton Line has been steadily increasing, although the excellent bus service now operating between Cincinnati and Hamilton and Dayton is drawing from the patronage of the interurban trolley road.

In view of the rapidly increasing use of the private automobile and of the rapid improvement in interurban motor bus service, it is obvious that no new interurban trolley lines can be established successfully, except possibly for the handling of local freight.

It is also true that interurban bus lines are most likely to pay today between larger cities, and even then only when they are not too far apart. Even between Cincinnati and such larger cities as Indianapolis, Louisville, Lexington, Columbus, etc., the steam railroad service is so frequent and the automobile use is increasing so rapidly, that probably no new interurban trolley service could be established profitably.

With regard to interurban bus service, the increased popularity of long distance, high-class bus service, as evidenced most strikingly in California, suggests that the time may come in the not far distant future, with the improvement of the principal connecting highways, when it will be profitable to establish de luxe bus service between Cincinnati and each of the large neighboring cities, even up to a distance of 250 miles.

The handling of freight by trolley has been on the increase of late, especially where interurban trolley lines serve well-cultivated farming districts. Through regions which provide a fair amount of daily freight, this freight service has tended to counteract the falling off in passenger service. On the other hand, the rapidly increasing use of the motor truck and the improvement of the main city and county highways, has rendered the business of carrying freight by trolley precarious at best. Therefore, it is generally felt that the possibilities of freight handling are not sufficient to warrant the establishment of any new outlying trolley lines.



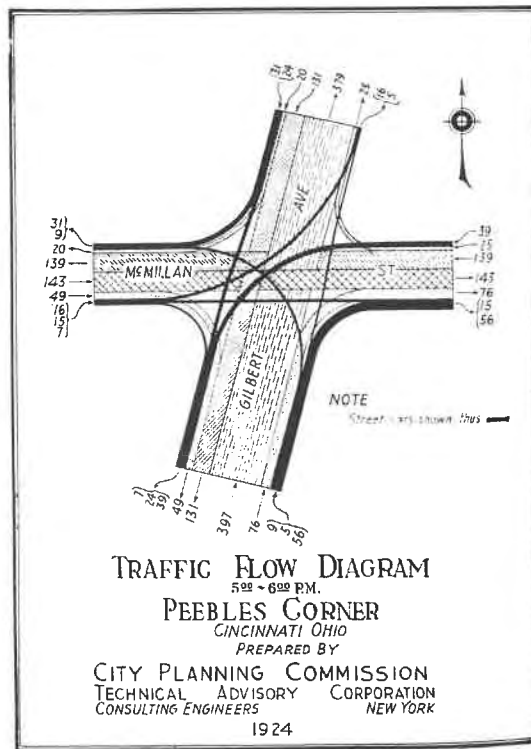
One of the worst corners  
Left turns cause much of the congestion.

**Peebles Corner Re-Routing of  
Trolley Cars**

Peebles Corner is at the present time beyond any doubt the most congested intersection in the city outside of the downtown "Basin." This fact is well established in the public mind and has been recognized by the City Administration, as manifested by the ordinance prohibiting left-hand turns for vehicles at this point. Since the extension of McMillan Street, traffic is increasing at an imposing rate on this crosstown thoroughfare, and according to the emanation district studies the intersection will remain one of the most important ones in the city for a long period of years, or, more accurately, until such time as relieving crosstown streets and radial arteries may be constructed.

To find a remedy for anticipated congestion, a special study was made of the traffic conditions at this point. The results of a ten-hour traffic count were analyzed and have been graphically presented on two accompanying charts. One shows a complete analysis of the ten-hour traffic of the day, separated as to vehicles and street cars, and the other one gives the same information for the maximum hour—that is, between 5:00 and 6:00 P. M. Obviously, it is for the maximum congestion that further relief must be found.

The importance of this intersection can be visualized by comparing the daily traffic on McMillan Street with that of Gilbert Avenue. McMillan Street traffic is already two-thirds of that on Gilbert Avenue, while the traffic counts on all the main radials of the city show that Gilbert Avenue is now carrying one-fourth of the total traffic entering and leaving the "Basin."



Left turns must be stopped

It is to be noted that the prohibition of left-hand turns does not apply to street cars, of which 54 take such turns during the maximum hour. This number amounts to 4.4 per cent of the total maximum hourly traffic, but in consideration of local conditions, it is safe to say that each turning street car retards traffic as much as five or six automobiles. Thus it can be estimated that they cut down the traffic handling capacity of the intersection by at least 25 per cent.

**Of the car lines making left-hand turns at Peebles Corner, the turns of individual car lines should be done away with as follows:**

- (1) The Zoo-Eden line should be re-routed over Vine Street, instead of through Mt. Adams. Although this line is considered as something of a sight-seeing line, passing through Eden Park and around the Art Museum, it would follow a much more direct and logical route down Vine Street.
- (2) The North Norwood line should be routed over Mt. Adams, taking the place of the Zoo-Eden line as far as service to this section is concerned, and should follow Gilbert Avenue the rest of its course.
- (3) The Vine-Norwood line should be carried over Gilbert Avenue rather than Vine Street. It probably now serves the convenience of a very limited number of people, and would at least serve no less if re-routed.

The left-hand turns of inbound cars of all car lines serving the northeastern parts of the city should be eliminated by re-routing the same over one or more of the side streets which run parallel to McMillan Street (such as Chapel Street). Chapel Street carries a double track at present as far as Alms Place. By sufficient street widening, the double trackage could be extended over to Gilbert Avenue and by a proper arrangement at the intersection with Woodburn Avenue, connection could be established to Madison Road. The Madison Road extension to the proposed link of the Victory Park-

way (now being fostered by the present City Administration) could be utilized for street car purposes if properly designed. A transposition of the turning point in this manner would move the traffic-hampering turns from Peebles Corner to points where the harm done would be greatly diminished.

The elimination of right-hand turns of street cars would bring about a further relief. The traffic count showed that they amount to 12.3 per cent of the total traffic during the maximum hour, and it is estimated that their elimination would increase the traffic capacity of the intersection by at least 35 or 40 per cent. Half of the right-hand turns at Peebles Corner should be eliminated by re-routing the South Norwood, Evanston, Gilbert Avenue and Kennedy Heights car lines over Gilbert Avenue across the intersection instead of over McMillan Street and Woodburn Avenue. The rest of the lines, and if desired all of the lines, should use the proposed Chapel Street-Madison Road extension. These changes would, taken altogether, greatly relieve the traffic situation at Peebles Corner, at least until such time as the new relieving streets indicated on the Thoroughfare Map could be carried into effect.

**Gilbert Avenue Viaduct Trolley  
Re-Routing**

It is obvious that the traffic confusion at the western end of the Gilbert Avenue Viaduct is as bad as it is at any place in the city. During 1923, the Cincinnati Association pointed out that the primary cause of this congestion was the present arrangement of the street car tracks, both outgoing and incoming street cars crossing the outbound vehicular traffic at the rush hour, both on Gilbert Avenue and on Broadway.

The various solutions that have been proposed of building a new trolley bridge or of moving the tracks to another part of the bridge, are bound to cost an unwarranted amount of money, although it is probable that any permanent solution of the problem will necessitate the creation of a separate route for the street cars which would join the present route on

Gilbert Avenue through a cut or tunnel. However, there is nothing in present conditions that would warrant such a costly solution.

With the carrying out of the one-way traffic system throughout the downtown district and with the corresponding one-way re-routing of the trolley cars within the central business district, the inbound trolley tracks from the Gilbert Avenue Viaduct should be removed where they turn down on Broadway, and the inbound cars re-routed north on Broadway, west on Ninth Street and down Sycamore. The present tracks on the Gilbert Avenue Viaduct should stay as they are now, but in leaving the viaduct at the northern end the tracks should be swerved 10 or 15 feet to the west for a distance of about 200 yards, so as to leave two full moving traffic lanes between the trolley line and the parked automobile lane along the east curb of Gilbert Avenue. This solution of the problem will do away with all left-hand trolley turns at the viaduct and remove most of the worst confusion in crossing the trolley tracks. As most of the outbound trolley cars come to a full stop on Broadway to take on passengers before turning on to the viaduct, automobiles outbound on Eighth Street would have plenty of opportunity to cross the single trolley track in safety. Widening the bottle neck for outbound automobiles at the north end of the viaduct will double the capacity of the avenue there.

#### Cincinnati, Lawrenceburg & Aurora Approach to the Dixie Terminal

In connection with the downtown thoroughfare studies, it is recommended that Second Street and Third Street be continued as crosstown trucking ways in the Bottoms.

As Second Street is developed as a downtown crosstown thoroughfare, the Cincinnati, Lawrenceburg & Aurora route to the Dixie Terminal, if built, should be along Third Street, as recently proposed. The damages and right of way costs for the development of an elevated structure along Third Street or along Second Street are not warranted by any harmful effect that the few cars on this line could

have on Third Street traffic, especially if Second Street continues to be the main traffic street.

#### Trolley and Bus Terminals

A bus garage does not differ in its effect on traffic from any other public garage. Trolley car barns, which in the early days used to be located in downtown districts, are now customarily located in more outlying regions, where land is cheaper. Interurban trolley car barns are rarely large, in fact, none of them in Cincinnati are large enough to have any serious effect on the surrounding district, either from the standpoint of traffic handling, or of cost, or of causing a break in the continuity of business frontage.

The increase in the use of the trolley is not likely to cause any great increase in the number of cars which have to be stored, and therefore few new trolley barns are likely to be built. The few that will be built will be in outlying regions, where land is cheap.

According to the Zoning Ordinance, no trolley car barn or bus garage can be located in any residence district, and the bus garage, like other public garages, can be located in business or industrial districts only, provided they conform to certain necessary restrictions which will take care of their location. Therefore, the only problem is that of seeing that future trolley car barns are so located that they will not prove unpleasant to any near-by residence districts, that the turning in and out of trolley cars will not interfere with the proper flow of traffic on thoroughfares, and so that good continuity of business in local business centers will not be interfered with.

#### Abandoning Existing Trolley Lines

The lines which it least pays the Traction Company to operate are the following:

Hamilton Line,  
Winton Line,  
Fifth Street Line,  
Glendale Line,  
Edwards Road Line.

From the standpoint of the public, the abandonment of any of these lines at the present time would cause great inconvenience. Each serves a well-populated and growing region, unserved by other transportation, and therefore all should be retained. Only along the Fifth Street Line is the population decreasing. Eventually the line can be given up without inconvenience.

Whenever the Cincinnati, Lawrenceburg & Aurora Line is continued to the Dixie Terminal, and in any case within ten years, the Fifth Street Line can be abandoned.

#### Street Car Re-Routing in Central Business Districts

In the previous chapter on the Downtown Traffic Problem, traffic congestion is to be relieved by a comprehensive system of traffic and parking regulations, and by the widening of the roadways on a number of streets. All of the traffic is made one way on Race, Walnut, Main and Sycamore Streets and Broadway, and on Fourth, Fifth, Sixth, Seventh and Ninth Streets. Left-hand turns are prohibited at nine street intersections. Thirteen blocks should be repaved soon.

With these changes going into effect, in particular the fixing of one-way traffic, the present street car routing through the central business district must be re-considered.

It is evident that street cars should not continue to run in two opposite directions on streets where all other vehicles are permitted to go in only one direction. Therefore, it becomes necessary on virtually all of the central business streets to route cars in one direction only.

In any scheme of re-routing street cars in the congested districts, the following principles should be kept in mind:

1. On any one-way street the street cars should be operated only in the direction of travel required for all other vehicles.
2. Left-hand turns should be avoided wherever possible, and in any case kept down to an absolute minimum.
3. Except where left-hand turns are inevitable, the single track should be placed off center, allowing a distance of 8½ feet (or 8 feet minimum where absolutely essential) be-

tween the street car traffic lane and the curb on the right-hand side of the street.

4. The number of switches should be reduced to a minimum, and they should be operated automatically.
5. Main loading and unloading stations should be grouped rather than scattered.
6. The number of loading points should be reduced so as to avoid too frequent stops.
7. Loading should be done, both front and rear, without collecting fares on boarding outbound cars.
8. Schedules should be revised so as to eliminate stalling to kill time in the congested area.
9. Cars should be provided with more adequate signs to indicate where they go.
10. Sign boards should be placed at the car stops with a key to the car lines stopping there.
11. Trolley poles should be done away with and the overhead wires attached to buildings.
12. More trailers should be used during rush hour periods.

In working out a system for re-locating the downtown street car lines, the following considerations were also borne in mind:

1. Passengers should not be required to walk any further than they do at present to reach their street car line.
2. Passengers should not be required to walk any further in transferring from one line to another than they do at present.
3. Access to the hotels, railway stations, theaters and department stores should be as easy as at present.
4. The various lines should not loop across each other any more than absolutely necessary.
5. Crossings should be reduced to a minimum.
6. The aggregate track mileage and average route mileage should be decreased rather than increased.
7. The total number of cars passing along any one block in any one direction should not be materially greater than at present, and certainly not greater than can be handled effectively.

After a great many studies, a scheme was finally evolved which it is confidently believed satisfies all of these conditions

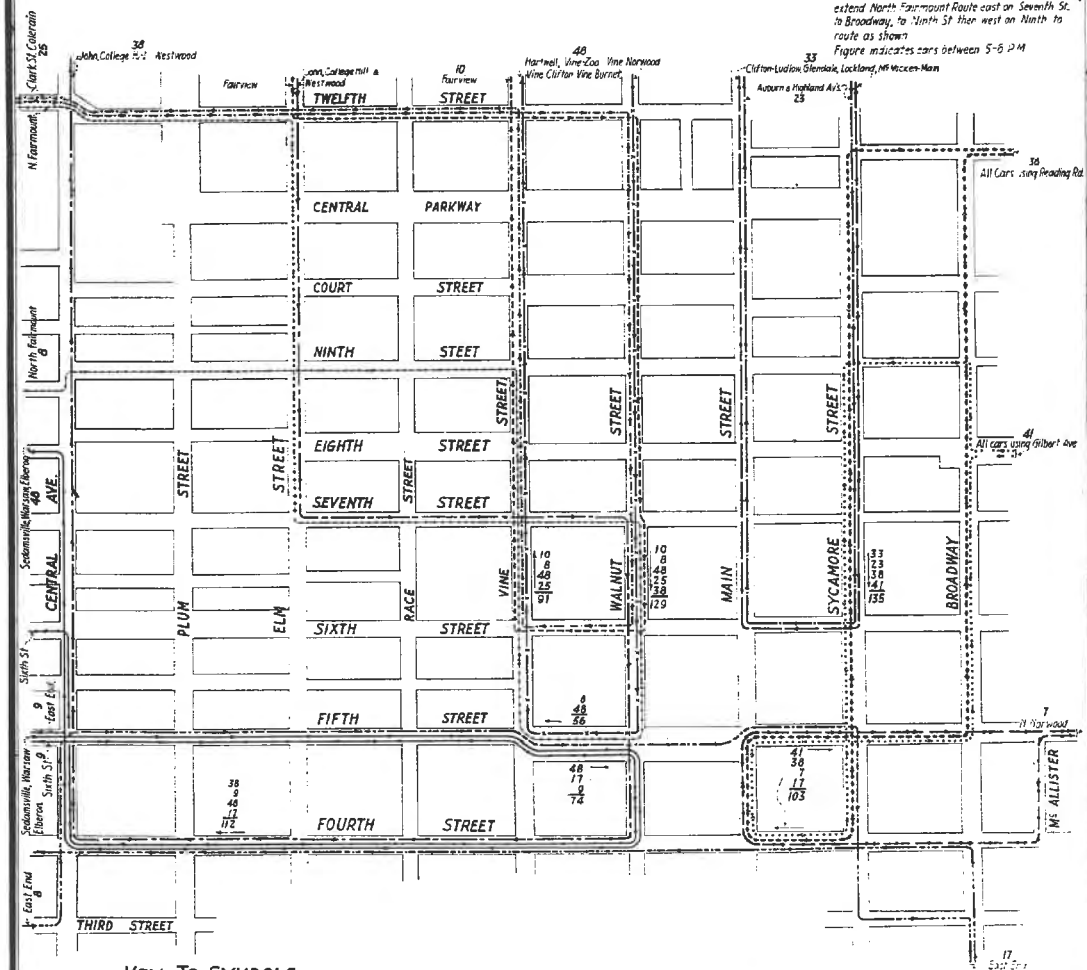


# DOWNTOWN STREET CAR REROUTING

Showing  
TYPICAL SOLUTION APPLYING PRINCIPLES  
ENUMERATED IN DOWNTOWN STREET REPORT  
AND AFTER ESTABLISHMENT OF ONE-WAY STREETS  
CINCINNATI, OHIO

GENERAL NOTES

After Seventh St. is widened from Main St. to Broadway, extend North Fairmount Route east on Seventh St. to Broadway, to Ninth St. then west on Ninth to route as shown.  
Figure indicates cars between 5-6 P.M.



~KEY TO SYMBOLS~

- Sycamore, Walnut, Elm, Eberon
- Plum, Elm, Race, Vine, Walnut, Main, Sycamore, Broadway
- Fairview
- 17 cars using Gilbert Ave.
- Auburn Ave, Highland Ave.
- North Fairmount
- Jenn. College, Hill, Westwood
- East End
- Clark St., Colerain
- 41 cars using Reading Road
- Clark St.
- E. E. Eden

PREPARED BY  
CITY PLANNING COMMISSION  
TECHNICAL ADVISORY CORPORATION  
CONSULTING ENGINEERS NEW YORK

1924

BASED ON PROPOSED TRAFFIC RULES—AN EFFECTIVE SCHEME

and which will prove to be fully as convenient as the present system. At the same time it should considerably relieve the trolley congestion and its effect on general traffic in the central business district.

As an essential part of the City Plan, and with the installation of the proposed traffic regulations and roadway widenings in the central business district, all of the street car lines should be re-routed within the congested district, as shown on the accompanying map.

This re-routing would result in a single car track on all central business district trolley streets except Twelfth Street, Central Avenue and Fountain Square.

Car tracks would be eliminated entirely on the following blocks, with a consequent relief to automobile traffic:

1. Sycamore Street between Fourth and Sixth Streets.
2. Main Street between Fifth and Sixth Streets.
3. Vine Street between Fourth and Fifth Streets.
4. Elm Street between Fourth and Seventh Streets.
5. Sixth Street between Sycamore Street and Broadway.
6. Sixth Street between Central Avenue and Vine Street.
7. Seventh Street between Central Avenue and Elm Street.
8. Ninth Street between Vine Street and Sycamore Street.

No new track would have to be laid on any street where there are no tracks at present, except (1) on the widened stretch of Ninth Street between Sycamore Street and Broadway; (2) on Seventh Street between Vine Street and Walnut Street.

The present points of maximum street car congestion under the present routing are as follows:

(In the majority of these cases the cars are now running in both directions on these most congested blocks. These figures, however, are for the maximum number of cars operating in one direction on one track during the rush hour, based on

the service during the maximum fifteen minutes):

1. Elm Street between Sixth and Seventh Streets—128 cars.
2. Fourth Street between Broadway and Main Street—120 cars.
3. Broadway between Seventh and Sixth Streets—112 cars.
4. Fourth Street between Vine and Elm Streets—116 cars.
5. Broadway between Fifth and Fourth Streets—100 cars.

The maximum number of cars in any one block in both directions together, is on Broadway between Sixth and Seventh Streets, where there are 184 cars per hour.

According to the scheme proposed on the accompanying map, the maximum hourly congestion, based on the maximum fifteen minutes, would be as follows:

(All of these are single track streets):

1. Sycamore Street from Ninth to Sixth Streets—135 cars.
2. Walnut Street from Seventh to Sixth Streets—129 cars.
3. Fourth Street from Walnut Street to Central Avenue—112 cars.
4. Fourth Street from Sycamore to Main Streets—103 cars.
5. Fifth Street from Main to Sycamore Streets—103 cars.
6. Vine Street from Sixth to Seventh Streets—91 cars.
7. Fountain Square from Vine Street to Walnut Street in both directions—130 cars.

The principal loading and unloading stations should not be located on any of the more congested blocks. Thereby, it is possible to reduce to a minimum the number and length of stops on the more congested blocks. Thus it is readily seen that the proposed re-routing will allow fully as many cars to pass through the downtown district, with considerably less interference with traffic.

It remains to compare the present and the proposed scheme (as indicated on the accompanying map) as to relative mile-

age in the downtown district, relative blocks served and relative convenience to passengers. This works out in detail as follows:

1. The Gilbert Avenue Lines, as re-routed, do not serve the corner of Broadway and Fourth Street, but do serve five extra blocks of Sycamore Street, one block of Ninth Street and one extra block of Broadway. Almost no patrons would have to walk any farther, and many would need to walk a block less to take these cars. The mileage would be increased by one block, but if the inbound cars are re-routed by Court Street, this extra mileage would be reduced. In any case, trolley cars must be kept off of Eighth Street. If the North Norwood Line were to be re-routed over Mt. Adams and the Madisonville Line over Eastern Avenue, the aggregate result would not be materially affected.

2. The North Norwood cars include one-half block more within the loop, which means that no passengers would have to walk any farther, and some would have to walk a half block less than at present.

3. The Reading Road Lines, by avoiding the stretch of Main Street between Fifth and Ninth Streets would greatly relieve the congestion there, but would oblige some patrons to walk one block farther. The track mileage is the same.

4. The Highland - Auburn Lines cover exactly the same route as at present.

5. The Clifton-Ludlow Lines, by eliminating the routing on Vine and Walnut Streets, would oblige some patrons to walk one block and others two blocks farther than they do at present. On the other hand, the patrons from east of Main Street would be saved a block's walk. The track mileage is decreased by several blocks.

6. The Glendale Line, Lockland Line and the McMicken-Main Line would serve all their patrons as at present, and in addition would save a walk of one block to patrons east of

Main Street and north of Ninth Street. The track mileage would be the same.

7. The various Vine Street lines are all served fully as well as at present, and in addition the Vine-Norwood Line and the Vine-Burnet Line are brought a block farther down to Fifth Street, thereby saving a block's walk to a large number of patrons. The track mileage is about one block more for half the lines. If the Vine Street-Norwood Line were to be routed over Gilbert Avenue, the effect would not be materially altered.

8. The East End Line serves Fifth Street as well as Fourth Street, so that most of the patrons would have to walk a block less. The track mileage is about one block more.

9. The Sedamsville Line is just the same as at present.

10. The Sixth Street Line change would cause a few patrons to walk a block farther, as the tracks are taken off Sixth Street between Central Avenue and Elm Street. The track mileage is virtually the same.

11. By moving the John Street Line from Fifth Street to Walnut, Seventh and Elm Streets, a few patrons on Fifth Street west of Vine Street would be inconvenienced, while a great majority of patrons would be saved a walk of at least two blocks. The track mileage would be increased by several blocks.

12. The Warsaw-Elberon Lines, by being removed from Sixth Street between Central Avenue and Elm Street, and from Central Avenue between Fifth and Eighth Streets, would require a few passengers to walk a block farther. On the other hand, by its looping a block farther east on Walnut Street, the great majority of patrons would be saved a block's walk in the center of the city.

13. The lines using Elm Street, by their removal from Sixth Street between Vine and Elm Streets, would cause a few patrons to walk a block farther. On the other hand, by their

returning along Vine Street north of Seventh Street, a considerable number of patrons would have to walk a block less. The track mileage is about a block less.

14. The North Fairmount Line, by moving two blocks farther south to the corner of Walnut Street and Fifth Street, would save most of the patrons a walk of one or two blocks. The track mileage is increased by two blocks.

15. The Colerain-Clark Street Line, by coming a block farther east to Walnut Street, would save the majority of patrons a block's walk. A few patrons would be inconvenienced on Sixth Street west of Vine Street. The track mileage would be about the same.

16. The Westwood and College Hill Lines, by extending the loop from Elm Street, Sixth Street and Vine Street over to Walnut Street, Fourth Street and Central Avenue, would cause a few patrons on Sixth Street west of Vine Street to walk a block farther, but the great majority of patrons would have to walk a block or two less. The track mileage would be increased by several blocks.

In the aggregate, car mileage and track mileage would be increased a little, but

a negligible amount in proportion to the increased service which the change would afford the car patrons.

A relatively small number of patrons would be obliged to walk a block, and occasionally two blocks farther, to reach their cars than they do according to the present route. On the other hand, the great majority of patrons would be saved a walk of at least a block.

In the aggregate, the railway stations, hotels, theaters and the department stores are served better than by the present system, and in many instances, considerably better.

Under the present system, the maximum walk for a transfer between any two lines is two blocks. Under the proposed system, it is the same distance, but in many cases where there is now a walk of two blocks, it would be reduced by the new system to one block or none.

As far as the public is concerned, there is everything to be gained and almost nothing to be lost by the immediate adoption of this re-routing plan. As far as the traction company is concerned, the trackage changes would be executed concurrently with roadway widening and repaving. The extra cost involved is small in comparison with the benefits that the changes should bring to the service.

## CHAPTER VII

### Rapid Transit

Section Second (d) of the contract requires the Consultants to report upon "Rapid Transit for local and interurban travel, including general location of lines, terminals, stations and connections" . . .

In accordance with this contract agreement, and as soon as the preliminary data had been secured to enable a proper investigation to be made, the problem of the proposed Rapid Transit System was given careful study.

#### The Problem

That the question of Rapid Transit is intimately involved with that of the street railroads, would seem obvious. That an efficient, growing city requires ample facilities for passenger transportation upon the streets, is again obvious.

Experience throughout the country shows that the total number of rides per capita per year in communities of different sizes, increases with the size of the community, in accordance with a fairly definite law. The diagram also indicates clearly that this "riding habit" has been growing with greater rapidity in the several cities for which statistics are available, than would be expected simply on the basis of growth in population.

It is generally contended that increased facility creates business for itself. This may or may not be true in any specific case. It is generally conceded, however, that a depreciation in service hampers traffic and that its total is thereby cut down, at least potentially.

Studies of the total travel in New York City before and after starting the operation of the elevated and of the subway systems, respectively, disclose practically no increase in total travel. However, a marked shift was evident from the street railroad to the elevated in the first case, and from both the street railroad and the elevated to the subway, in the second instance. It was the starting of the subway which is generally blamed for the bankruptcy of the New York surface lines, which occurred a year or two subsequently.

With special reference to the Cincinnati situation, studies were made of the past and present riding habit of the community, which was found to be normal as compared with other communities of about the same size.

#### Method of Study and Analysis

In connection with the preparation of the City Plan, careful estimates have been made of the future population of Cincinnati and of its probable distribution fifty years hence. These population-growth and distribution studies have been based upon careful analyses of the past and present Cincinnati situation; upon studies of a large number of other cities, and upon the general effect of laws deduced from these comparative studies and their application to Cincinnati. These basic population distribution studies have been used to determine the 1920 and the 1970 Cincinnati population which would be tributary to the proposed Rapid Transit Loop.

The following table gives the estimated population which would be served by the rapid transit route as of the years 1920 and 1970, respectively:

Probable Population Served by Rapid Transit to Norwood and Oakley

Locality	—Population—	
	1920	1970
Westwood and North Fairmount	31,000	52,500
Cheviot	4,100	8,000
Cumminsville and Mt. Airy	19,000	33,000
College Hill	4,000	12,000
North College Hill	1,100	2,000
Mt. Healthy	2,300	4,000
Winton Place	3,000	5,400
St. Bernard and Elmwood Place	8,300	13,600
Carthage	3,600	4,700
Glendale	1,800	5,000
Hartwell	2,600	4,000
Lockland	4,000	7,000
Reading	4,500	9,000
Wyoming	2,300	3,500
Woodlawn	300	1,000
West Clifton	1,500	2,500
0.5 mile band east of Rapid Transit line	5,800	6,300
Bond Hill	4,000	13,500
Norwood	19,000	38,000
Pleasant Ridge	2,700	7,100
Kennedy Heights	1,200	5,000
Silverton	800	2,000
C. L. & N.	3,000	10,000
Forest Avenue	4,000	8,000
Oakley	6,750	15,000
Grand Total	138,650	272,100

Most of the population of Deer Park, of Rossmoyne, of Blue Ash, etc. will probably continue to commute on the C. L. & N., but instead of going on to the center of the city on the C. L. & N., probably the majority will transfer to the Rapid Transit at Norwood.

It was estimated that the number of people served directly by the Rapid Transit line would have amounted to about 30,000 in 1920 and would amount to 33,000 in 1970, while the corresponding figures for the number of transferring population would be 108,650 and 239,000, respectively.

Should the entire loop be constructed, there would be only about 30 per cent increase in the population served as against 50 per cent increase in mileage from Norwood and Oakley on, and in addition a large proportion of the population represented in the above 30 per cent will continue to utilize the advantages of direct

trolleys, buses or railroad commutation over those which the Rapid Transit will be in a position to offer, not to mention the difficulties and high cost of construction along the steep hillsides parallel to and immediately north of Columbia Avenue and in the downtown Basin.

It is evident that the operation of the Rapid Transit line will bring about a reduction in the number of passengers now riding on the present street railroad lines. This will be the case both on those which parallel the rapid transit lines, like the Clark Street, Colerain Avenue and College Hill lines, and even more so on the lines intersecting the Rapid Transit line and inside of the belt formed by the latter. The loss to the Street Railroad thus accruing will be in some ratio to the number of passengers who will consider the time saving offered by the Rapid Transit worth a possible higher fare on the same, the questionable inconvenience of a probable physical transfer, and in addition, their somewhat remote delivery from the heart of the business district.

A table gives the street car lines at present serving the localities which would become tributary to the Rapid Transit line, the stations of the latter at which the transfer of passengers from each of the street car lines would take place, and the net time saving to Rapid Transit passengers compared with those who will ride clear through on the surface cars. Besides these figures, the table includes the probable number of passengers per year (transfer passenger inclusive) and the density of traffic for each of the surface car lines as given in the 1920 Report of the Department of Street Railroads, the weighted average of which has been used as the traffic density figure for the feeder lines. The last two columns give the length of haul on the Rapid Transit and the average length of haul on the feeder lines, respectively, for Rapid Transit passengers originating in each of the localities.

The riding habit has been assumed as 350 per year in figuring the yearly car mileage (the figures based on the 1920 report of the Department of Street Railroads).

8.00 has been applied as the density of traffic per car mile on the Rapid Transit line, giving 7.25 as the weighted average for the whole system in the near future.

The Chapter upon "Transit, Street Railroads and Auto Buses" lists the proposed extensions of the present street railroad system and affiliated bus routes. Only a few of these will be in any way involved with the rapid transit system, but wherever they cross, it is expected that transfers will be issued. It is only by such a comprehensive correlated system that the transit problem of the city can be properly solved.

A saving in time to many thousands of Rapid Transit passengers would directly benefit them.

Reasonable values placed upon this saving of time will aggregate approximately \$1,000,000 per year.

The completion of the Rapid Transit System will probably somewhat enhance real estate values along its route.

This enhancement of value will doubtless be largely offset by depreciation else-

where, due to a shift of population, unless the city begins to grow at a much faster rate than it is growing now.

The possibility of using the Rapid Transit System for trunk line railroad use does not seem, after extended study, to be practicable.

The construction and operation of the balance of the Rapid Transit Loop will undoubtedly remain a financially undesirable undertaking within the life of the present generation, to say the least. In view of the fact that the population that would be tributary to the balance of the loop is already well served by transit and bus lines, and in view of the fact that this region is now served by only one already overcrowded main thoroughfare to the central business district, it is confidently believed that the money that would have to be spent in completing the loop could be far more profitably spent in developing main radial thoroughfares, especially Columbia Avenue and its viaduct connection to Third Street.

Relation of Rapid Transit to Street Car Lines

LOCALITY SERVED	PRESENT STREET CAR LINES	TRANSFER POINT	Net Time Saving	Population Which Probably Would Transfer to Rapid Transit (1920)	Passengers Per Year Transferred, Inclusive	Density of Traffic Per Route (1920)	Distance Covered by Rapid Transit (Miles)	*Aver. Distance Covered by Feeder Lines (Miles)
Westwood and No. Fairm't.	John Street	Brighton	4' 05"	12,250	4,285,000	7.270	1.68	2.40
Cheviot	Westwood	Brighton				4.953		
	Sixth Street					6.918		
	North Fairmount					5.803		
Cumminsville and Mt. Airy	Clark Street	Ludlow	15' 03"	20,400	7,105,000	6.026	3.90	1.4
College Hill	College Hill	Crawford	20' 20"			4.789	4.68	
North College Hill	Colerain Avenue					7.294		
Mt. Healthy	C. & D. Tr. Co.					4.180	5.74	0.75
Winton Place	Winton Place	Mitchell	9' 38"	1,500	525,000	5.236		
St. Bernard and Elmw'd Pl.								
Carthage								
Hartwell	Glendale	St. Bernard	9' 30"	11,600	4,065,000	3.894	6.56	1.75
Lockland	Lockland			4,450	1,558,000	5.359		5.70
Reading	Ohio Traction Co.							
Wyoming								
Woodlawn								
Glendale				750	263,000		3.90	1.00
West Clifton				3,000	1,050,000		3.30	0.00
0.5 mile band E. of R. T. line.			7' 27"	3,600	1,260,000	5.088	7.78	0.
Bond Hill	Avondale or Bond Hill Paddock	Norwood	12' 0"	3,000	1,000,000		9.16	3.00
Norwood	C. L. & N.					6.578		0.5
Pleasant Ridge	Vine-Norwood					6.727	9.16	2.14
Kennedy Heights	North Norwood	Norwood	12' 32"	7,600	2,660,000	4.692		
Silverton	Kennedy Heights (Montgomery)			3,800	1,330,000		9.60	0.25
	South Norwood	Forest Avenue		1,000	1,200,000			0.5
	Oakley	Madison Road	3' 0"	1,750	2,100,000		10.50	
				TOTAL	74,700	28,401,000	5.67	

\*Weighted average  
NOTE:—The weighted density per car mile has been found to amount to 7.38, while the Rapid Transit line would haul 72.7% of the total.

CHAPTER VIII

Railways

The contract in Section Second, paragraph (c), requires study and report concerning "The general location of all railroad terminals, yards and stations, both freight and passenger, and the approaches to and the environment of stations. The plan for this purpose shall include the whole of the metropolitan district of Cincinnati and such territory outside of the metropolitan district of Cincinnati, both in Ohio and Kentucky, as is necessary to be included in order to include the whole terminal and switching system, both freight and passenger, and for local, terminal, through and interchange traffic."

The Preliminary City Planning Survey and Program submitted in December,

1921, contained the following summary of conclusions as to railroad passenger facilities: "Present stations are too numerous, are antiquated and are interfered with by floods. Cincinnati is mainly a terminal and not a through station; and in choosing locations of new stations the convenience of the (approximately) 90 per cent of the total number of passengers who have business in Cincinnati should be given precedence over the residual (approximately) 10 per cent of through passengers."

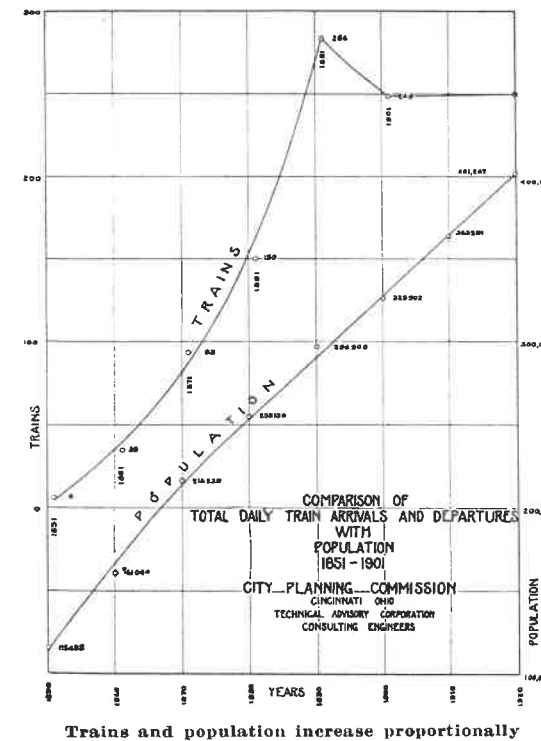
Passenger Terminal

Studies in various cities have shown that the number of trains per day entering and leaving a city which constitutes a terminal point is fairly well correlated with the population, so that as the city grows in size, the passenger train service increases in approximately the same ratio. This condition was shown by the preliminary report to hold with fair accuracy with reference to Cincinnati. The number of inhabitants per incoming or outgoing train in 1922 was 1,600. As long ago as 1880 the same figure held.

Careful studies have been made of the probable future population of Cincinnati. The factor, 1,600, can be applied to such future estimates, and from them the probable number of trains per day can be approximated.

Studies of a large number of cities have shown that the number of trains which enter and leave a station during the maximum hour of travel is close to 10% of the total number for the day. In Cincinnati today it is 11.7%. It is obviously the service during the maximum hour for which the station must be designed, both in loading platform and track capacity, and in the size of the concourse, ticket offices, baggage equipment and other features.

The number of standing tracks can be computed on the basis of the number of trains during the maximum hour, and an average clearance time of 20 minutes between trains on the same track.



The following table gives these estimates:

Year	Pop'l'n	Trains		
		Per Day	Max. Hr.	Loading Tracks
1930	425,000	266	27	9
1940	450,000	280	28	9
1950	478,000	300	30	10

At least 10 tracks would be needed during the next 25 years. Additional leeway of several tracks is wise to provide for derailments and other emergencies.

While statistics show that the average number of cars per train is now six in Cincinnati, many trains are operated which are more than twice that length; 16 cars are current elsewhere. These require platforms nearly 2,000 feet long.

Loading platforms should be provided between each pair of tracks. If the platforms are entered near the center, the required width is less than is the case with a stub-end station. Experience has shown that 20 feet is sufficient in the former case. The over-all distance required by each pair of tracks and the intermediate loading platform thus becomes 44 feet. With the number of tracks determined as above described, and the width per pair given above, the required over-all width of the station is easily determined.

The approach tracks must be fanned out so as to reach these platform tracks. A number 10 frog is about the minimum which can be employed in such a yard approach. If the above tracks can be brought in opposite the center line of the station trackage, the total distance from the end of the platform to the throat of the yard might be only slightly over three times the length of the station. In the case of a through station, fans must be provided at each end. In the latter instance also, not so many approach tracks at each end are required, as in the case of a stub end station.

Six times the width of the station, plus 2,000 feet, is deemed to be the minimum length required for a modern railroad



**BUDAPEST RAILWAY STATION APPROACH**  
Effective setting and plenty of room for parking



**METZ, UNION STATION APPROACH**  
Dignified setting and ample circulation

passenger station, provided a union station is contemplated in Cincinnati for all roads except possibly the C. L. & N. This is approximately equivalent to the area between Second and Third Streets, and from Main to Smith Streets.

It is thus evident that the value of the real estate which must be provided for the station itself (to say nothing of the coach yards, locomotive parking tracks and round houses) is a material item. The location of a passenger station between Main and Smith, and Second and Third Streets, would take very expensive property. If less expensive property be employed at a greater distance from the center of the city, many passengers who would otherwise walk, would use the street cars or other modes of conveyance. As pointed out in the preliminary report, that location should be selected, which is least costly to the railroads and the traveling public, together.

Careful tallies were made of the total number of persons who visited the Union Central Station daily, and of the modes of conveyance employed to reach it. 90 per cent were found to walk. Most of them doubtless boarded the trolley cars at a distance from the station, but no definite information was available as to this point. 12,000 persons per day made use of the station. Were a Union Station to be created, the estimated number of persons who would visit the station daily has been computed at approximately 25,000. Statistics furnished by six roads as to commutation and multiple ride tickets, revealed 9,500 as the number of persons of that class who would normally enter and leave the station daily. A large proportion of these are railway employees who obviously would not be affected

by the change. Information as to other types of tickets could not be secured. Approximate estimates were made, however, on the basis of the total number of passenger cars which would normally use the station, and their seating capacity. 10,000 persons who would probably walk to a new station is estimated to be approximately correct.

The population in the vicinity of any site available for a downtown union station has been decreasing for the past few decades and will doubtless continue to do so. Moreover it is not now of a type which uses railroad transportation to any large extent. In fact, the residential and business center of gravity of the traveling public is now several miles from any possible downtown site.

The number of rooms in Cincinnati hotels and the average time of occupancy, also give a rough approximation of the number of transients who would use the station daily. Estimates were also made along this line. It should be remembered in this connection that the transient travelers who stop at the hotels, largely make use of special vehicles, like taxicabs, and the location of a station, makes little difference to them. Furthermore, they do not exceed ten per cent of the total number of passengers.

Various sites were studied as possibilities. These included the Present Union Station site, a site adjacent to the present Cincinnati, Lebanon and Northern Station, several sites in Mill Creek Valley, more particularly in the vicinity of Lincoln Park, and a site at the "elbow" of the Canal.

The availability of the latter site, together with one in the vicinity of the C. L. & N. Station, was found to depend largely upon the possibility of using the C. L. & N. right of way as an approach route to the city, and the physical feasibility of connecting it on practicable gradients with a trunk line railroad passenger subway through Canal Street, and an extension of it in the vicinity of Court Street and Gest Street to Mill Creek Valley. A route for such a subway was found to be possible, but would involve heavy costs because of the presence of the Power Plant near the intersection of Canal and Plum Streets, and the necessity of acquiring a private right of way west of Plum Street. The use of the C. L. & N. tracks as an approach to the city was found to require considerable improvement. The present trackage with certain realignments to straighten curva-

ture might be used for inbound business, but the grades are so heavy that even with the relatively light traffic and light cars of the present time, pusher engines are required on practically all trains out.

Almost as great a difficulty was also found to be involved in securing connection through Eggleston Avenue with the Pennsylvania trackage at the water front, at grades which would be feasible for passenger station platforms and facilities.

Studies were also made of the physical possibility of securing sufficient area for station and incidental yard purposes on the site of the present C. L. & N. yards and adjacent to Eggleston Avenue. While it might be considered physically possible to secure properties almost of the necessary extent, it was found from the assessed valuation of the land that it would make the cost \$9,000,000.00. Even at this figure the present Pennsylvania property would have to be used for coach yard purposes. \$9,000,000.00 is fully as much as would be the cost of a proper site in the vicinity of the present Union Station, while the C. L. & N. site would have the physical difficulty that the station and its approaches at both ends and the yards serving it would all be on grades of nearly 1½ per cent. Studies also show that both the C. L. & N. and any other railroad using the proposed subway would involve the railroads in longer hauls than are necessary at the present time, and as compared with sites in the Mill Creek Valley. While a feasible station of small capacity might be designed, it was thus manifest that the physical difficulties which would have to be surmounted if a single union station (or even one which would serve most of the future business) is to be contemplated, the whole proposition would be impracticable either in the vicinity of the C. L. & N. Station or at any other point along the proposed trunk line passenger subway.

The questions involved in the enlargement of the present Union Passenger Station site, were found to include that of the acquisition of considerable real estate, in addition to that now owned by the Railroads, of the construction of extensive raised structures to place the station

and its approaches, both by rail and street, above flood level, and of the operation of all trains and of all switch movements between station and coach yards and locomotive houses through a section of Cincinnati, which is already congested with trackage and of the operation of freight trains, to present freight terminals and to Ohio River bridges. While the present Union Central Station is closer to the business district than is any other feasible site, capitalized community costs of getting to a more distant location could be more than offset by savings in the cost of real estate. They would also be partially balanced by savings in the cost of handling merchandise, were the present passenger station site converted for freight purposes.

The studies with reference to sites in Mill Creek Valley included the ascertainment of the location of all lands now owned by the railroad companies, so as to make all possible use of this present ownership and thus involve any station enterprise in as little additional capital investment as possible.

Space is available on each side of Mill Creek for coach yards and round houses. The cost of the land is such, that the saving, as compared with other sites, would more than offset the capitalized cost for trolley fares to all passengers. Street traffic can be much better distributed from this site than from any other. In order to reach this site, it will be necessary for the Pennsylvania Railroad to operate about three miles further than at present. Almost as great a saving, however, is afforded both the B. & O. and the Big Four. Were a terminal operating corporation to handle all cars within the Cincinnati district, these differences could be readily absorbed. Such a corporation is strongly advocated, for this and other reasons. (See accompanying table "Comparative Passenger Train Operation.")

The present railroad passenger stations could be turned over for freight use, or sold, so that they would not be a continuing burden upon the roads. Their present inadequacy has been repeatedly pointed out, so that their abandonment

or material enlargement at costs, which might easily total as much as that of a union station, are necessary in any event.

#### Separate Pennsylvania Station

Whether the Pennsylvania Railroad does or does not operate into a union terminal in Mill Creek Valley, and whether in the latter event, it continues its present station, (doubtless, somewhat enlarged) or constructs a new one on the C. L. & N. site, is not of serious moment from a City Planning standpoint. The number of persons which would be diverted from a Mill Creek Valley station to one in the vicinity of Eggleston Avenue, would not reduce vehicular street traffic in the vicinity of a Mill Creek Valley site so as to alter street and roadway widths. The only apparent change would be in the number of street cars or buses operated.

The question of a separate Pennsylvania Station is one which will have to be left almost entirely to that Corporation, the city's interest being affected chiefly by the possible enlargement of the present station, or by minor street changes incident to the creation of a new site. Study shows that no material difficulty exists in this regard. However, unquestionably, the convenience of both the local and the traveling public would be far greater if the Pennsylvania entered the common union station.

It is therefore recommended that the city co-operate to the fullest possible extent with the railroads in consummating the construction of a union passenger station in the Mill Creek Valley.

#### Street Changes

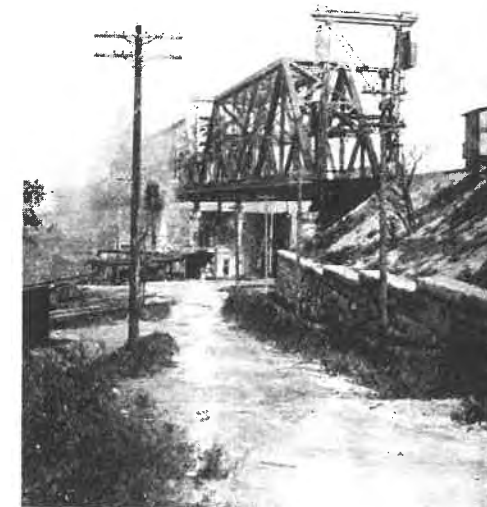
A Mill Creek Valley site will require certain street changes to provide for public access and also for rights-of-way to be used by the railroads. All required street changes have been considered in connection with the street system studies. The vacation of certain streets for railroad use, provided the Railroad Terminal Corporation pays all private property damages, is recommended as a part of the City's contribution towards the solution of this intricate problem.

to tunnel through Mt. Adams instead of operating through Eggleston Avenue, for example.

Mill Creek Valley is obviously the most strategic location for a railroad entrance. Were the several roads to combine in a union station, certain rearrangements of trackage among others would be required to bring in effectively the C. & O. and L. & N. roads from the northern terminus of the present C. & O. bridge.

A new C. & O. railroad bridge located opposite the foot of Freeman Avenue, would relieve much of the present congestion which now exists below Fourth Street, but might well not justify its extra cost.

If Pennsylvania trains are to be operated to a union passenger station in Mill Creek Valley, certain other new trackage must be constructed, unless they are operated over existing tracks of other roads.



AN OHIO RIVER RAILROAD BRIDGE

#### Viaduct Changes

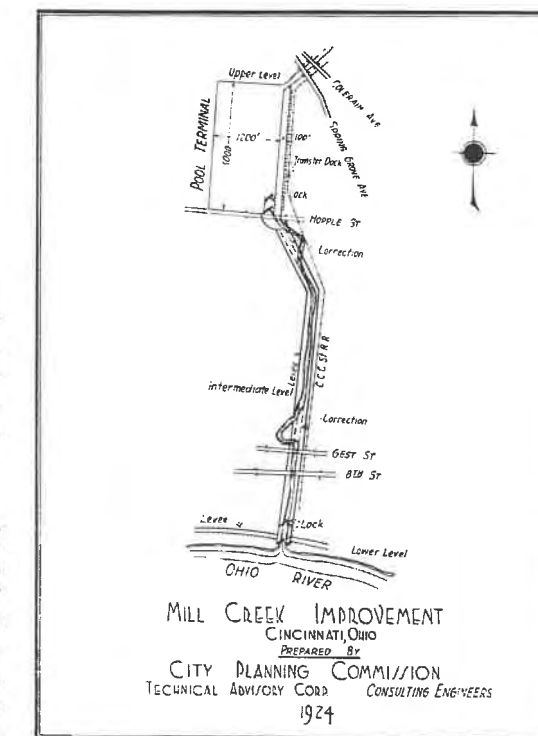
Where viaduct changes are required for purely railroad needs (such as the location of tracks above flood level) these changes should be paid by the Railroad Terminal Corporation. Obviously, the city should arrange to improve them for added street traffic at the same time and meet the financial obligations involved.

#### Canal

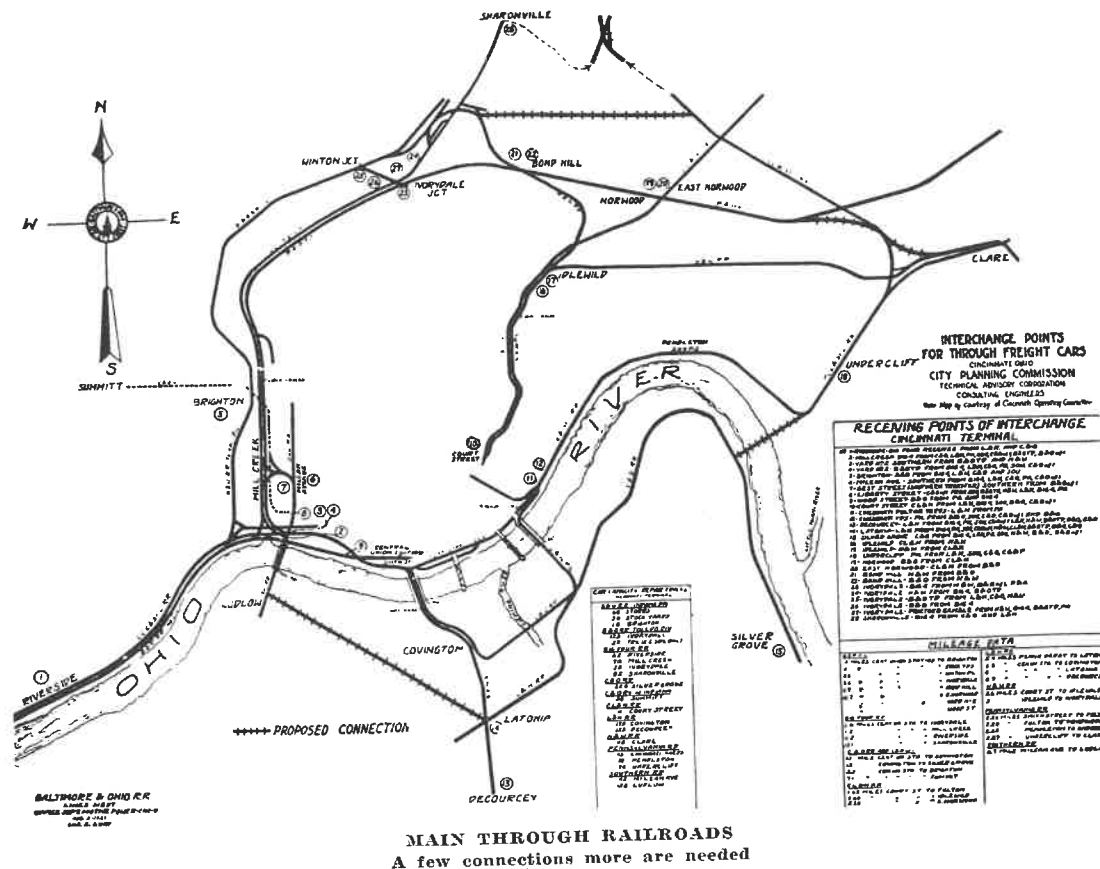
Since most of lower Mill Creek Valley must thus necessarily be set aside for passenger terminal and other railroad uses, due regard must be given to the provisions of Senate Bill 259, passed May 15, 1911 and House Bill 562, passed April 18, 1913.

#### Right-of-way Relocation

Studies of the present location of each of the trunk line railroads as it approaches Cincinnati reveal little opportunity for re-location, so as to shorten routes or improve facilities in connection with the location of new passenger stations. Should the Pennsylvania and its affiliated roads locate a new passenger station on the present C. L. & N. site, it would probably be wise for the Pennsylvania Railroad



A possibility only. The Little Miami Delta is better



In either case, ample opportunity exists for the required tracks without detriment to other features of the City Plan.

**The Railroad Freight Problem**

Obviously, the trunk line railroad terminal problem in Cincinnati can be most easily analyzed by separating the freight from the passenger elements. (See table, "Approximate Business Handled Through Cincinnati Terminal.") The problems in reference to freight handling can again be subdivided with reference to:

- (a) Interchange of fully loaded cars between railroads.
- (b) Interchange of L. C. L. freight between railroads.
- (c) Industrial siding car movements.
- (d) Team track yard car movements.
- (e) Freight station car movements.

Of an average daily total of 12,500 cars, about 10,000, or 80 per cent are empties and fully loaded cars interchanged between railroads. Of these, approximately 5,000 or 50 per cent, traverse the river front district. The track system in that region is intricate, weaving in and out among a large number of freight stations and team track delivery yards belonging to the several railroads. In addition to these yards and freight houses, the district contains a large number of wholesale warehouses and small manufacturing plants, and on the water front are located several coal and other merchandise handling plants, the deliveries from which must be made through the congestion incident to the railroad activities. Obviously, therefore, any diversion of an appreciable number of these interchange cars, or any relocation of the through trackage, so as to obviate congesting the other activities of the district, or both,

would prove of material benefit to Cincinnati. It is believed that approximately 4,600 cars of the present 5,000 could and should be handled elsewhere. (See table "Maximum Interchange of Freight Cars.")

In 1882, 1883 and 1884, the average car interchange between the roads, which then existed, was 126, 116 and 150 average per day, respectively. In 1922, 40 years later, it was about 10,000 cars. Since the largest interchange takes place between the roads which lead south and those which lead most nearly north, the greatest improvement in the service would be secured by arranging better interchange facilities between these roads.

A study of the railroad freight trackage now in existence in and around the city, shows that a belt now actually exists entirely around Cincinnati. A portion of this belt, however, passes through the congested area above described. By the construction of certain short lengths of track and by using the present bridges across the Ohio River, plus one new one, it is possible to improve greatly the routing of through freight interchange cars, so as to remove them from the congested part of the river front and at the same time shorten the total haul.

Operating improvements may be provided by the creation and operation of a line of through tracks without grade crossings, either over highways or over other railroad tracks, from the south side of the river, over one of the present bridges or a new one, and throughout the length of the Mill Creek Valley. Several alternate routes are possible. The first is over the present C. & O. bridge, reconstructed if necessary; the second is over a new C. & O. bridge, somewhat lower down the river than the present site; while the third is over the modernized Southern Railroad bridge.

Were the present C. & O. bridge to be used, it would doubtless require a new superstructure, an elevated trestle would be practically necessary from the northern end of the bridge at a higher level over the low land adjacent to the river and parallel with it, passing either over

or under the new Southern Railroad bridge approach across Mill Creek and continuing on a separate right-of-way throughout the valley.

When the C. & O. bridge has to be reconstructed so as to take modern equipment, it might transpire that the War Department would require a redesigning of the main river span and of the height of the bridge river datum. Should these changes require the abandonment of one or more of the river piers it might be found almost as economical to relocate the bridge, entirely abandoning the present site, and moving to a new one approximately on the extension of Freeman Avenue. While the latter location would be advantageous as an approach to a passenger station in Mill Creek Valley, it might be found that the gradients required for a through freight line would be excessively costly because of the necessity of carrying the latter over the relatively high level tracks leading from the Southern Railroad bridge to any passenger station site. The third alternative of making use of the Southern Railroad bridge would require new trackage on the Kentucky side of the river.

Three routes seem to be available. First, there is one connecting the Louisville & Nashville, just north of its DeCoursey yard, with the Southern Railroad over the hill south of Ft. Mitchell. Second, there is one starting from the point where the Louisville & Nashville and Chesapeake & Ohio join just north of Latonia, where a line could follow the low lands which approximately separate Covington and West Covington, turning along the shore below the high land just east of the Southern Railroad where it approaches the river. Third, there is an alternative line, practically on the river bank. By the construction of any one of these tracks, use could be made of the new Southern Railroad bridge for diverting freight cars from below Fourth Street.

No savings of distance would be effected by the relocation of the tracks on the Kentucky side of the river and of a bridge on the new site, but the railroads would be saved the construction of an elevated winding trestle on the Cincinnati side.



THE "BASIN" FROM THE SOUTHEAST  
Aeroplane view of railway tracks and freight station network

For through interchange between the north bank and the south bank, a considerable saving in distance can be effected by making use of the Pennsylvania or new C. & O. trackage, through the Little Miami Valley and roughly paralleling the Cincinnati Division of the Pennsylvania Railroad, together with a bridge to be erected approximately at the foot of Carrel Street. This would actually save 8½ miles of haul on all cars which are now interchanged between the Chesapeake & Ohio and the Big Four roads. The present haul amounts to 21 miles, 10 of which are over the C. & O. and 11 over the Big Four and B. & O. The saving on this length of haul would not in itself pay the interest on a new bridge, and even this, in combination with other operating savings, would probably not do

so for some years to come, but the rail congestion which would be saved in Cincinnati should be eliminated even at some cost by such a bridge.

The city should unquestionably use its best efforts to secure the elimination of as much through freight traffic as possible from the district below Fourth Street by whichever of the proposed methods is found to be mutually most expedient for the city and the railroads. It seems apparent that any freight terminal plan which involves the concentration of the entire freight interchange over one route will result in the not distant future in intolerable congestion, to the manifest disadvantage of all shippers. Every endeavor should be made to divert the through traffic away from the Mill Creek Valley.

### Joint Freight Stations

The Cincinnati method of eliminating trap cars by the use of containers transferred between freight stations by motor trucks is the most satisfactory scheme which has yet been devised anywhere in the country for solving the railroad interchange problem on less than carload shipments.

An expansion of the present motor truck transfer container service could easily be arranged so that, by the payment of a proper charge, a shipper could deliver freight destined for any road at any station in his vicinity. The shipment would be handled by the local porters and agent, and placed directly in the container destined for the road in question. Any such fee should include the proportionate cost of motor transfer and a station charge to cover the cost of handling. No reason seems apparent why the railroads could not agree upon the rates of charge for this service, file them with the Interstate Commerce Commission, and promulgate them forthwith. A considerable advantage would thereby accrue to the smaller shipper, who then would not be required to truck small consignments long distances to the station of the shipping road, but could consolidate all his shipments on one truck carried to a single outgoing station.

**In an exactly similar manner, incoming shipments could be routed to the most convenient local station, there to be picked up by the receiver in consolidated loads, the receiver paying a proper charge therefor.** If the railroads find it inexpedient to carry out this suggestion, the Motor Terminal Company might see its way clear to establish several local stations, and to provide containers and proper handling devices at them. Shippers could then deliver to the Motor Terminal Company's station, pay a fee for transfer from that station to the railroad terminal of the outgoing road, plus a proper extra to cover the costs to the Motor Terminal Company in clerk hire, as agent for the shipper in securing billings.

While the railroads generally desire to maintain independent freight terminals,

even though a Terminal Corporation may exist (as is the case at the present time in St. Louis), it is highly desirable to Cincinnati to have the railroads arrange for many joint freight yards and stations operated either by a private terminal corporation as agent for the roads, or by a belt line corporation in which the roads would participate. The larger of such joint freight yards or terminals should be located so as to serve the downtown wholesale district and each of the main industrial zones of the city. One such terminal should be in the Mill Creek Valley, in the vicinity of Eighth Street, for example. Another should be in the East End. A third should be somewhere below Fourth Street along the river front.

Much pressure is being brought to bear upon the railroads all over the country to secure better joint operation of freight facilities, particularly those designed primarily to handle less than carload lot business. Much discussion has been heard of the possibilities of introducing "store door delivery."

While the railroads were loath to undertake to work out this particular problem, for various reasons, the experience during the war showed that both the public and the railroads themselves were benefited by joint operation of terminal facilities, and in many cities both the roads and communities are working toward a resumption of this practice. Other alternatives are being studied by the roads, and one of them may eventually prove as good, or even superior to the scheme suggested above.

A terminal operating corporation composed of all the railroads, or of several corporations including groups of roads, would seem a logical first step. Other advantages also inhere in such a corporation.

**The city should constantly press the railroads to make studies in this direction and to co-operate with them as far as possible.**

### Freight Station Capacities

Studies of various cities show that all of those of the same general type as Cincinnati as to manufacturing activity are



very similar in the total annual tonnage per capita, and that its character is approximately constant from city to city and from year to year. The same per capita tonnage of foodstuffs, domestic fuel, wearing apparel, household furniture and building materials is also to be expected while a city is growing at a constant rate. A change in the classes of manufactured articles might change that tonnage slightly, but not to any great extent. Moreover, such commodities are largely handled over private sidings, so that a variation would not affect the design and location of the facilities used to handle the other classes of tonnage.

**Computations with Reference to Required Capacity of Freight Stations and Team Tracks, Tonnage per Industrial Area, etc.**

Tons per capita per year  
 0.93 (1.0) foodstuffs to local wholesale district.  
 0.58 (1.0) building materials to all parts, building material yard, i. e., business proportional to other area uses.  
 4.97 (5.0) fuel to fuel yards, i. e., business proportional to power and to heating requirements.  
 1.00 (1.0) miscellaneous to wholesale and factory districts proportional to area.  
 0.27 (0.3) other uses, local proportional to areas.  
 7.75 (8.0)

District of Total City Area	% of lot occupancy under zoning	Rear Yard	Height under zoning	Factor
Res. A	4.5	25	30	8
B	72.7	33	40	13
C	2.0	55	60	33
Bus. A	5.9	90	20%	60
B	0.5	90	20%	120
Ind. A	1.4	90	20%	100
B	12.3	90	0	100
C	0.7	90	0	100

Pop. 1970 — 525,000.  
 8 tons per cap. (7.75 actual in N. Y., 6+ in Cin.) 4,200,000 tons per yr.  
 20-30 tons per car (28+ actual today on average) 140,000 cars per yr.  
 3 days per car av.  
 100 cars per yr. per car capacity—1,400 car capacity.  
 3,000 approximate present (2,961).  
 Assume 1/3 coal and 1/4 bldg. materials to domestic consumption.  
 1. foodstuffs to wholesale districts (downtown).  
 .25 bldg. materials to domestic.  
 .75 bldg. materials to industries and downtown.  
 1.7 fuel to domestic.  
 3.3 fuel to industries and downtown.  
 0.9 misc. to industries and downtown.  
 0.1 misc. to domestic.

Domestic	Industrial	Downtown
0.25	0.72	1.00
1.70	3.15	0.03
0.10	0.85	0.05
2.05 (2.0)	4.72 (5.0)	1.23 (2.0)

500,000 pop.:  
 2 tons per cap. domestic per year.  
 5 tons per cap. industrial.  
 2 tons per cap. downtown.  
 5,000 persons domestic unit area.  
 2 tons per cap.  
 10,000 tons per unit.  
 20-30 tons per car.  
 333 cars per yr.  
 100 cars per yr. capacity.  
 3 cars capacity per unit.  
 100 units.  
 300 cars total capacity.  
 500,000 pop.:  
 5 tons per cap. industrial.  
 2,500,000 tons per yr.  
 20-30 tons per car.  
 83,333 cars per year.  
 100 cars per year capacity.  
 833 cars capacity.  
 (854 shown in red on map, total)

500,000 pop.:  
 2 tons per cap. downtown.  
 2/5 of industrial.  
 333 cars capacity. 0.67 per M pop.  
 833  
 333  
 800  
 1,466  
 1.2 sq. mi. industrial area present.  
 6,649 acres future industrial (1,950 acres in Little Miami Valley)  
 8 acres per car in industrial areas.

With a known annual per capita tonnage of the kinds mentioned, a logical arrangement of freight stations can be planned and their future capacity determined on a future population basis. The various factors for Cincinnati have been worked out on a basis of 30 tons per car, and it has been determined that each station should have the minimum car capacity shown in the following table:

	Car Capacity
Downtown station adjacent to wholesale district for general merchandise and wholesale foodstuffs, per 1,000 population	0.60
All stations, per 1,000 residents in the logically tributary territory	0.60
All stations, per acre of industrial area in the logical tributary territory	0.125

At least until joint freight yards or terminals may be established, the downtown wholesale districts should be permanently served from the existing freight stations

below Fourth Street, except that their capacities should be increased as indicated on the City Plan Map, or in some similar manner. Their arrangement could be materially improved, however. The proposed Little Miami Valley industrial area will have to be served by special railroad connections. All other proposed industrial areas are in districts now tapped by railroads and not so distant at any point as to involve excessive hauls to existing or to readily established new stations. The topography is such as practically to preclude the construction of other railroad lines, and the hauls for household furniture, fuel and building materials for domestic consumption do not exceed one and a quarter miles from existing stations, except to College Hill.

College Hill should be served by freight facilities operated by the Ohio Electric Railway Corporation through connections with the railroads in Mill Creek Valley. Otherwise all freight to College Hill must be handled by motor trucks. In the former case, an extra handling is required and some delay is inevitable. While trolley freight operation as far as line haul is concerned, should be less costly than that by motor truck, the margin in this case will be small, and it will probably be found as to most shipments that the motor truck is the best. The Ohio Electric Railway is not permitted to carry freight under the franchise granted by the Village Council of College Hill, No. 766, passed May 9, 1898, section 1. If the railroad desires a freight franchise, the City should grant one under adequate but not excessively restrictive conditions.

If the Cincinnati and Westwood railroad which was discontinued in June, 1924, is not reopened, then the Westwood-Cheviot region must be served by a special trucking service from one of the freight yards near Harrison Avenue Viaduct, or preferably from the Summit yards near the intersection of Bridgetown Pike with the C. & O. of Indiana.

On the basis of the factors given in the foregoing table, the future capacity of each existing station was estimated.

Freight yards or stations should be extended or located approximately as indicated upon the City Plan Map, or in some similar manner. It is to be expected that the railroads will be anxious to supply added facilities as fast as demand requires.

With a terminal corporation to handle all traffic and the track and terminal changes adopted as herein suggested, no special changes from the standpoint of the City Plan are suggested as to the accepted practice in handling industrial siding, team track and freight station cars.

To recapitulate: the City should encourage the formation of a railroad terminal corporation which will be charged with the construction and operation of a Union Passenger Station in the Mill Creek Valley; new trackage should be laid on the Kentucky side of the river, so as to divert a large amount of the traffic which now traverses the district below Fourth Street, and arrangements should be made so that all freight stations will serve all roads.

**Approximate Business Handled Through Cincinnati Terminal  
 Period of One Year — 1922**

Loads Inbound	1,237,878
Loads Outbound	1,117,659
Empties Inbound	742,726
Empties Outbound	670,595
Coal Handled Through Terminal	445,594
House Freight Unloaded	113,869
House Freight Loaded	125,255
Cars Unloaded at Team Tracks	62,399
Cars Unloaded at Industries	137,100
Cars Loaded at Industries	150,810
Inbound Cars Unloaded in Cincinnati Terminal	148,545
Outbound Cars Unloaded in Cincinnati Terminal	134,119
Freight Trains Inbound	40,773
Freight Trains Outbound	41,766
Passenger Trains Inbound	48,910
Passenger Trains Outbound	51,100

**MAXIMUM DAILY INTERCHANGE OF FREIGHT CARS  
Cincinnati Terminals — Year 1923**

	C. & O.		L. & N.		Southern		C.C.C.&St.L. Cin'ti Div.		C.C.C.&St.L. Chicago Div.		B. & O. Toledo Div.		B. & O. Ohio Ind. Div.		Penna.		N. & W.		C. & O. of I.		Total Thru Switch	
	Thru	to Switch	Thru	to Switch	Thru	to Switch	Thru	to Switch	Thru	to Switch	Thru	to Switch	Thru	to Switch	Thru	to Switch	Thru	to Switch	Thru	to Switch		
C. & O.	10	0	18	2	39	1	209	4	71	1	470	5	45	1	88	2	...	...	...	...	21	
L. & N.	20	4	21	4	20	0	544	16	131	4	322	10	52	1	218	7	...	...	...	...	40	
Southern	...	...	...	...	...	...	100	10	47	3	71	4	11	4	142	8	...	...	...	...	38	
C.C.C.&St.L. Cin'ti Div.	302	38	548	72	176	24	...	...	100	0	25	25	...	...	30	20	...	...	...	...	182	
C.C.C.&St.L. Chicago Div.	70	10	132	18	44	6	30	0	...	...	...	...	75	75	11	24	...	...	...	...	34	
B. & O.	450	76	319	36	64	11	25	25	...	...	...	...	...	...	...	...	...	60	15	25	267	
B. & O. Ohio-Ind. Div.	43	6	49	7	64	11	32	8	...	...	105	45	...	...	...	...	...	...	...	...	77	
Pennsylvania	85	15	212	38	127	23	40	10	...	...	25	10	...	...	...	...	...	...	...	...	104	
N. & W.	...	...	...	...	...	...	54	6	...	...	52	23	...	...	...	...	...	...	...	...	...	33
C. & O. of I.	254	1	39	1	14	1	0	10	...	...	67	8	...	...	...	...	...	...	...	...	21	
<b>Total</b>	<b>1,231</b>	<b>150</b>	<b>1,338</b>	<b>178</b>	<b>548</b>	<b>77</b>	<b>1,214</b>	<b>89</b>	<b>349</b>	<b>8</b>	<b>1,137</b>	<b>130</b>	<b>183</b>	<b>81</b>	<b>525</b>	<b>65</b>	<b>149</b>	<b>26</b>	<b>313</b>	<b>13</b>	<b>6,990</b>	

Total maximum movement over C. & O. Bridge ..... 4,825 cars  
 Total maximum movement over L. & N. Bridge ..... 750 "  
 Total maximum movement over Southern Bridge ..... 900 "  
 Total maximum interchange between lines north of river (excluding Southern) ..... 1,300 "  
 Total maximum interchange between lines south of river and lines south of river ..... 30 "  
 Total maximum interchange between lines north of river and lines south of river ..... 6,720 "  
 B. & O. intermediate N. & W. and P. Co. to C. & O. of Indiana, P. Co., B. & O. and Big Four intermediate with N. & W. and all southern lines. 6,066 "  
 Total through between lines south side of river and lines north of river ..... 491 "  
 Total switch between lines south side of river and lines north of river ..... 896 "  
 Total through between lines north side of river and lines north of river ..... 324 "  
 Total switch between lines south side of river

RAILWAYS

**Comparative Passenger Train Operation Using Existing and Proposed Terminal Facilities**

Railroad Line	Approach to Station (in ft.)			Coach Yard Movements (in ft.)			Difference (in ft.) Including Coach Yard Movements	Number Trains per Diem
	Existing	Proposed	Difference	Existing	Proposed	Difference		
<b>B. &amp; O.—</b>								
Ohio Div. ....	19,500	9,000	10,500	1,800	13,400	—11,600	—1,100	33
St. Louis Div. ....	9,750	7,750	2,000	1,800	13,400	—11,600	—9,800	19
Toledo Div. ....	33,750	24,250	9,500	1,400	13,400	—12,000	—2,500	19
Toledo Div.* .....	39,000	24,250	14,750	1,800	13,400	—11,600	3,150	9
<b>C. &amp; O. ....</b>	3,600	8,600	—5,000	10,200	9,200	1,000	—4,000	14
<b>C. &amp; O. of Ind. ....</b>	14,250	5,750	8,500	10,200	9,200	1,000	9,500	4
<b>C. C. C. &amp; St. L.—</b>								
Cincinnati Div. ....	19,500	9,000	10,500	3,000	13,400	—10,400	100	27
Chicago Div. ....	10,500	7,750	2,750	3,000	13,400	—10,400	—7,850	25
Cincinnati Northern ....	19,500	9,000	10,500	3,000	13,400	—10,400	100	4
<b>L. &amp; N.—</b>								
Ky. Cent. Div. ....	3,600	8,600	—5,000	13,100	13,400	—300	—5,300	12
Cincinnati Division ....	25,500	26,600	—1,100	800	13,400	—12,600	—13,700	12
<b>Penna. R. R.</b>								
Cincinnati Div. ....	45,750	72,000	—16,250	800	13,400	—12,600	—28,850	19
Richmond Div. ....	86,750	72,000	14,750	800	13,400	—12,600	2,150	9
<b>N. &amp; W. ....</b>	45,750	7,200	—16,250	800	13,400	—12,600	—28,850	8
<b>Southern ....</b>	14,250	3,750	10,500	16,500	6,500	10,000	20,500	18

\* Toledo Div. Trains using Central Union Station.

## CHAPTER IX

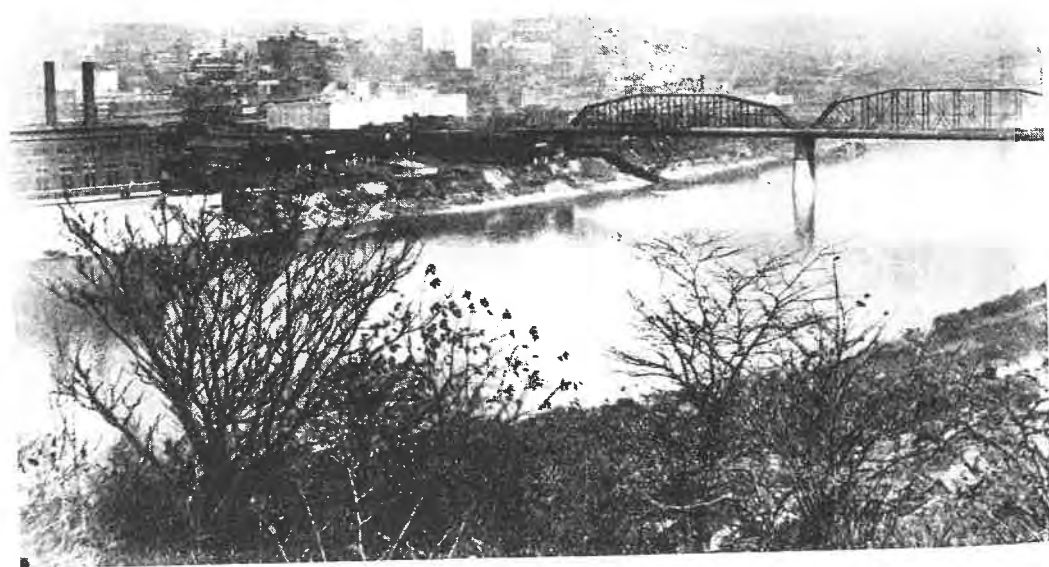
### Waterways and Flood Control

Paragraph (h) of the second section of contract, required investigations and a report upon "River, barge-canal and all other water terminal and waterfront development, including general location of water terminals, docks, wharves, harbor developments and all other types of facilities, for waterborne traffic, including connections with railroads and other landborne traffic; flood prevention facilities."

#### Ohio River

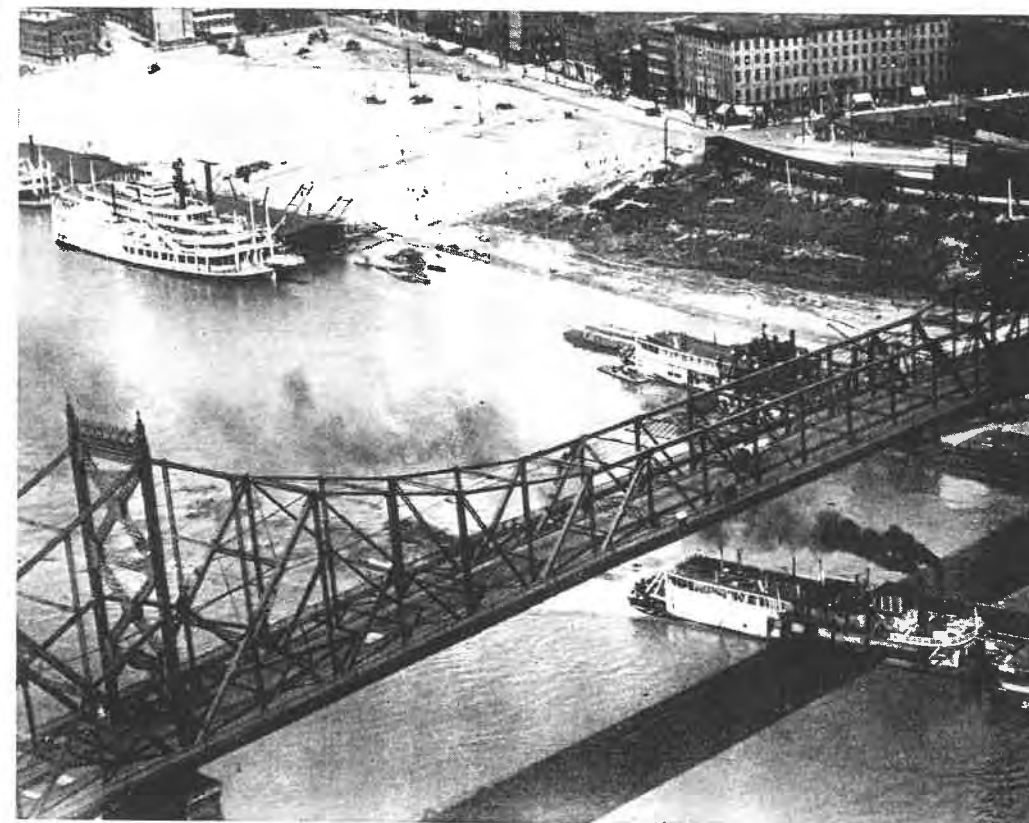
Certain paragraphs in the "Program For A City Plan" submitted in revised form on January 10, 1922, read as follows:

"As a commercial waterway, the Ohio River has been declining since the peak of the river business in 1882. Various causes have been suggested by students of water transportation, but it is almost the consensus of opinion that the lack of adequate, modern, efficient terminal facilities is a primary factor. The Federal Government has expended more than \$100,000,000 on water facilities of direct interest to Cincinnati and is committed to the completion of a project which will provide a channel 9 feet deep from Pittsburgh to the Mississippi River, by the construction of 54 locks and dams. No navigation now exists on Mill Creek or on the two Miami Rivers."



CINCINNATI FROM THE KENTUCKY SIDE  
The mercantile "Basin" with its ring of residential hills

© Paul Briol 1924



CITY LANDING AND ITS APPROACHES  
Aeroplane view of Cincinnati's only large wharf

\* \* \* \* \*

"Judging from the revival which took place on the Rhine with the improvement of that river, and seems lately to have begun on the New York State Barge Canal recently completed; and from difficulties which railroads have been experiencing in the handling of freight even in times of industrial depression, there is likely to be a trend toward a revival in inland water transportation."

\* \* \* \* \*

"The existing facilities at Cincinnati for handling river transportation, which may be considered at all comprehensive in character, consist solely of the sloping, paved riverbank or levee. Privately owned and operated wharf boats provide landing facilities and are proving fairly adequate for present needs \* \* \* \* \*"

"Obviously, waterfront terminals must be designed so as to be independent of flood conditions at least in so far as damage to merchandise is concerned. \* \* \*"

"A sufficient length of modern, adequately constructed river frontage should be provided for probable future river traffic, both passenger and freight, for vessels of various kinds (steamers, barges, motor boats, etc.) up to the 9-foot draft provided in the U. S. Government plans for improving the river. The remainder of the riverfront need not be treated so as to provide additional landings, except at infrequent intervals or where private interests require special facilities."

"Connecting tracks and sidings must be provided for interchange of freight between vessels and railways. Ample ap-



BUDAPEST, DANUBE RIVER BANKS

proach streets and parking spaces must also be laid out for interchange of freight between vessels and motor trucks and for passenger vehicles."

On the basis of a future population of 600,000 and seven tons per capita per year (which is slightly larger than the present per capita tonnage destined to, and originating in Cincinnati,) with 25 per cent handled by water, as has been found to be the approximate ratio in somewhat similarly situated cities, a total waterborne future traffic of slightly over 1,000,000 tons per year is deduced. On the basis of 100 tons per running foot of wharfage per year, which is a conservative figure, it is seen that 10,000 feet of wharfage should be set aside by 1970 at strategic points upon existing and possible waterways in and through Cincinnati.

The Public Landing now provides about 1,000 feet of available frontage, about one-half of which is now used in river business. Several privately owned plants, principally for the handling of building materials and fuel, occupy the equivalent of about 2,000 additional feet. The terminal proposed by the Chamber of Commerce would provide 800 feet, which would be open to general public use. Were the latter terminal to be developed, it would doubtless be so designed as to handle a much larger unit tonnage per front foot than the figure used above. It is thus probable that existing or existing plus immediately proposed facilities, would provide for the proportion of waterborne freight that would normally use the Ohio River for a number of years to come.

Much study of the problem leads to the conclusion that a modified type of wharf boat (such as those now in existence at Pittsburgh and St. Louis, for example) is the most economical method of handling river business.

A terminal equipment like that proposed by the Chamber of Commerce (according to preliminary sketches) with mechanical handling facilities for the transfer of steel and other heavy commodities, together with the existing facilities for handling fuel (modernized when need demands,) is well adapted to Cincinnati conditions.

Railroad tracks now exist closely adjacent to the waterfront opposite the downtown business section, and connection is therefore easy at all points between existing railroads and proposed river terminals. Streets generally lead close enough to the waterfront to provide adequate highway facilities, provided they are properly paved and maintained. Each special site must be designed with reference to water, rail and highway access and sufficient landing and warehouse space must be created in each case for the specific tonnage and type of commodity to be handled. No more specific recommendations can be made than this in connection with a general city plan, for with such a choice of possible sites, all equally accessible, equally well served by rail, and equally possible under the City Plan, it is better to leave all further development to private initiative.

PARIS, BARGE CANAL NEAR THE BASTILLE  
Serves huge industrial area with water borne freight

### Canals

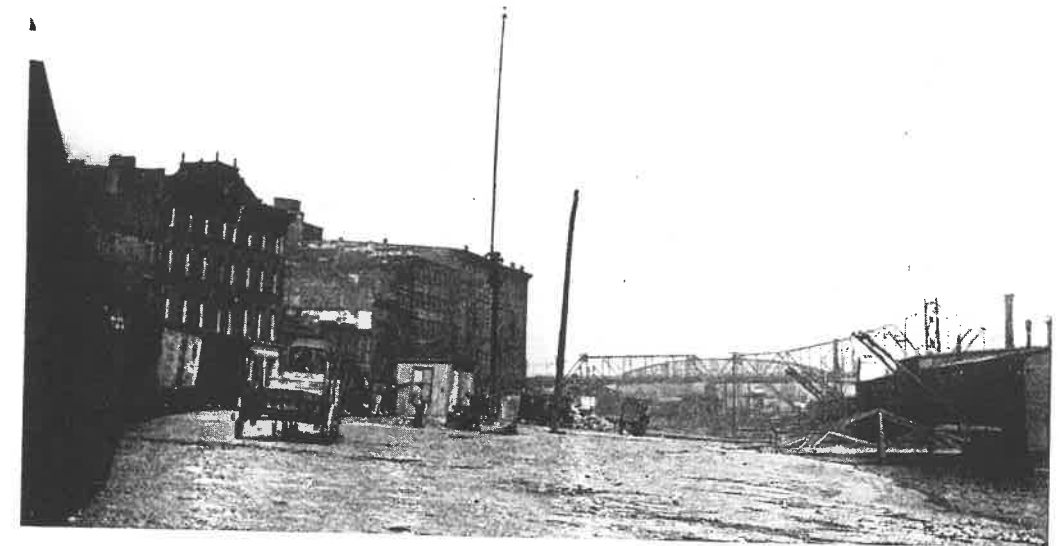
Much consideration has been given from time to time to the rejuvenation of the old Miami and Erie Canal. House Document 188, 67th Congress, Second Session, reports certain investigations made by a Board of Engineers under the War Department for alternative canal routes to connect Lake Erie with the Ohio River. No canal following substantially the route of the old Miami and Erie, is favored by that Board and it is not to be expected that the further investigations which are being made under its direction will change this opinion.

Nevertheless, studies of the situation made in connection with the planning of Cincinnati, disclosed so much merit in the old Miami and Erie scheme that it is possible that future developments may result in the construction of an enlarged canal along that route. Should the Federal Government postpone indefinitely the approval of the project as one meriting Federal aid, the precedent of the New York State Barge Canal and the growing business which it is handling, might lead to the construction of a canal by the State of Ohio, largely for the benefits it might well bring to the region it passes through,

in addition to the value of the transportation itself.

Three alternative termini at the Ohio River have been investigated, viz: the Little Miami, Mill Creek and the Big Miami. Of these three, the two Miamis are somewhat distant and roundabout in their approach. The valley of Mill Creek is much the best adapted physically for the purpose of a canal. This was found to be the fact, primarily for engineering reasons, (depths of cuttings and water supply on the summit level.)

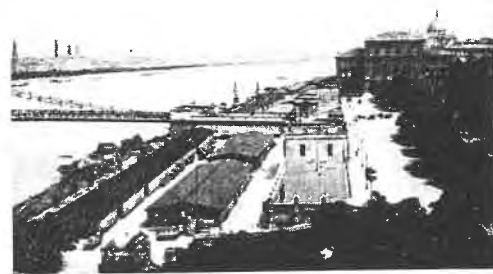
Attention was then turned to the determination of the best sites in Mill Creek Valley at which canal terminal basins and landings could be located. Two such sites are large enough and otherwise adapted to the purpose. One is between Gest and Liberty Streets, while the other is north of Hopple Street. The first site is smaller than the second and has various other advantageous possible uses besides that for a barge canal terminal. For example, it could be used with advantage for enlarged railroad yards. Thus a site of proper size above Hopple Street should be tentatively considered in connection with the City Plan, as a possible barge canal terminal site.

CINCINNATI RIVER FRONT  
Inadequate use of the river front

Any basin which is required for such a terminal, must be maintained at practically a constant level, and would therefore require a lock between it and the Ohio River. It might even be found advantageous, for purely engineering reasons, to introduce an additional lock, so as to maintain an intermediate water level between the basin and the mouth of the creek. The terminal basin could advantageously be designed to cover about 80 acres with about 10,000 feet of wharfage. On the basis of the normal unit capacity figure of 100 tons of freight per running foot of wharf per annum, it is seen that one million tons could easily be handled at such a terminal. This is believed to be several times the amount of the tonnage, which would be likely to use facilities in the upper Mill Creek Valley.

Were no canal to be constructed through Mill Creek Valley, a barge terminal basin will probably be found advantageous in the Little Miami Valley to afford facilities to any future industrial district created in that region by reclamation. Ample opportunity is afforded at several points in the lower reaches of the Little Miami for such a terminal site.

In addition to possible barge canal terminals in Mill Creek, and Little Miami Valley, provision should be made for the handling of future possible canal business on the Ohio River near the business district, either at the present public landing, at the terminal site proposed by the Chamber of Commerce, or at some other convenient point. Such a terminal would



BUDAPEST, DANUBE RIVER PORT  
Budapest much like Cincinnati in its relation to its river

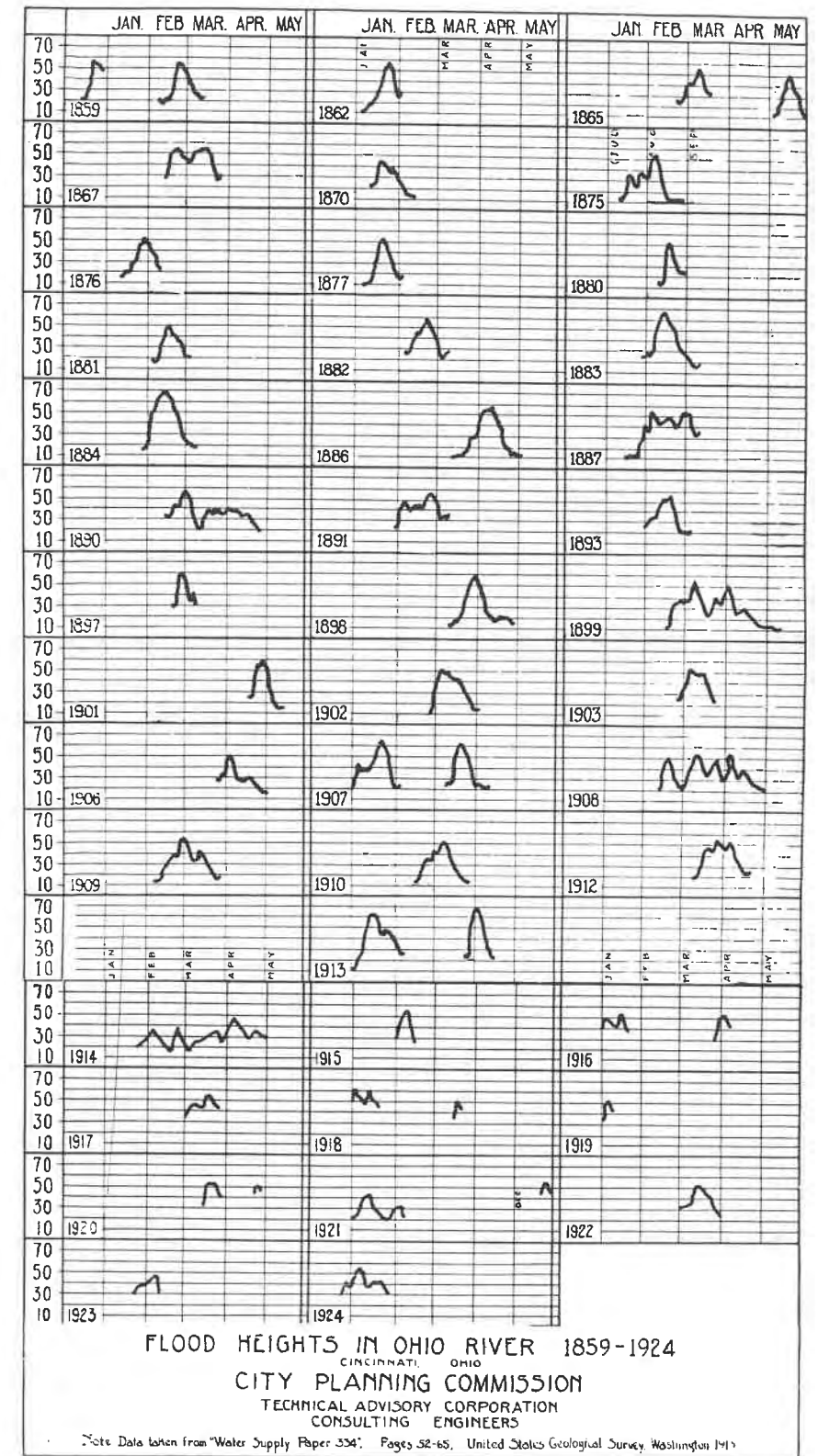
also serve for river barges, pending and after the construction of a canal. The frontage of the site recommended by the Chamber of Commerce approximates 800 feet, and about 500 feet of frontage is available at the public landing in addition to that now used by the existing wharf boats. The total river frontage, opposite the downtown business section of the city, aggregates about 10,000 feet. So many alternative locations are thus seen to be possible, that no special study was made of sites other than the two first mentioned. Furthermore, river freight would largely be of a nature which would go directly to private industrial terminals. The provision of 1,300 feet for general public use is probably ample, both for possible future canal terminal purposes and for the handling of river traffic.

Flood Prevention

It is needless to dwell upon the fact that Cincinnati has suffered from floods. In this connection, a quotation from Water Supply Paper, No. 334 of the United States Geological Survey with reference to "The Ohio Valley Flood of March-April, 1913," is especially pertinent.

"The value of the prevention of damage by floods can hardly be overestimated. It is not to be measured by considering only the value of actual damage by floods in the past. Not only must the loss of human life and animal life be considered, but also the increase in the value of property and the enormously valuable increased confidence that would result from the assurance that flood protection up to a certain limit could be absolutely relied upon. This phase of the situation was illustrated in a timely manner by the campaign of advertising followed by a certain city in the Ohio Valley during the recent flood, which guaranteed immunity from floods to industries that could be prevailed upon to move to that city. The ability to make such a guarantee would be a most valuable asset to every city or community in the Ohio Valley now subject to damage by floods."

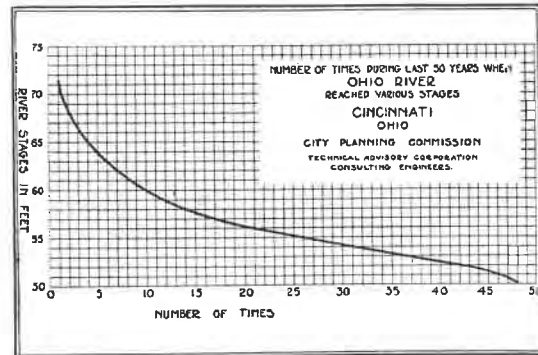
The planning of any city with a flood menace must be studied with especial consideration to the economic and physical



1884 was the highest flood.

feasibility of flood prevention measures. This has been done with reference to Cincinnati.

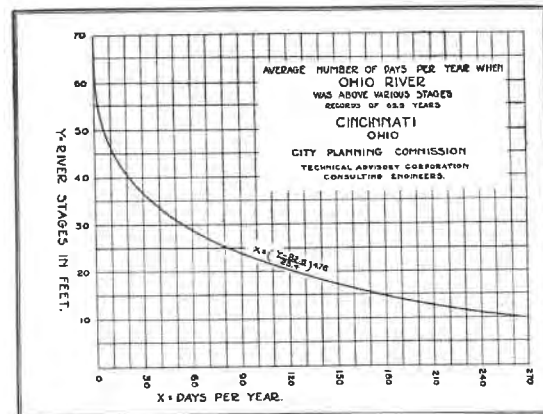
A compilation was first made of all available data with reference to each of the floods for which records were obtainable. Special studies were made of the floods which have taken place during the past fifty years, including special studies of the 1924 high water.



Basis for estimating future flood damage

Tabulations and diagrams were prepared of the following data:

- (a) The number of floods for each foot of height above river datum.
- (b) The percentage of the past fifty years during which floods have occurred for each river stage.
- (c) The interval in years between floods which reached or exceeded each foot of river stage.
- (d) The number of days per year during which the river reached or exceeded any given stage.

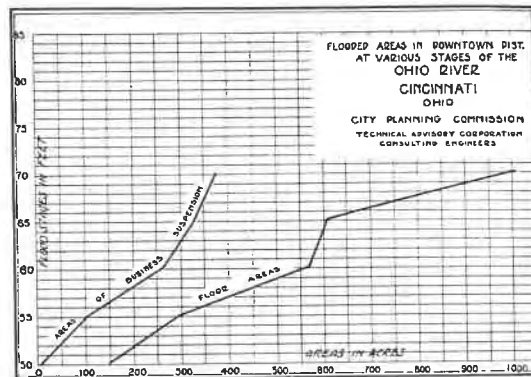


Used in estimating value of dyking to property owners

Number of Days When Each Stage Has Been Reached

Stage (ft.)	65½ years average per year	Equal once in following No. of years
10	265	0.0038 year
15	178	0.0056 "
20	125	0.008 "
25	84	0.012 "
30	54	0.018 "
35	34.7	0.029 "
40	20.6	0.048 "
50	5.4	0.18 "
60	0.79	1.26 years
70	0.03	33.33 "

(e) The land areas affected by each foot of river stage to the extent of suspending business.



Shows amount of damage

Area of Sections Under Floods in Cincinnati (Ohio and Mill Creek)

Stage	Acres
50	0
55	17.2
60	230.5
65	308.0
70	360.0
75	395.2
80	424.8
Total	1,735.7

(Included on Sheet No. 30 in Bottom and around Mill Creek Valley up to Eighth Street).

(f) The floor areas flooded at each foot of river stage.

Buildings Flooded up Millcreek to Eighth Street

Stage	Ceilars	Ground Floor	Second Floor	Total
50	145.2 acres	0 acres	0 acres	145.2 acres
55	277.0	17.2	0	294.2
60	339.0	230.5	0	569.5
65	381.1	308.0	17.2	806.1
70	412.9	360.0	230.5	1,003.4
Total				2,618.4 acres



The railroad embankments will change this.

Careful estimates were made of the value of real estate opposite the center of the city flooded for each five feet of river stage above 50 feet and also of the buildings located on such lands.

Suspension of Business by Flood

Stage	Acres	Building Areas	Land and building valuations affected
50	6.9	4.93	\$ 425,000
55	102.5	73.7	6,340,000
60	261.5	188.3	16,200,000
65	327.0	235.5	20,270,000
70	374.1	269.6	23,220,000
Total			\$66,455,000

The flood of 1924 was studied as to the actual area affected, and interviews were held with all affected business concerns, railroads and other interested parties to obtain estimates of the actual costs incurred by them in repairing flood damages and of moving merchan-

dise, and the losses due to suspension of business. At the same time as much information was obtained as possible with reference to the costs involved by the 1918 flood. The Government reports concerning the 1913 flood were analyzed in detail. In this connection, the following quotations from Water Supply Paper No. 334 are pertinent:

1. "The damage caused by floods may be divided into two classes—actual and economic. Under "actual damage" are classed direct physical losses that are tangible and apparent, a portion of which may be measured in terms of the expenditure required to restore the thing damaged, to approximately its condition before the flood; the rest may be measured in terms of the monetary value of the thing lost or destroyed."

2. "The damage by flood results directly from two things, simple inundation and the effects of the current. It is questionable which of the two causes the more damage. In simple inundation, probably the most damage is caused by the yellow, slimy, fine, penetrating mud that is deposited everywhere. The effect of this mud in cities is almost inconceivable."

3. "There is a loss of wild animal life of which it is practically impossible to get any idea. Finally the pitiful loss of human life is the most serious of all. Although a valuation is sometimes placed upon human life, it seems that any attempt to judge this loss in terms of money is entirely out of place here. In addition to the direct loss of life, there is the indirect loss due to ill health, sickness, and death resulting from the unsanitary and unhealthy conditions which follow all floods."

4. "In considering damage by flood, it should be borne in mind that damage resulting from floods of a given and constant magnitude (for example) are ever increasing, because of increases in the value of the areas flooded and of their contents."

From the estimated losses of the 1913, 1918 and 1924 floods, a curve of flood damage costs was determined, and on the basis of this curve, estimates were made of the losses involved by the floods which have occurred during the past fifty years. The estimated total damage amounts to \$7,772,100 or an average of \$155,442 per year.

A careful estimate was also made of the damage which might accrue if floods occur in accordance with the law of probabilities computed on the basis of past experience. The average annual potential loss was thus estimated at slightly under \$600,000 per year.



THAMES EMBANKMENT, LONDON  
Beautiful esplanade in heart of the city

In addition to the several more or less obvious sources of flood damage, note should be made of (a) the more rapid depreciation of buildings periodically flooded than is to be expected outside the flooded area. (b) the overloading of the upper floors of building with merchandise removed from flooded stories, (so as to produce collapse in at least one instance) and (c) the possibility of the occurrence of fires in the flooded area, which cannot be reached or handled by fire apparatus so that an extended conflagration is possible. Illuminating pictures of the conditions created by the 1913 flood are attached to this report.



THE DANUBE THROUGH BUDAPEST  
Riverfront used extensively for both commerce and for enjoyment

Studies of the river banks show that encroachments of buildings and other commercial facilities have been permitted to extend into the waterway, so as certainly to have increased the height of flood stages. These studies led to concurrence in the opinion of an eminent engineer who has studied the flood problem at Cincinnati, that these encroachments have probably increased flood stages by ten feet over those which would have occurred had the encroachments not existed.

The possibilities of major control seem to be through flood prevention measures taken in the upper areas of the watershed by the construction of detaining reservoirs. Minor measures which might effect maximum floods by a few feet at most, and only for the lesser ones, consist in river bed straightening and widening, and the construction of storage basins in the Licking River and Little Miami Valleys against coincident floods.

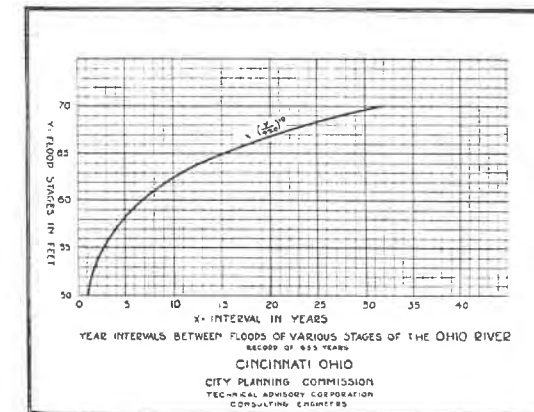
Complete protection of the city itself against flooding, could, of course, be secured by filling in the land now flooded. This would be a most expensive, but not impossible solution. Another solution would be to place dykes along the banks of



PRAGUE, RIVERFRONT ESPLANADE  
Prague does not turn its back on its rivers

the Ohio and the lower stretches of Mill Creek Valley, providing pumping plants for sewers and drains coming from those areas which are below the high flood level. This pumping would be reduced by carrying sewers and drains from the higher land in pressure pipes across the low land to the river.

In any comprehensive city planning investigation, the costs of such flood protective measures must be estimated and the interest on such costs compared with the average annual damage, both direct and indirect. Because the highest floods are rare and because average floods have become so much a matter of course to that part of the community involved, the city has adjusted itself as to its real estate values and rents in the flooded zone and to the slowing down of business during the flood periods, so that the losses



Shows flood probabilities

are largely discounted or otherwise provided for. In consequence, many individuals believe that the community is not justified in expending large sums in flood prevention work. Such persons measure only the individual cost and do not appreciate, or perhaps care, for the cost to the whole community involved in the slowing down of industry and business. Were these losses capitalized, it would probably be found in Cincinnati, as it has generally been found elsewhere, that adequate measures are cheapest in the long run. Other incidental benefits are the reclamation of what are now bottom lands for industrial and commercial use, or perhaps in some cases for parks and housing.

The only measurably sure method of flood prevention is through the construction of flood regulating reservoirs near the head waters of the Ohio and its various tributaries. Cincinnati should continuously urge their construction and cooperate with funds if necessary. As to local measures, several additional alternatives exist.

Local protection can be secured by either of two major methods. The flooded area might be raised (as was done at Galveston) or a dyke might be constructed along the river bank as has become the practice along the Mississippi River, and has been done in a few places along the Ohio River (such as Portsmouth, Ohio and Cairo, Ill.) The cost of raising the flooded areas in Cincinnati was not estimated, because it was considered that it would be impracticable physically and economically to do so. Detailed investigations were made, however, of the possibilities of constructing a dyke.

#### Dykes

Physically, a dyke (or series of dykes) would be entirely feasible, and as far as engineering matters are concerned, would not be in any sense, difficult.

The location of a possible dyke was examined both on the topographical maps and by field investigations. It would affect few buildings and would find a logical eastern termination in the Pennsylvania Railroad yards in the vicinity of

Weeks Street, while the westerly end would have to be carried across the mouth of Mill Creek by a lock, and terminate on high land approximately at the foot of Kansas Avenue, or else the dyke would have to be returned to high land somewhere along the easterly side of Mill Creek Valley. While the Kansas Avenue termination is physically possible, it is not economically feasible, because of the plant which would be needed to care for the flood water of Mill Creek. By 1930 or 1940 at latest, a dyke in front of the principal business district should be studied in collaboration with the U. S. Army Engineers.

A peripatetic survey was made to ascertain the feasibility of constructing such a dyke. This disclosed the fact that such a structure could be started about opposite Kansas Avenue. At that point, Sixth Street rises above elevation 500, and only four railroad tracks exist. These could easily be elevated without material increase in grade, from the top of the dyke to the throat of the yard. Between Kansas Avenue and the mouth of Mill Creek, the dyke would be easy of construction, except possibly adjacent to the Round House of the B. & O. S. W. R. R. Generally speaking, it should follow the 475-foot contour. Throughout this section, the slope would doubtless require rip-rapping because ample evidence shows that the river has a tendency to cut along this section and the railroad has deposited at several points heavy blocks of concrete and stone.

At the mouth of Mill Creek a lock and gate will be required.

Just east of the mouth of the Mill Creek exists a contractor's yard, which would have to be largely sacrificed.

Just below the Cincinnati Southern Railroad bridge, an old shed exists, but it could be moved or abandoned without material expense.

The better solution would probably be to turn the dyke up the eastern side of Mill Creek to Liberty street or above, using the proposed track elevation embankments as a dyke.

From the mouth of Mill Creek to a point near the Cincinnati Gas & Electric Company's Power Plant, no material obstacle exists to prevent the erection of a dyke, except the marble plant just west of the Power Plant, one or two sheds, and several coal handling inclines, which might have to be rearranged. At the Cincinnati Gas & Electric Company's plant, the land is at such a level and the plant has been so constructed that the dyke would have to be only about three feet high (doubtless in the shape of a concrete wall) to bring its top above the highest flood level.

Between the Company's plant and the Public Landing, several buildings exist which are generally of poor quality and could be moved in whole or in part.

The general location of the dyke around the Public Landing is possibly open to some question.

A track now runs from Water Street diagonally across the northwest corner of the Landing to a point in Front Street about opposite Sycamore Street.

Vacant lands and old buildings now exist which are of relatively small value. The buildings could be removed so that the railroad could be relocated to the northwest of a curved dyke which would extend from the waterfront just west of Main Street in a double reverse curve, to a point along the southerly side of Front Street, between Main and Sycamore Streets. The dyke should then continue easterly along the southerly side of Front Street, curving under the Newport and Cincinnati bridge, approximately along the line of the 475-foot contour. Approach to the public landing could be made either by a gate through the dyke, which could be so designed as to be closed and maintained in a water-tight condition during periods of high water, or by inclines from the top of the dyke, down on each side of Front Street and the Public Landing area respectively. Possibly two such gates and sets of inclines might be required to give access to the Public Landing. A similar gate or set of inclines would doubtless be found necessary just west of the Newport and Cincinnati bridge.

Starting at a point just easterly of Broadway, an elevated railroad trestle exists, which is now cut off abruptly and is not used.

Near the foot of Lawrence Street, a builders' material plant exists, which would have to be partially reconstructed. Several small buildings are also to be found in this vicinity which would have to be moved.

Just north of the Louisville & Nashville bridge is a coal pocket, at the end of which



PRAGUE RIVER BANKS  
Stretches of Mill Creek might be similarly attractive

arrangements exist for coaling locomotives. This would have to be discontinued and provided elsewhere.

For some distance north of the bridge, the Pennsylvania Railroad has constructed a bulkhead and occupies the river frontage out to its edge. It would probably be found necessary to erect here a concrete wall, in the place of the earth dyke which appears to be entirely feasible elsewhere. Such a wall would not have to be as wide as an earth dyke, but even with the concrete wall, one or two tracks would probably have to be sacrificed. Additional yard space could be provided by closing Front Street, which is not of value to the city as a thoroughfare, being paralleled throughout this section by Martin and Third Streets, provided the city purchased all properties on the northwesterly side of Front Street.

The cost of providing equal track facilities elsewhere, would almost certainly be less than would be the cost of constructing a wall outside the present timber bulkhead, so as not to reduce the yard area. Objection might also be raised to a wall outside the present bulkhead on the part of the Army Engineers. This condition exists from the Louisville & Nashville bridge as far northeasterly as the Fulton yard of the Pennsylvania Railroad just below Eden Park. At that point the dyke could terminate, because the natural ground level rises above the 500-foot contour.

At one point about 1,200 feet northwesterly from the Louisville & Nashville bridge, the foundations of a large power plant exists, but these could simply be used as dyke foundations.

The railroad tracks along the easterly bank of Mill Creek could well be placed on a solid embankment, at least as high as the top of the proposed dyke, so that the latter could return just east of the mouth of Mill Creek to join such embankment.

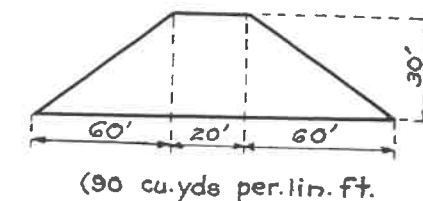
It might also be found advantageous to construct a dyke on the northwesterly side of Mill Creek in Cumminsville, resting on high land along the westerly boundary of Spring Grove Cemetery, and on high lands somewhere in the vicinity of the intersection of Dremen and Dawson Avenues for the eastern and western termini of this dyke respectively.

#### Details of Layout

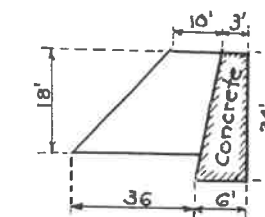
Special facilities would have to be provided to pass traffic through the dykes at certain points by means of gates, which

could be closed at times of high water. A sketch of such a gate is shown on the "Future Basin Plan." It is in every sense similar to those which are actually in existence along certain French rivers. Ramps would also have to lead to the top of the dyke at reasonable intervals, so that access could be secured from one side to the other. The top of the downtown dyke could be arranged as a promenade, and at special points should be widened, so as to act as a thoroughfare. The latter type of improvement for any extensive stretch, is however, questioned so far as its economic advisability is concerned.

Average Cross-Section of Dyke



Special Cross-Section



CROSS SECTIONS OF POSSIBLE DYKES  
ALONG OHIO

At certain points special problems would have to be solved. The most notable of these is that of the construction of the dyke along the Pennsylvania Railroad yards. At least two of the present tracks would have to be moved elsewhere. This might be arranged by providing additional space in the bed of or adjacent to Front Street, together with the abandonment or relocation of that street.



No insuperable physical difficulty exists at any point to the carrying out of this major improvement. Arrangements will probably have to be made with the railroads to see to it that the embankment along the easterly side of Mill Creek is so constructed as to form a dyke, and that all openings through such embankment are provided with gates, which could be closed during the flood periods.

Rough estimates have been made of the cost of the dykes in front of the business section of the city, and of those required to protect the Little Miami delta. Including earth embankment and concrete walls, lands on which the dyke would be located, and special facilities in the way of gates, bank protection and other features, the dyke along the river in front of the business section is estimated at at least \$5,000,000. Since the actual costs of the floods during the last fifty years have exceeded \$7,000,000, and are likely at the present value of the dollar to exceed \$15,000,000 during the next fifty years, the cost of this improvement seems to be entirely reasonable and justified.

#### Dykes and the Sewer System

It should be pointed out that in connection with such dyke construction a radical change would have to be made in the city sewer system. All sewers leading through the flooded area from lands above the level of the top of the dyke would have to be sealed so as to make them pressure sewers, and a new system of sewers would have to be constructed to drain the area below the level of the top of the dyke to one or more pumping plants, which would have to be operated during flood stages. Obviously, it might be found better to use some or all of the sewers now in the flooded area in the latter category, constructing new pressure sewers to serve the higher areas. An interceptor would have to be built to pick up the present outlets and lead the sewage to a pumping plant or plants.

Some study of the sewer problem as it is related to dyke construction indicates the following items as those needing consideration:

(a) The transformation of certain parts of certain trunk sewers into pressure mains, together with the branches and laterals as far back as is locally necessary in each case. These include:

1. The Mill Creek interceptor.
2. The Duck Creek interceptor.
3. The McLean Avenue sewer.
4. The Eggleston Avenue sewer.

(b) The construction of interceptors approximately along Third Street to care for all the sewers which are above dyke level, including the interceptors leading into the McLean and Eggleston Avenue sewers, or of several pressure sewers directly to the river.

(c) The construction of an interceptor along the river front to take all the sewage which will originate below dyke level and carry it to a suitably located pumping plant, such as the mouth of Mill Creek, for example.

The cost of this work is conservatively estimated at at least \$1,500,000. This amount should be added to the cost of dyke construction (because incident to it), bringing up the total to at least \$6,500,000.

#### Financing

Studies were made of assessed land values above and below certain flood levels, and it was found that an abrupt hundred per cent enhancement of value took place as one progressed from the flooded area to the land not so affected. Independent estimates made by various real estate operators during conferences on this subject led to the same conclusion. In other words, the protection of the lower city against flood by a dyke would probably within a few years enhance values to the extent of possibly \$100,000,000. The capitalized value of the taxes assessed against such enhancement would far exceed the cost of dyke construction.

This large public improvement might be financed either by the issuance of special bonds under the usual legal re-

quirements, or the costs might be assessed on the property benefited after a flood prevention district had been created in accordance with enabling legislation already in existence. A determination of the best policy to be pursued in financing dyke construction is strongly recommended, and it is further urged that steps be taken toward looking into the carrying out of this project, first by securing the equivalent of a dyke in Mill Creek Valley while the railroads are reconstructing their terminals; and, second, by the consummation of a project looking to the protection of the area in front of the business section of the city.

#### Little Miami Delta Industrial Area

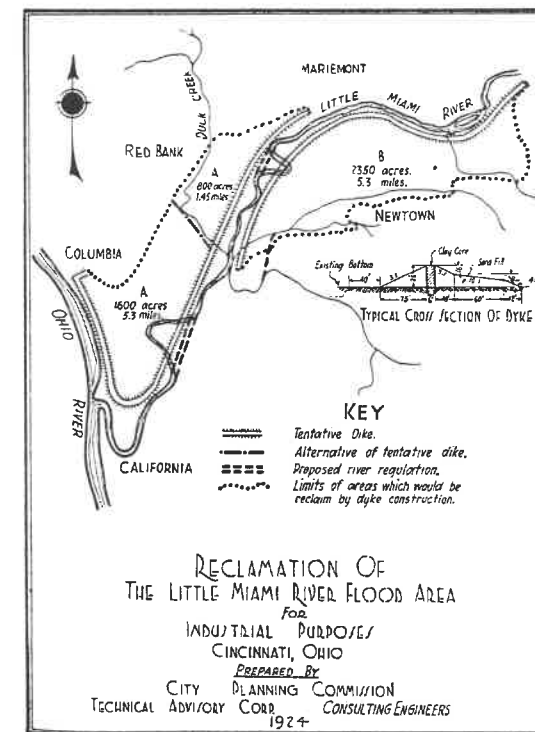
The dyking of the Little Miami delta should create a valuable industrial district, which might easily be provided with both rail and water transportation facilities. North and west of a proposed

dyke, 4,000 acres might thus be reclaimed. Rough estimates of the expense involved produce an average of \$3,300 per acre. The reclaimable area east of the river totals 2,350 acres, which might be reclaimed at a cost of \$2,500 per acre. McCullough Run (or Clear Creek) could be diverted so as to meet Clough Creek in the vicinity of the Beechmont Avenue Bridge, at which point both combined could empty into the Little Miami River. Duck Creek crosses near the center of the area to the west of the river, and special provision would have to be made to care for its flow. The maximum estimated run-off is 5,325 cubic feet per second, which could easily be carried through a concrete pressure conduit, if the industrial development seemed to indicate that dykes on each side of the Creek would be objectionable. The details of this treatment have not been estimated and would add only slightly to the acreage cost. Since industrial lands in the vicinity of Cincinnati are valued at \$5,000 per acre and upwards, it is believed that the reclamation of the Little Miami delta for industrial purposes would probably be economically sound before 1950.

A Little Miami delta dyking plan should be studied by 1950, to carry Kellogg Avenue on the top of a dyke to a point within a few hundred feet of the river; thence the dyke could turn northerly along the westerly bank (straightened in certain points) and terminate at the Pennsylvania Railroad tracks, at some convenient point where they are closely paralleled by the Norfolk & Western. A shorter dyke could be erected to protect the lands on the east side of the Little Miami, north of Batavia Pike.

The Planning Commission believes that these flood prevention and dyking projects should be studied in detail.

Whether they are realized or not would not materially change the rest of the City Plan.



Featured in the Industrial Survey Report

## CHAPTER X

## Parks, Play Fields and Parkways

The City Plan is to:

" . . . include the location and general scheme and development of . . ."  
 "(m) Parks, playgrounds, boulevards and other recreational facilities, including river front recreational development and hillside recreational development."

**The Problem**

Cincinnati is famous for its park system. The plan which was made by the late George E. Kessler, under the auspices of the Greater Park League of Cincinnati in 1907, is recognized throughout the country as a model. Realizing this, and realizing also how justifiably proud the citizens of Cincinnati are of their park system, it is with great hesitation that any suggestion is made for modifying it.

Without question, everything that has been done so far by the Board of Park Commissioners toward the realization of this plan has proved most worth while, and has been well done, and there is no valid reason for modifying any part of the existing park, playfield and parkway system.

On the other hand, conditions have changed markedly during the last twenty years, so that new habits and new tendencies would warrant certain modifications of policy from now on.

As a general principle, the radial and cross-connecting streets which are today normally used as traffic ways and virtually all such on which street car lines exist, are first set aside as thoroughfares, and so indicated on the Thoroughfare Map. However, realizing that most automobile drivers prefer to avoid heavy and mixed traffic streets, and particularly those encumbered with street cars and buses, the custom has grown up in pro-

gressive cities of providing radial and cross-connecting parkways, with smooth surface roadways, borders of trees and grass wherever practicable, and from which street car lines, trucks and, wherever possible, buses are excluded. On this principle a complete parkway system for Cincinnati and surroundings has been developed as a part of the Cincinnati City Plan.

The principles involved in the distribution and location of reservations, parks, neighborhood parks and playfields are described in considerable detail later in this chapter, but in brief, all reservations are delegated to outlying territory within a day's journey out and back from Cincinnati, and all parks are so distributed in smaller parcels as to be within a walk of a half mile to a mile of each part of the community, especially the more densely populated parts. Playfields are similarly distributed, often in conjunction with the general or neighborhood parks. Playgrounds for all children of school age are provided for as a part of the school program, and are described in detail in Chapter XI, "Schools and Play-Yards."

**Methods of Study**

With present-day facilities it has become so easy to take in a large range of scenery that this is generally preferred to driving through well-known parks. Only a few years ago the city dweller demanded that the country be introduced into the city in the form of large parks. Changing events make it no longer necessary for cities to acquire large areas for internal parks for the use of its people, as very many of them have the opportunity of seeing the great open country, hills, streams and forests, all within an easy day's trip.



OHIO RIVER FROM EDEN PARK © Paul Briol 1924  
 There should be more places like Eden Park from which the public could enjoy the river

This recent habit, which has undoubtedly come to stay, has led progressive cities to take account of stock and see if there are attractive objectives that should remain continuously open to the holiday motorists. It has been quickly recognized that the more attractive of such spots are rapidly being cut up into house sites or turned into resorts, either of which soon renders them unavailable as picnic places. Other interesting sites are being spoiled for park use, due to the lack of any control over them. Thus various cities like New York, Boston, Chicago, Minneapolis, Kansas City, Denver and Los Angeles have acquired outlying reservations on the seashore, among lakes, in forests, or back in the mountains, especially where there is unique scenery. They are making these places available as places of pilgrimage, and incidentally making them sanitary. They are going a step further and assuring comfortable, safe and pleasant access to these reservations by means of attractive motor roads from the city. Where there is a series of them, they are being cross-connected by other special roads or parkways.

In Cincinnati, Mt. Airy Park, with its 1,131.5 acres, is an excellent example of a reservation of this sort. To be sure, it lies mostly within the city limits, but then the city covers much more territory in proportion to its population than most cities. Ault Park, Alms Park, Mt. Echo Park, and even Caldwell Park, while still serving as places of pilgrimage, are gradually becoming so surrounded by home districts that they are becoming in reality hardly more than neighborhood parks. Furthermore, even Ault Park, with its 215.3 acres, is too small to permit one to get sufficiently away from the atmosphere and feeling of the city. As was so well brought out in the Kessler Plan, other large reservations are needed besides Mt. Airy.

Within the built-up parts of the city, and especially in the "Basin," there is a demand for local neighborhood parks; green spots where the mothers and children during a hot summer day can enjoy the coolness and the freshness which trees and lawns alone can give. To be

really useful, these neighborhood parks must be within relatively short walking distance of the home dwellers, so that it will not be necessary to use a conveyance to get to them. In practice, this means that no one ought to have to walk more than half a mile to a mile at the outside to reach such a park.

Other things being equal, the size of such a park should vary with the number of inhabitants within the half mile or mile circle, but in practice, those who live in the more open parts of the city, that is, where the houses have lawns or gardens about them, do not need, or at least do not use the neighborhood parks. Such parks are needed in proportion to the density of tenement or apartment house residence. If there are no front yards or side yards and only shallow rear yards about the tenement or apartment houses, neighborhood parks are especially needed. Thus in Cincinnati such neighborhood parks are most needed in the "Basin" and perhaps near Peebles Corner.

Such a neighborhood park must be large enough so that it will create the illusion of the country and also so that the cumulative effect of trees and lawns will appreciably freshen the air. In practice the absolute minimum effective size of such a park is two to three acres, while three or four acres minimum is preferable. Ten to 25 acres is a practicable size. Lytle Park and Sinton Park are barely large enough to be useful. Washington Park is preferable and Lincoln Park is still better as to size.

Experience shows that for the best use and enjoyment of all kinds of recreative areas, there should be in general, at least one acre of such area to every 150 people in the community, including all lands devoted to play use, but exclusive of school play yards. This would give nearly a seven-acre park for every 1,000 people.

It is fair to assume that the playgrounds and playfields on the one hand and the outlying parks and reservations on the other hand, would satisfy two-thirds of this demand, even in the multiple family house districts. Therefore two acres or more of small park per

1,000 people is enough. For Cincinnati, this would mean a total of 800 acres of well distributed neighborhood parks.

Where the population surrounding any given park is very dense, of course, even such a standard as two acres per 1,000 people is likely to prove prohibitively costly, but, if possible, at least one acre of park to every 1,000 people should be made available within easy walking distance. This is particularly true in the "Basin", where at least 60 acres of neighborhood park, as distinct from playground space, would thus be needed. At present there are barely 25 acres. The decreasing population of the "Basin" makes it possible to reduce this requirement. For example, in Cincinnati some blocks contain about 1,000 people; 200 feet off of the end of the block would give the acre of park required.

In thickly built up districts, such parks are more useful if there are more of them within shorter walking distance and with each park not over 10 or 15 acres in size, rather than if there were a few much larger parks but farther apart.

These parks can often be combined with playgrounds and playfields, as they are in Lytle, Washington and Lincoln Parks, especially if they are designed so as to give an attractive zone of green around the borders of such play areas. The parks would thus serve the added purpose of a buffer and noise break between the playground and the nearby homes. Even kindergarten play lots could well be located



PARK MONCEAU, PARIS  
What can be done in a neighborhood park with ample funds for maintenance

in these parks without detracting from the latter.

In open residence districts, where neighborhood parks are less necessary, their place may be taken by an attractive broad parkway. Incidentally experience proves that broad parkways are useful as possible conflagration breaks.

With regard to playgrounds and playfields, practice has also changed recently. Today the play specialists divide recreation into four categories:

1. The small play lot for children of kindergarten age.
2. The playground for children six to twelve years of age, that is, of grammar or district school age.
3. The playground or semi-playfield for children of 12 to 15 years of age, that is, of junior high school age.
4. Playfields for youths of high school age and upwards.

The recreational and the educational specialists seem to be agreed that playgrounds for children of grammar school age should be attached to grammar schools, so that they can be used for inter-class period recreation during school hours, and as general neighborhood playgrounds for younger children at other times.

It also seems to be generally recognized that the semi-playfield for children of junior high school age should also be attached to the school, otherwise these older children will tend to lose the habit of play and will miss the opportunity of play between class periods and before and after school.

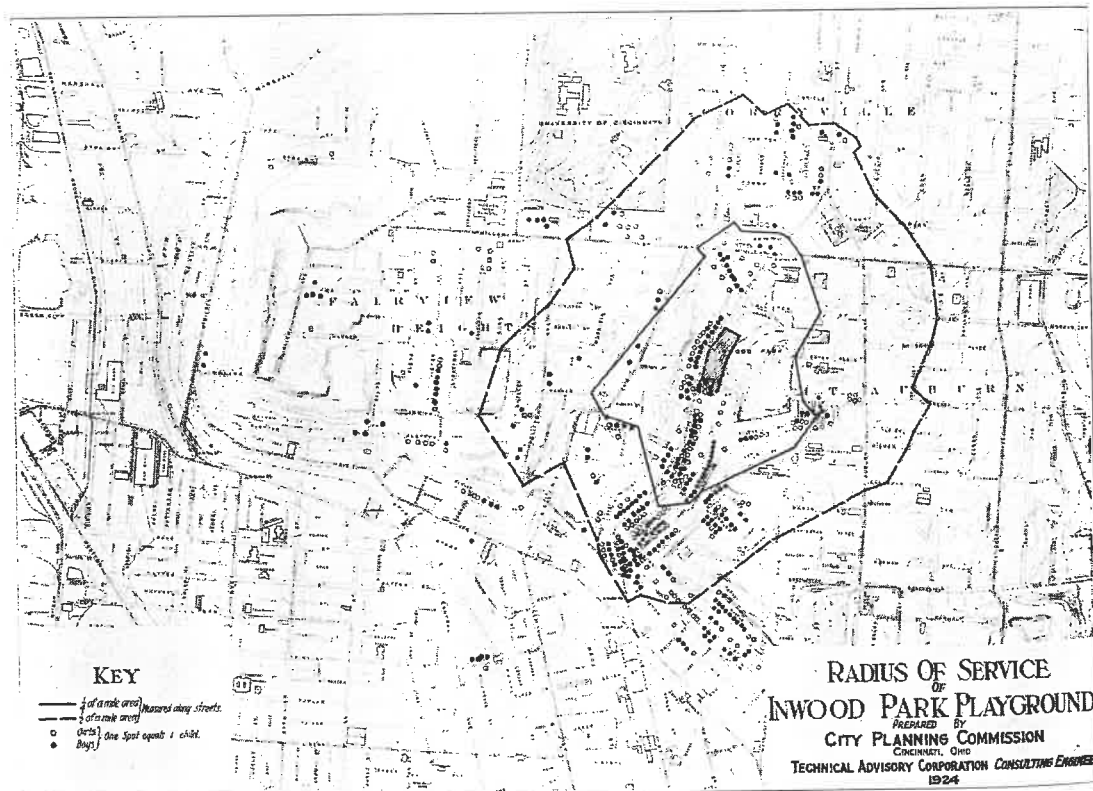
With regard to kindergarten play lots, it is feasible and often customary to put them in a corner of a grammar school play yard, if the school has kindergarten classes, or in a neighborhood park. Otherwise they can be installed in vacant lots or in the centers of deep blocks and in other easily available open spaces. They are hardly necessary except in the more densely built-up tenement house districts, but in such districts they are of the greatest use.

It is difficult to indicate them on a plan because the choice of location depends on the changing availability of vacant land. As the apparatus is small and easily transported, it is quite feasible to lease play lots where possible; changing them with the market from year to year until a permanent site can be acquired.

With regard to senior high school playfields, there appears to be a divided opinion as to whether it is necessary to attach them to senior high schools or not. The older theory of senior high schools, separated according to subjects, appears to be giving away now to a geographical distribution of combined high schools; in other words, formerly there was a classic high school, a commercial high school and a technical high school, all centrally located. Today all three subjects are being combined in one building, and those buildings are being distributed where needed in various parts of the city. Un-

der the former method, the provision of adequate playfield space in the downtown district was often prohibitive, but under the new method the outlying high school can usually have adequate surrounding playfield space at reasonable cost, as is the case at the Withrow High School.

In view of the early closing hour of the average senior high school, the students, especially where they attend a downtown central high school, are very apt to go home or to some congregating place for sport or amusement as soon as their classes are over. Unless the high school is in the heart of a residence district, and has an attractive and readily available playfield, the great majority of pupils seem to prefer to go to a general playfield away from the school. The same is true of older youths and adults who need recreation facilities usually at other than school hours. The various playfields under the Cincinnati Park



Mostly within one quarter mile

Board, are going a long way towards meeting this need, but more are needed, especially in the parts of the city now out of reach of existing fields.

Where to provide these playfields is a question. At least they should be easily accessible by automobile and by trolley, and at best, no youth should be required to walk more than two miles to reach one; in fact, many consider a mile and a half the limit.

Every city by the time it reaches a population of 100,000 or more, needs an athletic field. The athletic field differs from the playfield in that it is designed primarily for competitive games. The competitive game implies an audience for which admission must often be charged. This means a grand stand and a fence around the field. It also means the provision of considerable space for the parking of automobiles. Wherever possible, the athletic field or fields should be in addition to adequate provision for ordinary playfield space, as their special use and layout rarely are likely to lend themselves to general play use.

Experience has shown that for a city of 100,000 inhabitants or more, a playfield that will be of any practical value as such can hardly be laid out on a tract of less than 15 or 16 acres, and if possible, 20 to 30 acres is desirable. If laid out in a corner of a park where parking space for automobiles is otherwise available, then the space devoted to the athletic field can be reduced to eight or

ten acres. Taft Field or the House of Refuge property lends itself admirably to this purpose.

The ordinary playfield for the use of those of high school age and upwards, should rarely be smaller than four or five acres for effective layout and use.

Experience, as corroborated by the Playground and Recreation Association of America, shows that each person actually using such a field, requires at least 300 square feet of space and for some games 500 to 1,000 square feet. It also shows that on any such playfield one can count on at least two shifts and even on three or four; in other words, not more than one-half or at least one-fourth of the possible users of such a playfield, between 15 and 20 years of age inclusive, would be likely to use it at any one time.

Therefore, it is safe to assume that a playfield is large enough to meet all possible demands upon it if there are at least 100 square feet of net play space for every person within its range of service between the ages of 15 and 20 inclusive. If there is much open space, or various other parks or commercial recreation facilities within the range of service, the number of square feet per person can be correspondingly reduced.

In the junior high school semi-playfields for children of 12 to 14 years, it is customary to allow a little less, that is from 200 to 250 square feet of play space per child. Even outside of school hours, we can count on at least two shifts and often three.

It is customary, therefore, to allow from 90 to 100 square feet of play space for each child of junior high school age which lives within the district served by the playground and the school, with an absolute minimum of 75 square feet.

Experience shows that the minimum practical size of plot for a junior high school, and its playfield and setting is about six and one-half acres. This would be divided up as follows:

For the building itself and its immediate grounds and setting with reasonable allowance for expansion,  $1\frac{1}{2}$  to 2 acres.

The net space actually used for play purposes, 2 to  $2\frac{1}{2}$  acres.

Allowance for expansion and for play use by a larger number of children outside of school hours, 1 acre.



THE OXON AT OXFORD, ENGLAND  
Fully used for pleasure

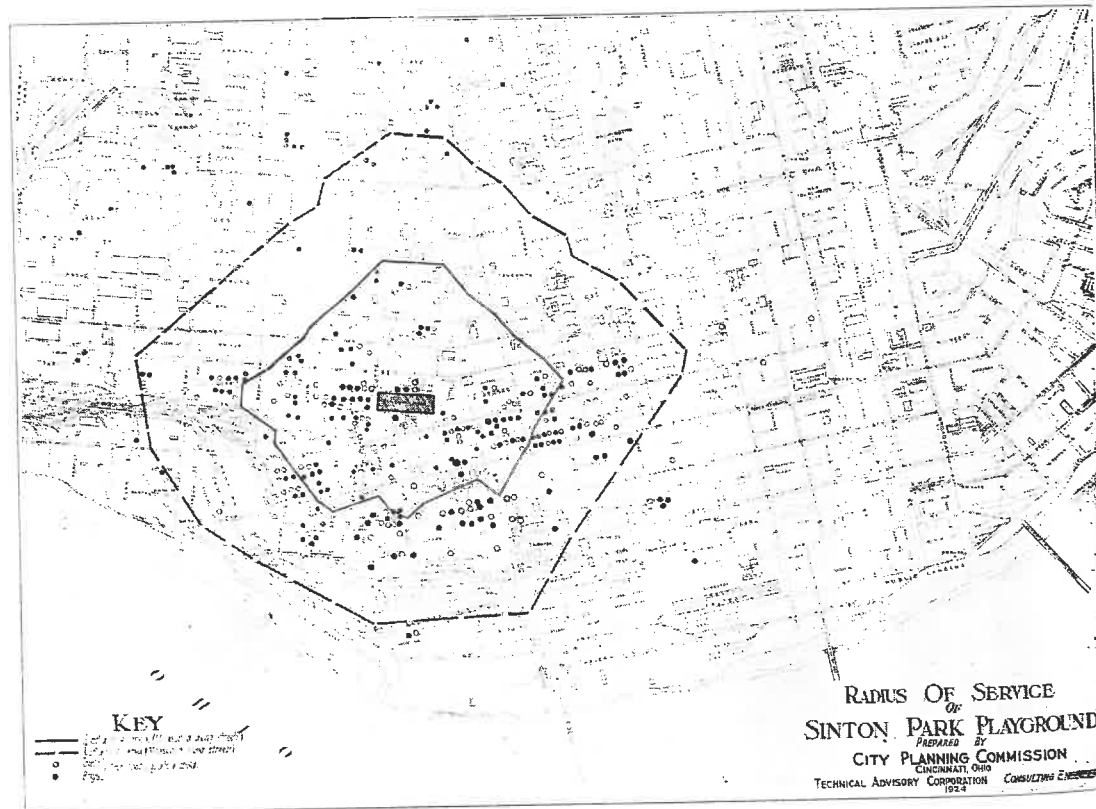
Border of trees, grass and shrubs around the playfield, so as to create the illusion of a park and to break the noise, in so far as it affects surrounding homes,  $1\frac{1}{2}$  acres.

The Sage Foundation has found by actual measurements, that children from 6 to 11 years of age, playing as close together as they can at the usual games, and with the usual apparatus, each occupy 90 to 100 square feet net, or an average of 93 square feet net. The playground for these children of elementary or grammar school age, with reasonable allowance for walks, landscape setting and buildings, should require from 150 to 200 square feet per child actually playing. The Playground and Recreation Association of America prefers 200 square feet. However, at least two to three shifts can use the playground even outside of school hours, which means that provision must be made for fully 75 square feet per child of grammar school age within the district, with a possible reduction to 50 square feet minimum if absolutely necessary.

The total net play space within a grammar school playground should rarely be

less than one acre. Reasonable allowance for future growth of the school district would make it usually desirable to make such a playground cover at least two acres. The school building and its setting will cover from a half acre to an acre and a half, and a tree and grass border to the playground should occupy another half acre to an acre and a half. Thus such a school site including playground and setting, should cover at least two acres minimum and preferably at least four or five acres.

There appears to be almost unanimous agreement that such a playground should be attached to the grammar school. However, if such provision still leaves any section of the community at too great a distance from an adequate playground, or if it is impracticable to provide an adequate play area adjoining any existing or new grammar school, then a corresponding area should be found in the



Most of the children using a playground live within one-quarter mile

neighborhood, possibly in a larger playfield or neighborhood park. This latter is the case at the Guilford School and Lytle Park.

Play lots for children of kindergarten age can be quite small, even down to 50 by 100 feet in size. On account of the cheapness of their installation and their mobility, they can readily be located on any fairly level vacant lot. On the other hand, trees and grass are most desirable and if these cannot be had without permanent ownership of the play lot, then every endeavor should be made to acquire such ownership if the site is a desirable one.

The amount of space actually used by a child of kindergarten age is only 50 to 75 square feet, including walks and landscape setting, and again with the possibility of two or three shifts, the actual area needed can be computed on a basis of between 25 and 40 square feet per child of four or five years of age within the district.



THE "KING'S GARDEN" AT VERSAILLES  
Ample funds must be available if parks are to count for their full value

Play lots are most needed where a group of multi-family houses, including flats over stores, have no open space where children can play effectively within the house-lots or in any playground or park that lies within a quarter of a mile. If the block is deep enough, such play lots can be located in the center of the block.

In practice it is quite possible, and even desirable for economy or for effectiveness of use or design, to combine two or more of these types of playgrounds, playfields and parks. Obviously each problem has to be studied for itself in its relation to

local conditions. Inwood Park is a good example of such a combination.

As to financing the development of a park and playground system, the experience of various cities, in particular Minneapolis, Kansas City and Denver, shows that very little of the cost need come out of the general public treasury. In these cities it is customary to create local park districts, and within each district the cost of such parks, parkways and playfields as are laid out within that district are assessed on the district only.

It is also customary to apportion these assessments in relation to the distance of each property from the improvements; in other words, lots which abut upon a parkway pay a far larger proportion of the cost of the parkway than do lots 1,000 feet back from it.

With regard to playfields and playgrounds, it has been claimed, especially in various eastern cities, that the noise and rowdyism which they are supposed to engender, actually depreciates home property in their neighborhood, although it appears to be impossible to find any case where the assessed valuation of properties has been decreased on this account.

In Minneapolis this problem has been solved, and in fact, playgrounds and playfields have actually been turned into a benefit to surrounding home property by the ingenious device of surrounding the playfield with a band or mound of trees, shrubs and grass, sometimes only 30 feet wide, but usually 50 to 100 feet wide or more. This serves to create the illusion for property owners across the street of looking out upon a real park. So perfect is this illusion that the city of Minneapolis has actually succeeded in assessing a large part of the cost of these playgrounds on abutting and nearby property owners.

These shrubs and trees or mounds of verdure, especially in the spots where they are widened out to 100 feet or more, can also serve as neighborhood parks where the latter are needed.

In general, playgrounds and many playfields have become part of the School Board program. Neighborhood park provision is a special program.

The application of these principles has resulted in the Park, Parkway and Play-field Map and the School and Play-yard Map with their accompanying tables.

Every feature of the remarkable Kessler Park Plan that was still applicable to the changed conditions, has been jealously guarded, always bearing in mind also the reasonable limits imposed by municipal economy. As a matter of fact, more park and parkway area is being recommended than is actually needed, so as to give some choice in properties to be acquired and to avoid the possibility of market cornering by selfish individuals. Also this excess provision offers more possibilities of donations of desirable park land and it further suggests more opportunities for voluntary assessment for park or parkway creation on the part of abutting and nearby property owners.

The principles of school and school play-yard development are discussed in Chapter XI.

#### Reservations

Only a limited number of reservations, or possible reservations is suggested, as Cincinnati is unusually fortunate in the fact that it is surrounded by large undeveloped stretches of beautiful, natural country that is bound to remain in its natural state for a great many decades to come. There is little possibility that most of this attractive country will be spoiled for common enjoyment.

There are, however, various tracts of unusual charm and interest that are liable to be usurped by a few individuals to the exclusion of the public, or to have their charm unwittingly destroyed, unless they are consistently preserved by the public authority within relatively few years. As to whether the City, County or State should be the agency for the conservation of these outlying tracts, is immaterial from the standpoint of the City Plan, provided that they are consistently developed and rendered readily available to all.

The various reservations as indicated on the City Plan Map and on the special School and Playground and Park Maps

at 400 scale, should be developed as a part of the park system of the City or County. At least a nucleus of each of these parks, if not controlled by the City, County or State, should be acquired by 1935 at latest. These include the following six reservations:

Mount Airy Forest	1,131.5 acres
(now owned by City)	
Rapid Run Reservat'n	250. acres plus
Caldwell Park	300. acres plus
(half owned by the City)	
Sycamore Park	300. acres plus
Water Works Park	200. acres plus
(now owned by City)	
Kroger Hills Park	375. acres plus
( a third owned by City)	

Total, 2,600. acres approx.

Mount Airy Forest is an ideal reservation. There is no area within a day's journey of Cincinnati that will make a more striking place for a pilgrimage, once its interesting features are rendered accessible to all by the building of roadways, and about 114 acres are added to the northwest and about 200 acres on the east side of Colerain Avenue to round out the tract.

Old Rapid Run Valley running down from Monterey into Delhi, is probably the wildest nearby approach to the river. It should be preserved for common use before it is cut over or otherwise spoiled. Two hundred acres will preserve the most interesting part of it, and several hundred more acres to the north and east could be added eventually to good advantage.

Caldwell Park is an extension of the present Caldwell Park of 104 acres, to include the City Infirmery property of over 100 acres west of Hartwell, all of the land in between and 100 or 200 acres to the west. Owing to the topography and juxtaposition of these two large tracts already owned by the city, the proposed park is the logical provision for picnic grounds and the enjoyment of nature, for the whole rapidly growing district north of Clifton.

The whole region from Norwood to Oakley, north and east, also demands an outlying place of resort. A careful

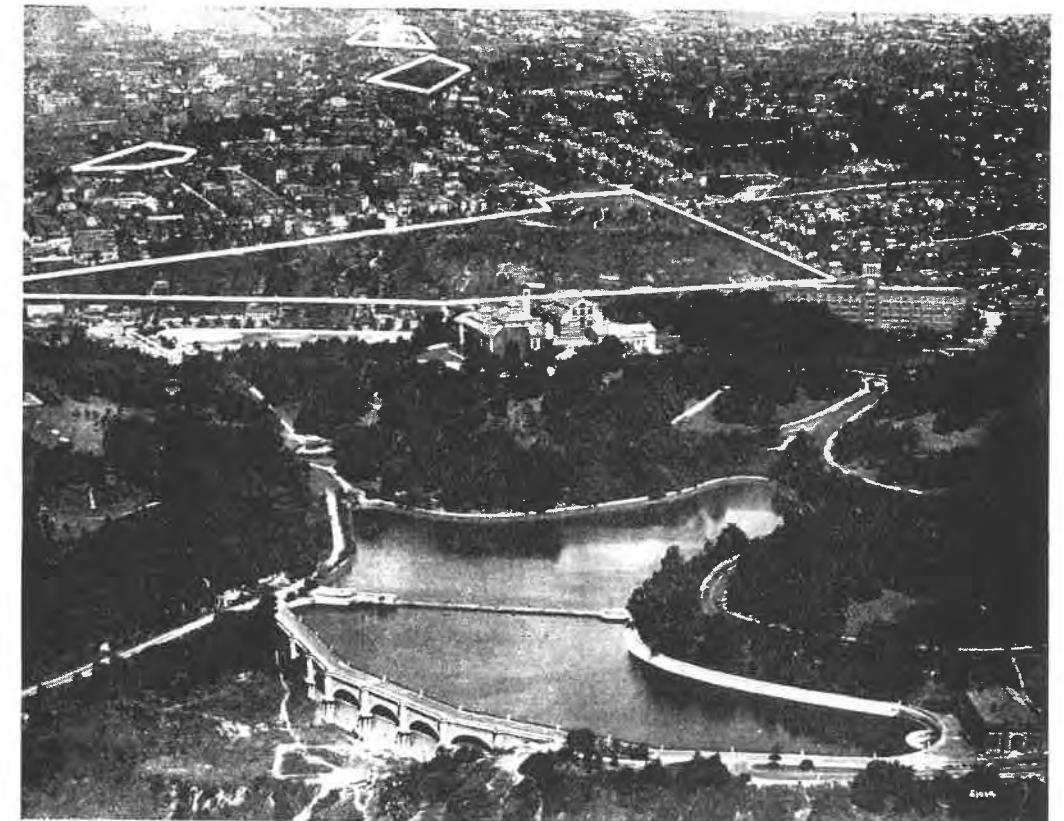
survey of the whole region east of Reading Road and north of Madisonville, suggests that an area of at least 300 acres on the Heights between Reading and Blue Ash would be the most useful and at the same time the most attractive that lies in the heart of the Township of Sycamore. It is not as necessary as some of the other reservations here proposed, and it probably should come last, or next to the last on the list. Its location can be shifted to suit local developments.

Kroger Hills Park, which now contains 85½ acres, represents an ideal nucleus for a much needed reservation on the Little Miami River. The country to the north and west of this park is unusually attractive, and at present undeveloped, while directly opposite the park there is a large island in the river, used somewhat for camping and summer

dwelling, which should be conserved for general use, as far as its annual flooding may permit. This park should contain all told, at least 400 acres, as indicated on the City Plan Map. It should be approached by the proposed parkways.

The City Water Works property at California could form a unique park, once properly developed as such. If this area now belonging to the city were to be extended to include the whole waterfront at the delta of the Little Miami River, and if it were to extend back into the hills to the east and north of its present boundaries, its present 200 or more acres could be profitably extended to 300 or 400, or even 500 acres, and at the same time it could be of great potential use to the public.

Altogether these reservations should total eventually 2,500 to 3,500 acres of



EDEN PARK, LOOKING WEST  
White lines indicate proposed parks on Goat Hill and at Filson Outlook and beyond.

permanent reservation for the use of the inhabitants of the whole Cincinnati metropolitan district. Their conservation will preserve to posterity the best examples of nature that Cincinnati today affords.

On the Kessler Plan a large reservation including an athletic field and drill ground is shown all across the foot of the Little Miami Valley. The zoning study showed that the great industrial expansion of the future must take place along the Little Miami Valley, if anywhere, as it is the only large local tract readily accessible by rail and water. With relatively inexpensive dyking it could be made valuable for a great industrial development. All of the area needed for sports, even on a large scale, can readily be provided in some of the existing or proposed reservations and parks.

The large park proposed along Bracken Road east of Westwood Common is so near Mt. Airy Forest as to render it less necessary than many other parts of the plan, despite its natural beauty. There are too many other urgent needs throughout the district to warrant any further concentration of neighborhood parks in the vicinity of Mount Airy Forest.

The large park shown on the Kessler Plan between Spring Grove Cemetery and Clifton is not needed, as Mount Storm Park, Parkers' Woods and Winton Common extended, provide all of the neighborhood park space needed.

However, their usefulness is sadly curtailed by the meagerness of the appropriation available of late years for their development and upkeep. This appropriation is the smallest per acre of any city of Cincinnati's population in the country. Every endeavor should be made to provide adequate roads and to erect the needed shelters and other buildings for general use, so as to make the parks fully effective.

#### Neighborhood and Scenic Parks

Aside from the reservations described above, Cincinnati needs no more large parks. The present larger parks, such as

Eden Park, Ault Park, Avon Field, Burnet Woods, Mount Storm, Mount Echo, Parkers' Woods and Alms Park, should be preserved by all means. They are exceptionally well distributed in relation to the distribution of the population itself, and they serve their purpose excellently, both as neighborhood parks and as spots of scenic and natural interest. They are also continuing to serve as places of ready resort.

On the other hand, what is needed is the rounding out of the neighborhood park distribution, so that territory which is now over a mile distant from any of these parks, may be served by its own readily available neighborhood park.

In order to round out the distribution of neighborhood and scenic parks, so that no one will need to walk more than a mile to reach each one of them, parks should be acquired and developed, as indicated on the City Plan Map, and also on the Special School and Park Map at 400 scale, and as indicated in the Park, Playfield and Parkway Table.

#### Hillside Parks Around the Basin

Cincinnati is unique among American cities in the wonderful crown of hills about the older city in the Basin. Even desecrated as many of them are, especially those to the north, they add greatly to the impression of Cincinnati on the visitor. The Old World picturesqueness of Mount Adams, with its charmingly grouped buildings and trees, once seen is never forgotten. It is today one of Cincinnati's greatest assets. With great foresight it has been conserved and framed by Eden Park and Deer Creek Common. Without fail the aspect of Mount Adams should always be kept intact. However, the recommendation of the Kessler Plan that a parkway, or at least a tree bordered or pergola covered promenade should be developed around the contour and well upon the side of Mount Adams, should certainly be carried out.

Filson Outlook, and to a lesser extent, Inwood Park, are both a long step for-

ward in the direction of conserving the "Jewels in the Crown" of the northern hills.

Without question, the inspired recommendation of the Kessler Plan, for outlining the northern hills at or near the top, with a parkway promenade, should be realized before it is too late, but with the modification that the more or less uniformly broad parkway should be reduced to a shaded promenade, interspersed with three or four larger parks as "Jewels" on or near the summits of the promontories. The topography is too rugged to permit of the construction of a parkway broad enough to be useful, the whole length of the hills, except at prohibitive expense. On the other hand, the effect of the crown as seen from below, would be even more striking in the contrasts that the combination of promenades with the interspersed parks could present.

The Western Hills Parkway on the crest of the hills which bound the Basin across Mill Creek, should be developed approximately as shown on the Kessler Plan, at least as far north as Harrison Avenue, but it does not need to be carried as far down the hillside as shown on the Kessler Plan, as the lower reaches would be hidden from the Basin and would probably prove prohibitively costly, on account of the steepness of these hillsides. A parked driveway would be practicable only at great expense, but again a promenade broadened out now and then into a park, as recommended



PRAGUE, CITY PARK ON AN ISLAND  
The most popular place in Prague

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#### Columbia Heights

It was a most opportune occasion for Cincinnati when Alms Park was acquired, as it conserves the most striking of the promontories overlooking the Ohio River. However, the work is only partly done; it remains to complete it before it is too late. Therefore, as indicated on the Kessler Plan, the balance of the hillside between Alms Park and Columbia Avenue, should be conserved before it is built up. In any case the present park should be improved with fitting drives, walks, plantations and with service and recreational buildings to render the park fully useful. The land should cover a little more territory back on the hillside to the northeast of the present park than was shown on the Kessler Plan. This area is now undeveloped and of exceptional beauty.

#### Mount Echo Hillside

Next to Columbia Heights the Heights at Mount Echo are probably the most striking along the Ohio. Again, the city was most fortunate in the early acquisition of the crown. As so well pointed out by Mr. Kessler, the balance of the hillside down to Elberon Avenue, should be conserved against the possibility of any damage, and the whole park should be properly developed for community enjoyment.

#### Lick Run Valley

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within the city west of Mill Creek, unless possibly for the West Fork Valley to the north. Its charm is on the point of disappearing. It already incorporates open areas belonging respectively to the Branch Hospital, Potter's Field and the Jewish Cemetery.

In the near future Lick Run should be developed into a drawn out parkway, wide enough to give the illusion of a large park. This parkway should prove fully as interesting and much more useful than the West Fork Parkway recommended on the Kessler Plan.

**Duck Creek**

Duck Creek is the only remaining valley that retains its natural charm in the whole northeastern section of the city. For some time it has been in the process of dwindling, through encroachments from all sides. Soon nothing will be left but the depression in the plateau.



**WILMINGTON, DELAWARE**  
The park treatment along this river suggests possibilities for stretches of Mill Creek and the Little Miami.



**STRASBOURG, MINOR RIVER**  
A suggestion for Mill Creek

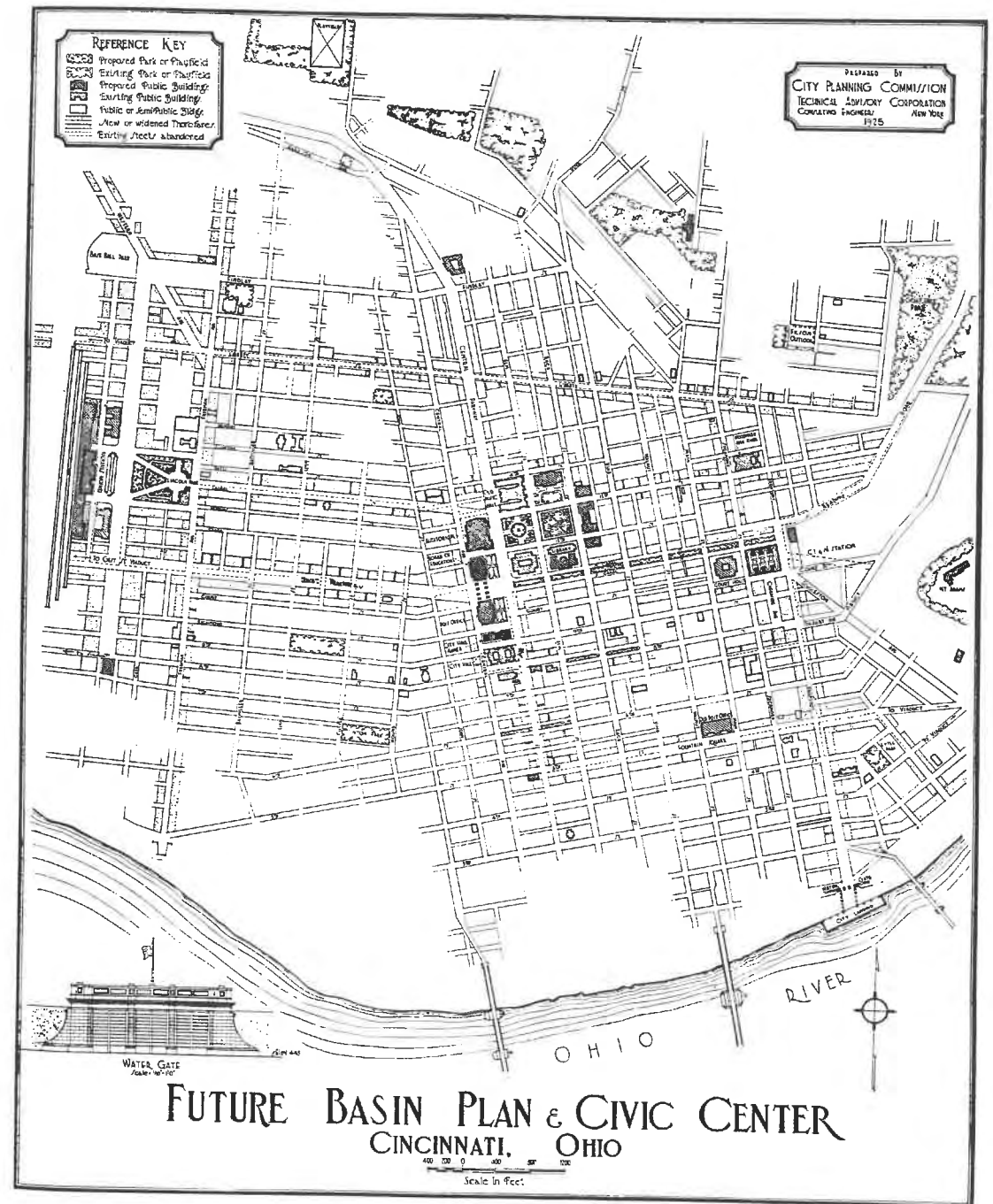
Duck Creek Valley from Owls Nest Park to Madisonville Road, and from there on up nearly to Madisonville, should be set aside as a parkway immediately and without fail, and as much land up the hillside on each side as may be desirable to conserve the parklike effect should be acquired ahead of any tendency to develop it with buildings or even to destroy the trees. This is the most urgent matter in the whole park program.

**River Parks**

For its recreational possibilities as well as its scenery, the Ohio River is Cincinnati's greatest asset. So far little advantage has been taken of its possibilities. To be sure, Turkey Ridge Park and Playground are a long start in the right direction, as is also East End Park and LeBlond Park. Aside from these, the city has no riverfront parks above Fernbank, except for Riverside Park at Sedomsville.

Harrisburg, Pennsylvania, with a river almost as untractable as the Ohio, is featuring the river and has made it the center of the city's recreation. Dayton, with flood conditions as bad relatively as those in Cincinnati, has as a part of its conservancy improvements, featured the Miami River as a center of city life, with promenades, drives and parks along it, all of which give Dayton a character unique among Ohio cities. So attractive has this proved to the citizens, that they are now insisting that ways and means shall be found of reproducing in Dayton the beauty of the famous Charlesbank in Boston or the river parks in Washington. Budapest and Prague, with rivers similar to the Ohio, have so featured them and so enjoyed them, that the rivers can be said to have made these cities. Various American cities, such as Springfield, Mass., LaCrosse, Wis., and Detroit, are now ceasing to turn their backs to their rivers, and are beginning to realize that after all, their rivers are their greatest asset.

It has often been suggested that the whole riverfront from Eden Park to Columbia, should be acquired by the City,



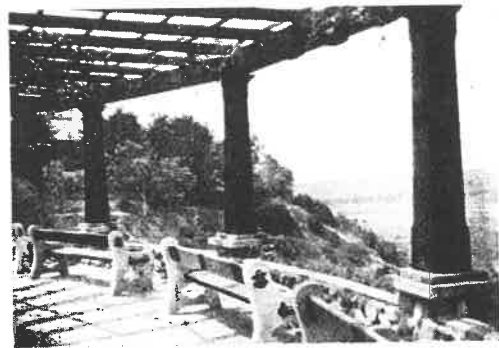
How the Basin should look in 25 to 50 years

County or State and made into one continuous park and parkway. Most of the land is unimproved, as it is subject to flood. It is most desirable from the standpoint of visual enjoyment and of recreation, that the city should gradually acquire enough land along the Ohio River to at least give a continuous promenade or pleasure drive from Eden Park to Columbia. Such a promenade or possible parkway would render more usable the land along Eastern Avenue. Furthermore, such a continuous park would provide a variety of possibilities for water sports, bathing, boating, regattas and even water pageants, which have been so effectively featured in Harrisburg.

At least enough more land should be acquired about Turkey Ridge Park, including the Cincinnati Gymnasium Club, to round out a complete waterfront park from Ridgley Street to Stanley Avenue. The minimum amount of land needed here to round out the system is 15 acres.

The west side of the city also should have an outlet on the river. The logical place for it is Sedamsville. Several thousand feet of river front along Southside Avenue, opposite Sedamsville, should be acquired as a west side riverfront park.

In Chapter IX, "Waterways and Flood Control," it is proposed that the city should create a dyke along the whole waterfront from the Pennsylvania station to Mill Creek. On top of the proposed downtown dyke, a promenade



**HILLTOP PROMENADE, SAN DIEGO, CALIF.**  
The treatment of the proposed promenade along the tops of the northern hills can be handled in a very similar manner.

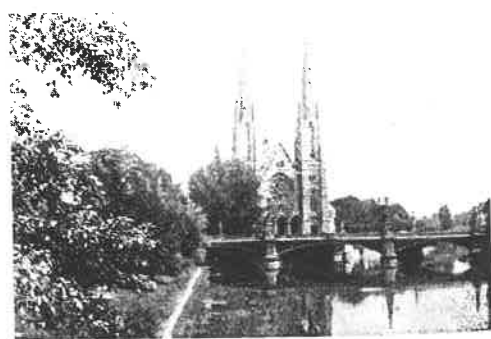
could well be constructed throughout its length, with easy access ramps and with the water gates architecturally featured.

At California the present Water Works tract should be extended as a park along the river front, at least to the point where the Little Miami flows into the Ohio River. This would assure to the city an excellent waterfront where the water is particularly clear and where the scenery is unusually attractive.

It remains to obtain a waterfront park on the Little Miami River. It is proposed above, that Kroger Hills be extended so as to include the large island in the Little Miami River, which lies opposite to it. As the island and the bordering shore are being built up with camps, the public should acquire this property, particularly the part along and in the river, before it is too late. It is a unique opportunity which the city cannot afford to lose, as there is no spot equally attractive and useful for river recreation as near to the city as this. It lies near the center of a rapidly growing summer colony.

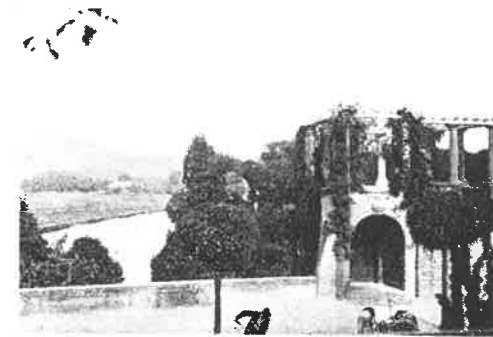
#### Hillside Parks

In discussing the scenic parks above it was proposed that the city should acquire at least the upper part of all the hillsides about the Basin and around Mount Echo and Columbia Heights. This, with what the city already owns, includes nearly all of the conspicuous hillsides. However, the question arises with regard to some of the other hillsides



**STRASBOURG, RIVER SETTING**  
Water can be feature in locating important buildings

as to whether it is worth the city's while to spend the money necessary to acquire them or not. For example, the Kessler Plan recommends that the complete line of hillsides from Eden Park to Delta Avenue be acquired by the city as a continuous hillside park. If there seems to be any imminent danger that this circle of hills would be despoiled, there is little question but that future citizens would never forgive the present City Fathers for not acquiring these hills.



**METZ, A HILLSIDE DRIVE**  
Treatment of the edge of a hilltop overlooking a river

The same reasoning applies also to a greater or less extent, with regard to the hillsides of Clifton, where they slope down to Mill Creek and also to the hillsides on the west side of Mill Creek between Fairmount and Mount Airy Forest. The same would also apply to the hillsides along the Little Miami Valley.

As to the Reading Road Valley, it is now too late to do anything more towards the conservation of the hillsides, than to urge the development of the east slope of Goat Hill as a possible park.

As to the detailed treatment of the steeper hillsides, the policy now pursued by the Board of Park Commissioners on the steep slopes of Eden Park along Gilbert Avenue is probably as practical as any. This policy consists in holding the sliding slopes by vines, shrubs and small trees which have been proved to have particularly strong and quick growing roots which hold the soil. Threading these hillsides with narrow paths and promenades,

bordered by seats, shelters or pergolas, renders them useful and attractive and gives variety to the picture as seen from below.

It is even suggested that new types of play could be developed that would be especially adaptable to these hillsides, whether by featuring games, like bowls, archery and the like, which demand long narrow spaces that might be laid out on narrow terraces, or whether by the invention of new games that could be played effectively on the natural slope. Such hillside treatment suggests a variety of possibilities for local neighborhood parks. For waste slopes that can be bought for very little, exist within easy walking distance of almost every part of the city. Once an attractive example is evolved, it is conceivable that neighborhoods will voluntarily solicit the creation of such parks in their vicinity and submit to a full local assessment of the cost.

Various additional neighborhood parks wherever needed throughout the city should include and feature with a practical landscape and recreational treatment, what otherwise are waste hillsides.

#### Neighborhood Parks and Playfields

Following the principle laid down in the beginning of this Chapter, various neighborhood parks should be acquired as indicated on the City Plan Map and on the 400 scale School and Park Map. In each case the parks should contain about the acreage indicated, and a certain amount more in each case if feasible. Most of the neighborhood parks include playgrounds, in fact, in the majority of cases, playfield needs have determined the location of the neighborhood park. Thus it will be possible to create a combined recreation and park space that would adequately serve the park as well as the playfield needs of the neighborhood.

It is assumed that playfields will be gradually established as needed.

When the City Plan is completely realized, there will be a playfield within a walk of not over a mile of any part of the city that is even partially developed.

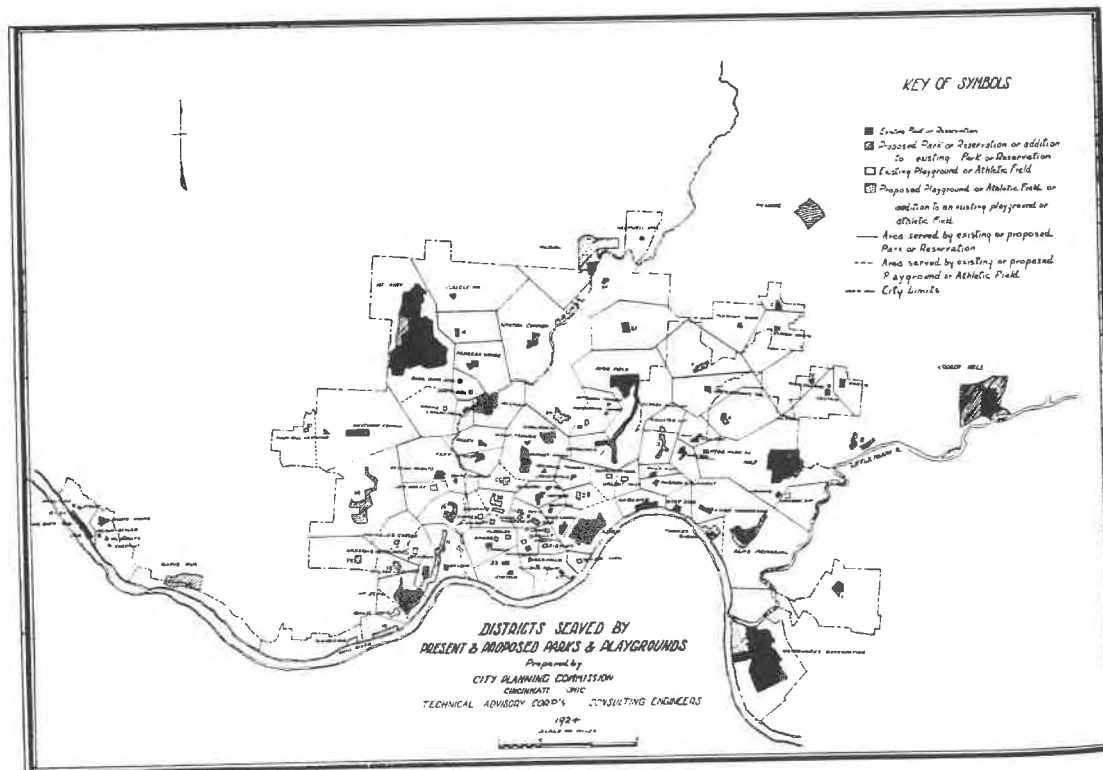
The most serious problem and the most urgent is that of providing adequate recreation space in the Basin. All told, there are not over 25 acres there today, while the present population needs nearly three times that amount to adequately meet its needs. On the other hand, with the constant decrease in population in the downtown district, it would be uneconomical to provide adequately for the present needs. In any case, the most urgent needs in the Basin will be taken care of by the development of the play yards, as indicated in Chapter XI "Schools and Play Yards." It remains to provide a certain amount of park and playfield space for children of high school age and for adults.

As to parks and playfields in the Basin, the particular lack is places that can be used primarily by colored people, as they virtually have no park or playfield of their own at the present time. A canvas of the district would imply that the block bound-

ed by Cutter Street, Ninth Street, Linn Street and Richmond Street, containing about three acres, is the best from the standpoint of location in proportion to the cost of expropriating buildings as well as the land. About three acres near Richmond Street should be acquired immediately, as the park needs of the neighborhood are particularly urgent.

The only other park, as distinct from a playground or playfield, that is urgently needed in the Basin, is one near the Bloom School. In order to provide an adequate setting both for the Branch Library and the Bloom School, as well as for meeting the park needs of the neighborhood, a neighborhood park should be developed preferably on Dayton Street to include about two and one-half acres. This should be laid out, not as a playfield or playground, but exclusively as an attractive, restful park.

It is believed that with the development of Central Parkway, with a strip of trees



Shows areas needing new or added service

and lawns 50 feet wide, and with the expansion of Gest Street as a parkway, that the decreasing needs of the Basin for parks and promenades will be met satisfactorily, especially as the hillside parks are also only a step away.

West of the Basin, the first outstanding need is in the southwestern portion of Price Hill, west of Elberon Avenue and south of Warsaw Avenue. A park and playfield of at least six acres should be created preferably near Fairbanks Avenue south of Eighth Street, preferably on Sedler Avenue. This district is so far away from Wilson Common and Dempsey Park that it is entitled to a park and playfield of its own.

Still farther west and also south of Eighth Street, a small park and playfield will be needed before many years. A park and playfield of at least three acres should be created along Eighth Street and between Rosemont Avenue and Hermosa Avenue.

The Fairmount district is well taken care of by Lick Run Ball Grounds and St. Clair Heights Park, but to the south of Queen City Avenue, the new development of the hillside will need a neighborhood park and playfield of its own. Therefore a park and playfield of about five acres should be laid out up the hill above State Avenue, preferably near Hiawatha and Felsberg Avenues.

Westwood is fairly well supplied with parks, and at least the eastern part is well taken care of by Westwood Common; however, the rapidly growing western part of the region will soon need a park and playground of its own. Therefore, a park and playfield of at least three acres should be provided to take care of the western needs, and should be located preferably west of Boudinot Avenue and south of the C. & W. tracks.

Cumminsville is well supplied with parks, but it needs another small park and playfield to take the place of the one now on Blue Rock Avenue, which is rapidly being buried in the growing business district. The present North Side Play-

ground should be replaced by a new park and playfield of about two acres, located preferably along Chase Avenue near Cherry Street.

There are properties on Chase Avenue, especially on the south side, where little money would need to be spent to expropriate improvements.

In the Cumminsville and College Hill districts there are no playfield facilities to take care of the growing needs. A playfield of at least five acres should be established for the future between Cumminsville and College Hill.

Winton Place, despite its rapid growth, especially to the north has only one small park. There is an excellent opportunity to acquire more by extending the existing common. At least 40 acres should be added to Winton Common, preferably to the north.

Carthage needs a neighborhood park and playfield, and while it is rather solidly built up, it is feasible to find sufficient acreage on the east side of the community. At least seven acres should be acquired in the Carthage district.

Bond Hill has no park or playfield space. A park and playfield of at least nine acres should be acquired, preferably just north of the built-up portion of the city near the corner of Paddock Road and Ryland Avenue.

There is a large section of Avondale that is quite distant from any park or playfield, and while the openness of the residential development makes it possible for property owners to provide their own means of recreation, nevertheless ultimately recreation space will be needed. A playfield and small park of at least five acres should be created eventually, preferably near Glenwood Avenue, and possibly later a park and playfield of about 25 acres should be laid out farther west between Glenwood Avenue and Baxter Avenue.

A playfield of three acres should be acquired near the hospital ground, preferably on Euclid Avenue.

The new Hughes High School Athletic Field of 12 acres will serve not only the needs of the school but as a playfield for the neighborhood.

On the hilltops, north of the Basin, at least four parks and playfields should be created. In addition to Filson Outlook and Inwood Park, East Goat Hill Park should contain about 30 acres, Clifton about 13 acres and Fairview about 19 acres, and each could have a playfield to good advantage.

Along Duck Creek, just after it enters Norwood, there is a good opportunity for the location of a much needed park and playfield. As this district is not served by any parks nearer than the Evanston Ball Ground and Madison Park, a park of about 30 acres should be acquired by the City of Norwood, located preferably between Duck Creek Road and the LeBlond Plant. This Norwood park is needed to round out the system.



**BURNET WOODS**  
The charming parks are going to ruin for lack of funds to properly maintain them

© Paul Briol 1924

Oakley is in need of a park and playfield, as it has none at the present time. A park and playfield of about nine acres should be acquired in Oakley. It should be located preferably between Madison Avenue and Markbreit Avenue.

In the northern part of Norwood, near the Pleasant Ridge line, there is also a decided need of a park and playfield. An excellent opportunity presents itself there. A park and playfield should be acquired by the City of Norwood and should consist of about 33 acres, lying preferably between Mound Avenue and Highland Avenue, bordering on the C. L. & N. Railroad.

In Kennedy Heights there is also need of a park and playfield in the not too far distant future. A park and playfield of about nine acres should be acquired in Kennedy Heights, preferably south of Montgomery Pike between Kennedy Avenue and Coleridge Avenue.

Madisonville now has one small park. It already needs its own park and playfield. A park and playfield of about nine acres should be created in Madisonville, preferably in the northwest corner of the city, between Madison Road and Chandler Street where the proposed parkways join.

Fortunately ample parks and playfields of exceptional beauty are being provided in the development of Mariemont. They should serve as a model for the whole community.

Two additions should be made to Ault Park to round out its acreage. Several acres on Observatory Avenue should be added between the Observatory and the present park holding, and on the southeast side of the park, 19 more acres should also be added on the slope of the hill along Shattuck Avenue.

The only other neighborhood park and playfield that is needed is one at Mount Washington, which at present has no park or play space. There is a very attractive bit of ground on the slope looking back toward Cincinnati that would be well worth acquiring as a general park. About 110 acres of the wooded western slope of Mount Washington should be acquired as a park, playfield and minor reservation, not only to meet the growing needs of Mount Washington, but to serve as an observation point for looking back on the city.

#### Athletic Fields

Cincinnati has now no athletic field. It is one of the few cities of its size that has no public place where exhibition or competitive games can be held, where a large crowd can witness the sport. Such a playfield should be centrally located and easily accessible to all. The ideal location would be near the center of the future population and along main highways of traffic. With these considerations in mind, the obvious outstanding location for a playfield is the House of Refuge property between Colerain Avenue and the new parkway. This property is plenty large enough for all kinds of sport, is readily accessible by motor transit and rapid transit, and in a location where it

can do little harm to the neighborhood. Furthermore, the location of one of the proposed high schools directly across the parkway from it, will make it particularly useful for older school pupils and at the same time it presents the possibility of an interesting setting for the school. The parkway can in itself furnish adequate parking space for many hundreds of automobiles. This field, supplemented by the space that is being provided in other parks, will meet all probable needs.

#### Automobile Camping Grounds

Automobile camping facilities are now provided in Victory Parkway near Asmann Avenue, under the auspices of the Cincinnati Automobile Club. The grounds are rarely crowded and for the time being, at least, any further demands for automobile camping space can readily be taken care of in the existing parks. The automobile camp covers 30 acres of ground.

#### Golf Courses

Golf courses are now provided in several of the parks in addition to the seven private golf clubs in or near Cincinnati. As it is always possible to provide further golf facilities in the existing or proposed parks and reservations, no special provision needs to be made as a part of the City Plan.

#### Camping

Camping for groups like the boy scouts or girl scouts, can be readily provided in any of the existing or proposed reserva-



**BUDAPEST, THE CORSO**  
A popular promenade commanding a superb view

tions, or along the river fronts. No special provision need be made for camping as far as the City Plan is concerned.

#### Play Streets

There are at present about 10 streets in Cincinnati set aside as play streets in the summer. Almost all of these are in the Basin.

The proposed park and playfield acquisitions in the Basin will eventually entirely relieve the necessity of providing play streets. As it is prohibitively costly for the city to acquire fully adequate park and playfield spaces in the Basin and as the population there is decreasing, it will probably be desirable to continue the play streets for some years to come.

#### Amusement Parks

The outstanding amusement parks around Cincinnati are the Zoo, Coney Island and Chester Park. As far as their effect on the rest of the city is concerned, their location could not be better chosen, as they interfere little with the reasonable development of the city. However, as new institutions of similar sort are located in the future, great care should be taken to see that they do not hamper the proper growth of the city and its various services.

#### Parkways

The parkway system should be developed as indicated on the City Plan Map. With few exceptions, the proposed parkway system makes use of existing streets



**PARKWAY TO EXPOSITION GROUNDS  
SAN DIEGO, CALIFORNIA**  
Planted with low, formally clipped trees, that require no more soil than is available in Central Parkway on top of the subway.



**PARK AVENUE, EAST ORANGE, N. J.**  
Recently developed as a parkway in the County Park and Parkway system.

which are not encumbered with car tracks. It also usually follows streets now bordered with good trees and grass plots. As a general rule, parkways are merely well paved, attractive streets, from which street cars and trucking are debarred. In almost every case, they alternate with radiating or cross-connecting thoroughfares as indicated on the Thoroughfare Map. They often serve as possible relieving streets. In general they are the streets that should receive first attention in the paving program after the main thoroughfares. They should be uniformly paved, with a smooth, hard pavement. Kinks and jogs should be straightened out and bad corners rounded off.

As a rule, all streets designated as parkways on the City Plan Map and on the Thoroughfare Map, would remain unchanged just as they are today, until the time has obviously come for repavement, and then on repaving, the roadway and street widths would be changed only as shown on the City Plan Map and according to the rules set down in Chapter IV "Thoroughfares."

The application of this program will gradually give Cincinnati a complete parkway system at little cost. Any extra money available can be most effectively spent on widening the streets and providing good tree and grass borders. The automobile user does have a right to go from one part of the city to another along an attractive, quiet, smoothly paved street, where he can avoid street cars, trucks and probably buses.

In general, the parkway system follows that of the Kessler Plan, but it supplements it and extends it so as to serve equally all parts of the growing community. Unfortunately, certain of the most prominent parkways of the Kessler Plan are now impossible to realize, owing to the changing conditions of the neighborhoods through which they pass. It is believed that the proposed system will supply most of the charm of the Kessler Plan, and will meet more practically the present day conditions.

The ideal cross-sections will have to be determined for each future parkway when they are ready for development, and wherever it is possible to have a width of 80 feet or more, cross-sections similar to those shown on the accompanying diagram should be used. The cross-section of Central Parkway from Cheapside on, follows the cross-section laid down in the accompanying diagram.

#### Paying For Parks

The wide range of park, playfield and parkway needs and possibilities presented in this chapter, should induce public spirited citizens to give many needed tracts to the city. The tracts that must be purchased by the city should be acquired early to avoid their encumbrance with costly buildings. If the city should resort to a large bond issue in order to catch up on the present deficiencies, then the inclusion of the most urgently needed open spaces should unquestionably be featured in the bond issue.



**STRASBOURG PARKWAY**  
Roadway recently widened without sacrificing trees—automobiles park between them

### EXISTING NEIGHBORHOOD PARKS

Reference Number	NAME	LOCATION	Populat'n Served		No. of People Per Acre of Tract, 1970	Acres of Playspace in Park		REMARKS
			Present	1970		Present	1970	
16	Alms Memorial Park	Tusculum Avenue	6,075	7,400	70	61.2	107.0	
17	Latz Anderson Park	Columbia Avenue and Seneca Avenue	2,600	4,100	661	6.2	6.2	
20	Ault Park	Avon Field	6,215	10,525	520	0.7	0.7	Population included in Inwood Park
21	Avon Field	Mt. Lookout (Lanwood Heights)	15,850	31,450	45	215.2	231.2	
28	Bishop and Jefferson Triangle	Clifton	20,275	21,875	125	0.1	0.1	" Burnet Woods
24	Bite Rock St. Oval	Between Cherry and Turrill Streets	2,750	12,575	123	117.8	117.8	" Northside Playground
35	Burnet Woods	Surrounding Town Hall	7,625	4,275	2,330	5.4	5.4	" Short's Woods
36	College Hill Park	Fernbank	2,600	4,100	520	0.8	0.8	" Town Hall, Mad'ville
37	Chestnut Ridge	Whetsel Avenue (Madisonville)	2,075	2,650	2,383	0.1	0.1	
38	Central Park	Reading Road	3,750	4,050	173	12.7	12.7	
39	Deer Creek Common	Eastern Avenue and Torrence Road	1,600	1,825	270	6.8	6.8	
40	East End Common	Gilbert Avenue, Third and Collard Streets	23,450	16,075	80	193.5	193.5	2.5
41	Eden Park	Eighth Street	8,425	2,575	805	2.8	2.8	
42	Garfield Park	Hartwell	7,625	4,275	5,344	1.6	1.6	" Caldwell Park
43	Hartwell Oval	Auburn and Dorchester Avenues	2,075	2,650	13,250	0.2	0.2	
47	Hopkins Park	Eric Avenue	9,250	12,450	520	24.0	24.0	2.0
44	Hyde Park Square	Vine Street and Hollister Street	550	2,600	1,733	1.5	1.5	
45	Inwood Park	Kennedy Heights	23,675	11,475	1,033	9.4	9.4	
46	Kennedy Heights Park	Freeman and Hopkins Avenue	6,000	7,900	45	0.3	0.3	" Ault Park
48	Lincoln Park	Eastern Avenue and Reading Road	3,025	2,500	1,234	6.4	6.4	
49	Linwood Park	Ludlow Avenue Viaduct	8,900	2,850	822	2.8	2.8	
50	Louisville Triangle	Fourth and Lawrence Streets	2,925	3,675	2,920	1.3	1.3	1.0
51	Lytle Park and McLean Foun'n	Eastern Ave. (between Lumber and Ferry Sts.)	900	2,950	427	8.6	8.6	
52	Lyle Park	On Ohio Road at foot of Elco Street	2,600	3,900	36	16.5	16.5	4.0
53	LeBlond Park	Madison Road and Erie Avenue	2,700	3,950	811	4.4	4.4	
54	Lee Park	Madisonville	2,700	3,950	1,647	0.1	0.1	
55	Madison Park	Madison Road	550	925	4,625	0.2	0.2	" Seasongood Square
56	Morris Park	Madison Road and Rose Hill Avenue	3,375	7,400	75	68.2	91.1	4.0
57	Morris Park	Elberon Avenue	1,425	2,475	2,856	0.3	0.3	
58	Mitchell Triangle	Lafayette and Ludlow Avenues	3,375	7,400	37	66.8	66.8	" Garfield Park
59	Mt. Storm Park	Fifth Street (Fountain Square)	1,425	2,475	805	0.4	0.4	" Short's Woods
60	Mt. Storm Park	Saylor Park	1,425	2,475	144	0.3	0.3	" Short's Woods
61	Tyler-Davidson Fountain	Between Thelma and Monitor Streets	1,725	2,950	144	2.0	2.0	
62	McQueeny Park	Madison Road to Fairfax Avenue	4,125	3,575	282	8.3	11.6	2.5
63	Nelson Saylor Park	Fernbank	35,200	5,950	36	14.8	14.8	4.0
65	Owl's Nest Park	Barr, Cutter, Kenyon and Mound Streets	1,250	4,400	2,587	2.3	2.3	" Lee Park
66	River Park	Fernbank	4,400	9,425	144	24.7	24.7	
67	Sinton Park	Reading Road and N. Crescent Avenue	4,400	9,425	1,274	3.0	3.0	1.5
68	Thorn Pl. Triangle	Fernbank	4,850	8,425	36	0.7	0.7	" Lee Park
69	Short's Woods	Fairmount	3,575	5,170	795	10.6	10.6	2.0
70	Seasongood Square	Whetsel Avenue (Madisonville)	4,125	3,575	2,585	0.3	0.3	
71	Stuart Park	Bates Avenue	4,125	3,575	311	12.3	12.3	8.0
72	St. Clair Heights							
73	Town Hall Park							
74	Tatt Field							

### EXISTING NEIGHBORHOOD PARKS

Reference Number	NAME	LOCATION	Populat'n Served		No. of People Per Acre of Tract, 1970	Acres of Playspace in Park		REMARKS
			Present	1970		Present	1970	
75	Peck's Cliff	Between Vine and Ohio	15,025	13,925	485	0.7	0.7	
76	Peck's Woods	Bruce Avenue	2,150	3,375	105	31.6	31.6	
77	Pleasant Ridge Welfare Park	Pleasant Ridge	2,250	5,675	660	8.6	8.6	3.0
78	Rochelle and Glendora Av. Tri.				125	0.7	0.7	Population included in Burnet Woods
79	Victory Pkwy. and Noyes Field	Walnut Hills and Avondale	2,000	2,700	131	126.0	126.0	7.0
80	Valley Park	Colerain Avenue (House of Refuge)			125	21.6	21.6	
81	Westwood Town Hall	Lot around Town Hall	8,700	15,125	600	2.1	2.1	" Westwood Common
82	Warsaw and Woodlawn	Price Hill	11,400	7,400	1,512	1.1	1.1	
83	Washington Park	Race, Twelfth and Elm Streets	4,800	18,175	1,156	5.1	5.1	
84	Westwood Common	Fischer Place	11,000	18,175	600	23.7	23.7	4.0
85	Westwood Common	East of Grand Avenue (Place)	11,000	13,425	722	10.4	18.6	
86	Winton Common	Grand Avenue (Winton Place)	152	9,900	152	13.6	65.0	
87	Woodward Park	Foot of Rockdale Avenue	8,550	10,500	1,140	9.2	9.2	
88	Wulfin Triangle	Madison and Observatory Road	2,159	2,375	2,159	1.1	1.1	
89	Waterworks Park	Harris and Norwood Avenue (Norwood)	6,550	8,450	474	17.8	17.8	
90	Zoological Gardens	Erkenbrecher Avenue and Vine St.			125	43.5	43.5	" Burnet Woods
91	U. S. Gov't Reservation	Ohio River (at foot of Wilkens St.)			36	46.8	46.8	" Lee Park
	Rawson Woods Bird Preserve	Middleton and McAlpin Avenues						

### PROPOSED NEIGHBORHOOD PARKS

Reference Number	NAME	LOCATION	Populat'n Served		No. of People Per Acre of Tract, 1970	Acres of Playspace in Park		REMARKS
			Present	1970		Present	1970	
1		N. of Wayside Ave., W. of Ohio Pike	1,575	7,650	80	95.0		Outside city limits
2		Wooster Pike (Madisonville)			2,238	16.4		Population included in Evanston A. F
3		Duck Creek Road			485	9.3		" Peck's Cliff
4		Mulberry and Rice Sts.			949	11.4	5.0	
5		Madison Road and Maribret Ave.	8,500	10,825	649	22.9		
6		Turrill and Highlands Ave. (N. Wood)	7,025	14,855	144	18.0	9.0	
7		Madison Road and Deerfield Ave.	600	2,600	37	8.0	4.0	
8		S. of Montgomery (bet. Kennedy and Coleridge Ave.)	625	5,950	131	9.2		
9		Ohio River, W. of Carpenter Ave.	2,325	2,950	722	34.4		" Wilson Common
10		N. of Elberon Ave. (bet. Maryland and Mt. Hope)	2,850	8,700	908	6.5	2.0	
11		Sedler Ave., E. of Enright Ave.	4,675	19,075	100	10.3	2.5	
12		Surrounding Potter's Field	1,875	5,125	722	6.2	7.0	
13		S. of Hamilton Pike, N. of Cumminsville	2,225	1,500	163	11.5		
14		Near Hamilton Pike, N. of Cumminsville	2,100	7,725	672	22.9	2.0	
15		Between Glenwood and Ehrman Aves.	2,450	9,275	405	4.1	2.0	" Seasongood Square
16		Glenwood Ave. and E. of Washington Ave.	2,450	9,275	360	22.9	7.0	" Peck's Cliff
17		Whetsel and Ohio Aves.	22,275	8,675	485	18.2		" Sinton Park
18		Clifton and Ohio Aves.			2,587	3.7		
19		Linn, Cutter, Richmond and Ninth Sts.						

**EXISTING PLAYGROUNDS**  
Under the Supervision of the Board of Park Commissioners

Reference Letter	NAME	LOCATION	Population Served Present	No. of People Per Acre of Tract, 1970	—Acreage— Present 1970	REMARKS
A	Bold Face Creek	Sixth S. and Delhi Ave.	300	1,350	4.5	
B	Dempsey	Warsaw and Price Aves.	3,472	6,621	1.9	
C	Douglas School	Myrtle Ave. and Alms Place	7,365	6,682	1.1	
D	Evanston Athletic Field	Langdon Ave.	10,950	2,238	6.5	
E	Filson Outlook	Young and Ringgold Sts.	6,325	2,062	2.0	
F	Findlay St.	Pesant St.	.....	1,156	0.4	Population included in Washington Park
G	Grant	McMicken Ave. and Walnut St.	.....	485	0.4	Washington Park
H	Haara	McMicken Ave. and Duellap	.....	1,699	0.5	
I	Lick Run Ball Ground	Queen City and Shadwell	4,225	1,300	3.9	
J	Linwood Athletic Field	Gaster Ave.	7,75	3,837	7.7	
K	Mayfield and Carson Avenues	Price Hill	4,100	1,053	2.0	
L	McKinley	Price Hill	.....	1,053	1.1	
M	Monkney	Central Ave. and Blue Rock St.	7,825	2,717	0.7	" Lincoln Park
N	Northside	Hamilton Ave. and Blue Rock St.	.....	249	0.9	" Proposed Park No. 30
O	Oak	Stabler and Hatmaker Sts.	.....	1,650	3.0	" Wilson Common
P	Riverside	Liston and Olive Sts.	1,525	509	0.9	
Q	Riverview	Old Third St. Reservoir	3,950	1,053	3.0	
R	Springs School	Livingston, bet. Baymiller and Freeman	.....	583	0.4	" Lincoln Park
S	Symmes	Western and McLean Aves.	850	317	2.6	
T	Turkey Ridge	Eastern Ave., bet. Delta and Stanley	3,775	825	4.7	
U	Walnut Hills	Ashland and Chapel Sts.	2,950	3,855	1.9	
V	Wayne	Edgewood Ave. and Elmore St.	8,850	8,625	0.4	
W	Ziegler	Opposite Woodward High School	2,275	5,457	0.4	
X	North Fairmount	Carl Street	.....	.....	.....	

**PROPOSED PLAYGROUNDS**

AA	Carthage near Mill Creek	1,875	3,000	5.6
BB	Symmes St., bet. Morgan and McGregor Aves.	5,300	6,650	3.1
CC	Marshall and Tafel Sts.	4,500	2,495	12.0
DD	Montana Ave. bet. Cheviot and Boudnot Aves.	1,625	811	4.5
EE	Near Eighth, between Hermosa and Rosemont	1,925	1,968	3.1

**RESERVATIONS**

(To serve entire population)

Reference Letter	NAME	LOCATION	Population Served Present	No. of People Per Acre of Tract, 1970	—Acreage— Present 1970	REMARKS
92	*Mt. Airy Forest (incl. McF(ds)	Colerain Ave.	6,500	20,000	1,131.5	
93	*Rapid Run	Delhi Pike and Pontier Road	3,575	8	104.0	Outside city limits, opposite Sycamore
94	*Caldwell Park	North Bend Road	7,825	20	404.0	
95	*Sycamore Park	Furman and Montgomery Roads	725	12	200.0	Outside city limits, opposite Kroger Hills
96	*Waterworks Park	Kellogg Ave. and mouth of Little Miami River	.....	.....	.....	
97	*Kroger Hills Park	bet. Ind. Hill Rd. & Little Miami Rv., W. of Ter. Pk.	.....	.....	.....	

\* Existing.  
† Rapid Run and Sycamore Park—Proposed.  
NOTE:—Population figures shown are for people in the immediate vicinity of above reservations.

## CHAPTER XI Schools and School Play Yards

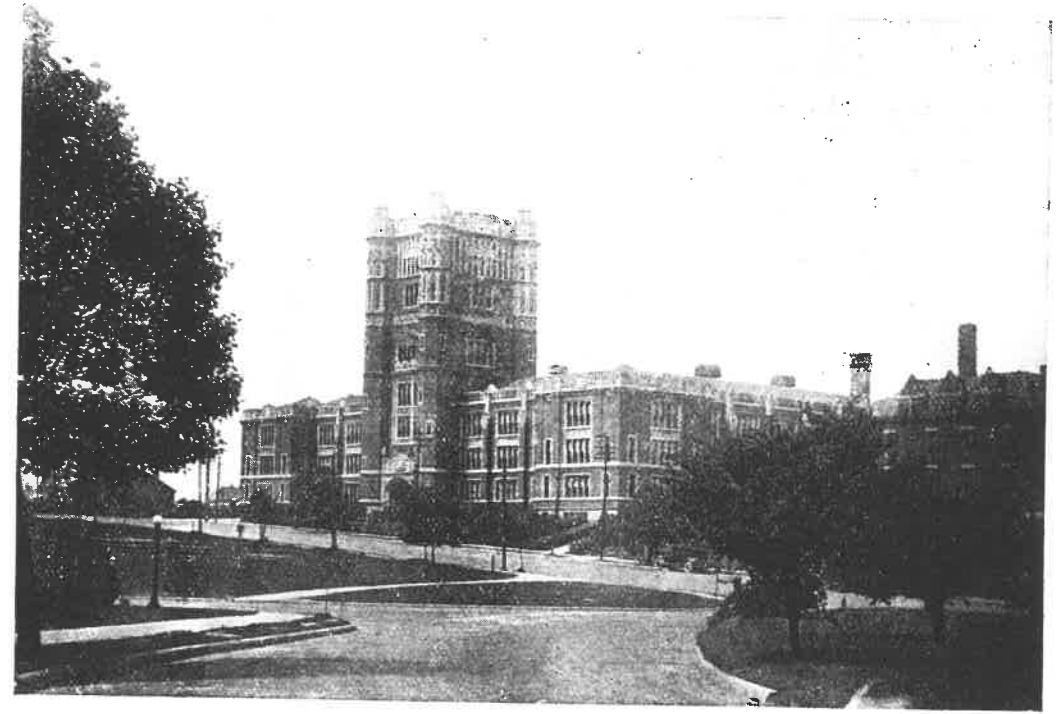
According to the contract, Second Section, Sub-section (1), a report should be made on "School Locations" and according to Sub-section (m), a report should also be made on "Playgrounds and Other Recreational Facilities."

### The Problem

Like most cities, Cincinnati is continually striving to provide school accommodations adequate to the needs of the growing population. It has been much more successful than most cities of its size, not only in meeting the requirements, but in meeting them in an up-to-date and permanently satisfactory manner. There are few cities where the buildings are as at-

tractive or as well built as they are in Cincinnati, and in general, the policy pursued has given good results.

However, in Cincinnati, as in all other cities, the question is constantly being asked by the members of the Board of Education, as well as by the public, whether the various new school sites, as acquired from time to time, are properly located with a view to the future growth of the city. Obviously from the standpoint of school requirements, both educational and administrative, there is no body that can begin to choose school sites and determine the dates when the new school facilities will be necessary, as well as the Board of Education.



HUGHES HIGH SCHOOL

—Copyright, Paul Briol, 1924

Nevertheless, experience throughout the country is constantly showing that even with the best advice hitherto available, school boards have located sites in the past, which, with the natural growth of the city, are now being swallowed up by industrial or business districts, or again, the sites turn out to be at junctions of important traffic thoroughfares. Furthermore, with the limited data on population growth and distribution that the Board of Education can normally have at its disposal, it is impossible for them to prognosticate the rate and distribution of future growth as accurately as can a City Planning Commission, which can bring to bear on the problems such a great variety of facts and consideration.

It is the function of a City Planning Commission to determine the location and districts, public buildings and other features of the City Plan in the best interest of the community as a whole, and also to determine the thoroughfare, traffic way, parkway and transit system that will most adequately satisfy all needs for a great many years to come.

In consideration of these facts, it is constantly being proved in cities where a City Planning Commission exists, that it can be of the greatest aid to the Board of Education in helping the latter to avoid school improvements that would eventually prove undesirable or unnecessary.

That the Board of Education recognizes the possible value of the studies conducted by the City Planning Commission, is evidenced from the constant reference to these studies in the special report of the Superintendent of Cincinnati Schools adopted by the Board of Education on June 9, 1924.

From the standpoint of the city plan, the City Planning Commission is also greatly interested in the location of school buildings, as their distribution affects the collateral location of playgrounds, parks, parkways, the transit facilities and the determination of building zones.

In June, 1924, the total attendance in Cincinnati schools was 45,272, of which already 29,000, or nearly three-fifths were

housed in modern, well-lighted and thoroughly ventilated rooms.

The especially large development of parochial schools in Cincinnati effectively cuts down the number of buildings that would otherwise have to be provided by the city, and in each district hereafter discussed, due allowance has been made for a continued growth of the parochial schools, paralleling that of the public schools. On the other hand, private schools other than parochial, are almost negligible.

In any case, an average of 905 new pupils have to be taken care of in the public schools each year, which means an addition of 20 to 25 class rooms. Therefore, it is imperative that the Board of Education should be supported in its effort to provide the necessary number of new rooms each year.

No consideration is given in this report to the possible effect of junior high schools, as the Board of Education has adopted no definite policy with regard to them.

The great question is, therefore, just where, and at what time, additions should be made to existing buildings, or whether or not it may be preferable to erect a new building in some rapidly developing part of the present school district, thereby relieving the pressure on the original building.

#### Method of Study

This is a study of the distribution of schools and school playgrounds, for the purpose of determining future needs and the best possible way of meeting such needs. It was of necessity, started with a thorough survey of existing conditions.

For this purpose a School and School District Map was prepared on transparent sheets placed over the Population Spot Maps. Upon these transparent sheets the following data with reference to existing schools and school districts are indicated:

##### 1. Public Schools:

- (a) Location
- (b) Name
- (c) Date built
- (d) Grades using school
- (e) Area of lot in acres, including building.

- (f) Area of playgrounds in acres
- (g) Number of rooms
- (h) Seating capacity
- (i) Enrollment by grades
- (j) Total enrollment (1922)
- (k) Special classes, if any
- (l) District boundaries
- (m) 1920 population in public school districts

##### 2. Parochial Schools:

- (a) Location
- (b) Name
- (c) Play area in acres
- (d) Total enrollment (1922)
- (e) Limits of parochial school districts

From the above data the expected future public school enrollment from each of the public school districts was calculated. The intermediate and final results of these calculations are shown on the transparent sheets already referred to by means of colored figures explained on the symbol sheet.

To arrive at the enrollment factor, total enrollment divided by population for each of the public grammar school districts, the parochial enrollment from each had to be calculated. This was done by apportioning the parochial enrollment of a particular parochial district between the overlapping public school districts in proportion to the population found within the overlapping areas. Adding the parochial enrollment from each public school district so determined to the grammar school enrollment of the district itself, and dividing this figure by the 1920 population of the public school district, the enrollment factor was derived. It reflects all characteristics as to the class, nationality and social status of the people inhabiting such districts. These enrollment factors show wide variations from 0.058 in the Fulton School District to 0.218 in the Oylar School District, while the average is around 0.14—that is, 14 per cent of the total population attends public or private grammar schools. This is somewhat higher than the average among cities.

It should be noted here that while the various figures given above are in general characteristic of the population in the districts, the high enrollment factors in several of the districts near the city limits have to be accounted for differently. The detailed population distribution studies do not extend beyond the city limits, while the public school districts do comprise county rural territories; consequently, while the enrollment from these rural territories was taken into consideration (most of the schools being located inside of the city limits) in determining the enrollment factors, this enrollment was distributed over the population inside of the city limits only. By disregarding in this manner the tributary population outside of the city area, the enrollment factors in those particular districts lost their

characteristic properties and were used in further calculations, as described subsequently, with the assumption that the rate of increase of population in the contiguous rural territories will be the same as along the border of the city.

As the next step, the enrollment factors so determined were applied to the 1970 population of the public school districts.

The total enrollment as calculated for 1970 includes the future parochial enrollment as well as public school enrollment. The program to be worked out, however, relates to public grammar schools solely and therefore some kind of an assumption had to be agreed upon as to the future of parochial education. After several conferences with the Superintendent of Public Schools and with the Board of Education, it was assumed that the parochial school system can be expected to expand in proportion to the increase of population; in other words, that the percentage of parochial enrollment, as compared with the public school enrollment, will remain constant.

Based on this assumption, the percentage of parochial enrollment to the total in each public school district was calculated and the factor applied to the total probable future enrollment of the district, thereby determining the public school enrollment, for which provision will have to be made in this program.

This method of using enrollment factors determined separately for comparatively small areas of the city, proved to be simple and effective. These factors are empirically determined, incorporating a number of known and unknown factors which govern the school enrollment in any particular district, and, there being little probability that the character of such districts will undergo much change in future, their application seems to offer a fair approximation of future local conditions.

#### Grammar Schools

In order to properly house the expected public school enrollment, it was necessary to adopt a standard or desirable size of school, in order that the number of schools to be provided could be fixed. According to the Superintendent of Public Schools, no definite standard size for grammar schools has been adopted, but in their experience grammar schools having seating capacities of from 600 to 1,000 or more seem to give satisfactory results from the point of view of administration as well as that of education. In



consideration of these findings, no attempt was made to standardize the size of the proposed schools. An attempt was made, however, to keep them within the limiting sizes mentioned above, and as near to 800 seats as was readily possible.

Knowing the number of necessary school buildings in any particular district, the most advantageous locations for each had to be selected and a decision made as to whether it would be preferable to retain existing schools and reconstruct or extend them as needed, or whether it would be more desirable to abandon and relocate the existing school.

Throughout these studies the following factors were considered:

1. Adequate size of plot.
2. Practicable shape of plot.
3. Topography and setting.
4. Reasonable cost of land.
5. Minimum amount of existing improvement to be removed.
6. Dryness of ground and foundation conditions.
7. Adequacy of playground development on the same site.
8. Possibilities of using other existing public playgrounds or other city-owned properties.
9. Avoidance of areas subject to flood.
10. Avoidance of business and industrial districts and uses.
11. Avoidance of nuisances and hospitals and cemeteries.
12. Avoidance of the dangers of thoroughfare traffic and railroad grade crossings.
13. Location central in consideration of topography, as well as density of population.
14. Accessibility.
15. Nearness to existing and proposed thoroughfares, transit and bus lines.
16. Harmony with surrounding architectural development.
17. Possible incorporation in a local grouping of public and semi-public buildings.

#### 18. Possible improvement of a blighted district.

After the selection of tentative school sites based on the enumerated considerations, the tentative corresponding school districts were outlined, keeping the following considerations constantly in mind:

1. Wherever possible, children of grammar school age ought not to be required to walk farther than one-half mile to their school.
2. Wherever steep street grades have to be negotiated, they should, in their neighborhood, reduce the radii of the district.
3. Children should not be required to cross heavily traveled traffic arteries except where they reside along such arteries.
4. Children should not be required to cross business or industrial districts.
5. Long walks along unimproved institutional or public properties rendering little protection against weather conditions should be avoided.
6. District boundary lines should be drawn equi-distant between schools, as far as local conditions permit.
7. Other considerations being equal, a certain eccentricity of school locations by increasing the district radius toward the downtown district is justifiable.

Following the same procedure as in calculating the probable future enrollment of the tentatively outlined future public school districts, the needed seating capacity of the proposed schools and the desirable size of tentative future school districts were determined.

Generally speaking, the same course was followed in checking up the adequacy of existing school facilities where retained and the size of additions where needed.

School play areas were calculated on the generally accepted assumption that 100 square feet per child of grammar school age ought to be provided wherever

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CITY PLANNING COMMISSION CINCINNATI 1924		TECHNICAL ADVISORY CORPORATION NEW YORK CONSULTING ENGINEERS	
Name	Location	Atlas Sheet Number	Date of Construction
<b>Elementary Schools</b>			
Anderson Ferry	Lower River Road	45 1073	1913
Avondale	Reading Rd. & Decatur Ave.	20 1907	1917
West Avondale	Near Ballmore Ave. & North St.	28 82	1917
Baltimore	California & Marlock	34 34	1917
East Hill	Near Richmond Pike	21 1695	1917
North Hill	Chase & Storer	6 1870	1917
California	Chase, Alport & Terrill	42 1916	1917
Carson	North Commission	35 1688	1917
Chase	Cleves Bridge & Harrison	39 39	1917
Cherry	So. Clifton west of Dunbar Road	28 1906	1917
Cliff View	Clifton & McAlpin	36 1913	1917
Clifton	Lombard Ave.	6 1870	1917
College Hill	Near South Woods	42 1916	1917
Columbian	Rainey Ave. & Union St.	19 1872	1917
Comins	Locust & Melrose	41 41	1917
Delhi	74th St. Fair Park Ave.	22 1896	1917
Mary Hill	Adams Pl. & Chaper St.	19 1900	1917
Douglas	Buganiler & Gest	30 1906	1917
DuPont	Dana & Tremball	35 1908	1917
East	Baltimore & Trevor	34 1892	1917
Central Fairmount	Warner & Stratford	29 1898	1917
North Fairmount	Eastern Temp. Weeks	34 1897	1917
Fairview	Warner Ave. & 2nd St.	19 1898	1917
Robert Fulton	Elmore & Beckman	34 1897	1917
Garfield	4th John & Arch	30 1895	1917
Guilford	Steiner Ave. & 2nd St.	32 1887	1917
Harrison	Hartwell & Woodbine	19 1909	1917
Hartwell	Eastern Ave. & Lewis St.	20 1912	1917
Highlands	Victory Blvd. & Durrell	16 1872	1917
Huffman	Observatory & Edwards	9 9	1917
Hullie Park	Kenilworth Ave. & Nelson R.R.	30 1885	1917
Hullie Park East	5th & Island	11 188	1917
Jackson	Montgomery & Kennedy	55 1910	1917
Kennedy	Bruce & Kirby	8 1922	1917
Kirkwood	North of Winton Ave.	42 42	1917
Kirby Road	Delia & Golden	17 1897	1917
Kilgore	Russell & Eastern	17 1897	1917
Lincoln	North of Ludlow Ave.	7 1878	1917
Linwood	Eastern & Winton	10 1899	1917
Lorainville	Prentice & Ward	9 9	1917
Madisonville	North of Chandler St.	20 1903	1917
Madisonville	Cannons & Fairview	30 1903	1917
Madisonville	Kilgore, Fair, Elm	36 1869	1917
Madisonville	Cherokee Ave. & Mt. Airy Road	29 1892	1917
Madisonville	Southwestern Ave.	3 1870	1917
Madisonville	Bechtman Ave. & Campus Lane	16 1910	1917
Madisonville	Madison & Chicago	40 40	1917
Madisonville	Near Harrison Ave.	32 1878	1917
Madisonville	Stevens, Burns, Snider	14 1878	1917
Madisonville	Madisonville & Winton	15 15	1917
Madisonville	Madisonville, Taylor	30 1886	1917
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Madisonville	Madisonville, Taylor	30 1886	1917
Madisonville	East Canal	44 44	1917
Madisonville	Near 18th St.	29 1894	1917
Madisonville	Franklin & 1st St.	19 1902	1917
Madisonville	Madisonville, Taylor	47 47	1917
Madisonville	Stevens, Burns, Snider	14 1878	1917
Madisonville	Madisonville & Winton	15 15	1917
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Madisonville	Madisonville, Taylor	30 1886	1917
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the land is reasonable enough in price, the same applying also to additions to existing playground facilities. However, where local conditions make such provision either financially or physically unfeasible, 75 square feet per child has been used as a minimum standard and in a very few cases in the heart of closely built-up districts where land values are exceptionally high and population is decreasing, 50 square feet minimum has been admitted.

#### Grammar School Conclusions

New grammar schools or additions to existing grammar schools should be located approximately as indicated on the City Plan Map, and the size and location of the properties and new buildings should be as indicated on the City Plan Map and on the special studies at 400-scale as indicated, and also as indicated in the School Table. However, in any case where the Board of Education may find that the publication of these conclusions has raised the price of an indicated tract above the normal value of neighboring property it would be fully warranted in acquiring an alternative site even several blocks distant. This applies also to additions to existing tracts. We will consider each school in detail, starting at the eastern side of the city and following the order of the 48 city topographic maps going from east to west and north to south.

#### Mt. Washington Grammar School

The present Mt. Washington School site should be retained and a new site acquired and building erected on the side street by 1940, and the site should be increased to a total of two acres by acquiring more land in the neighborhood. The building should seat 500. The present Mt. Washington School contains only five rooms, with about 200 seats, and while it is supplemented by the parochial school on Beechmont Avenue, enrolling 106 pupils, a 12-room public school building will be needed long before 1970. The present site is not ideal, because it will lie eventually between two principal thoroughfares and in a business district.

Expansion of playground facilities is difficult. While a canvass of the neighborhood shows that the most centrally located site off of the thoroughfares, and away from business where there is room for expansion, is on Corbly Street at the corner of Ronaldson Avenue, nevertheless the slow growth of the community would not appear to warrant the expense and trouble involved in abandoning the present site.

#### California Grammar School

The California Grammar School should be retained at the present location, at the corner of Kellogg Avenue and the City Water Works Park. However, 325 seats, or about eight rooms, should be added to the present four rooms by 1940. Despite the fact that the present location is on a main thoroughfare and somewhat eccentrically located for the district it now serves, nevertheless, if kept in its present location it will be more accessible to any additional population that may locate to the north and west. Furthermore, it has the advantage of being opposite a park where there are ample play facilities.

#### McKinley Grammar School

The McKinley Grammar School should be retained at its present location on Eastern Avenue at the corner of Tennyson Street, but one acre should be added to the play area by 1950. The present school building, with 16 rooms, seating 900 pupils, should be plenty large enough for many decades to come, in view of the industrial encroachments on the south, west and east and the park encroachments on the north, and the growth of St. Stephens Parochial School should take care of much of the possible overflow. However, there is inadequate playground space for children of grammar school age in the neighborhood, and as the present lot is too small for that purpose, at least an acre of play space should be added.

#### Linwood Grammar School

The present site at the corner of Eastern Avenue and Russell Avenue should be retained, but one-half acre of play area should be added by 1950. The present

building, with ten rooms and 500 seats, supplemented by the adjacent parochial school of the Lady of Loretto, should amply care for the growth of the district, hemmed in as it is by the railroads and the future industrial area on one side and the Kilgour district back on the hills on the other side. However, with a view to modernizing the present building and doing away with the two temporary buildings, a new building of 14 rooms should be erected by 1935. Despite the fact that the present site is on Eastern Avenue, it extends back up into the hills, so as to counteract much of the objection to its being on the thoroughfare. On the other hand, play space for children of grammar school age will be needed for Linwood, as the athletic field across the tracks will serve primarily for older children.

#### Kilgour Grammar School

The Kilgour Grammar School should be retained on its present site, and 480 seats or 12 rooms added to the present eight rooms by 1935. At the same time, one acre of play space should be added. The present site is excellently located for its neighborhood and the present building will be adequate for a decade to come. The play-yard space is ample for the present.

As a possible alternative, a ten-room school building which would seat 400 on a lot of one and one-half acres could be considered in Hyde Park East, between Erie Avenue and the Norfolk & Western Railway tracks. The rapidly growing Hyde Park East district is far enough from the Kilgour, Madisonville and Hyde Park schools to possibly warrant a building of its own by 1935 or 1940. Its erection would reduce the addition to the Kilgour School to 100 seats by 1950.

#### South Madisonville Grammar School

The new grammar school to be provided in South Madisonville by 1935 should provide 600 seats, or 15 rooms, and the plot should contain about two and one-half acres. The present Madisonville School would at best be inadequate to take care of the rapidly growing district to the south of Roe Street. Therefore, to

relieve the pressure, a new building is desirable.

#### Madisonville School

The present building and lot should be retained as they now are to serve the district bounded by Roe Street on the south and half way between Madison Road and Sierra Street on the north.

#### North Madisonville Grammar School

By 1960 a new grammar school should be located in North Madisonville, preferably north of Chandler Street. It should contain two and one-half acres and provide for 600 seats. For at least 30 or 35 years the present Madisonville School will take care of all of the growth north of Roe Street, but eventually with the growth of North Madisonville and the county beyond, a new building will have to be provided or else the present Madisonville School will have to be greatly enlarged. It would probably be much cheaper as well as more convenient to provide the new school here proposed.

#### Kennedy Heights School

By 1950 a new grammar school should be erected in South Kennedy Heights. It should contain 600 seats and three acres of land. The present Kennedy School on Montgomery Road can take care of South Kennedy Heights for a couple of decades, provided that the proposed Silverton School is built in the near future.

#### Kennedy Grammar School

The present Kennedy School should be retained where now located, but 250 seats should be added by 1940, and two acres should be added to its play area by 1940. Immediate relief for the Kennedy School should be provided by the erection of a new building at Silverton, but even with such a building, there will be enough growth in the neighborhood to warrant the addition of 250 seats by 1940. Despite the fact that it is on a main thoroughfare, the newness of the building would warrant retaining it where it now is.

#### Silverton Grammar School

A new grammar school building should be provided at Silverton by 1930. It

should contain about 300 seats and have about two acres of play area. To relieve the pressure of the Kennedy School, it is most important that a new school should be provided to take care of the rapidly growing Silverton and Deer Park regions. The sooner it can be built the longer the additions to the Kennedy School can be postponed.

#### Losantiville Grammar School

A new grammar school should be located north of Losantiville Avenue by 1950. It should include three acres of land, of which two should be for play, and the building should contain eight rooms, or 320 seats. This region, out in the county, is growing rapidly, and for the convenience of grammar school children a building should be erected within easy walking distance of the growing population.

#### Pleasant Ridge Grammar School

The Pleasant Ridge School should be retained on its present site, and 480 seats and three acres of play space added by 1940. The present building is adequate and well enough located, despite being on Montgomery Road, which is a main thoroughfare. As the original building with eight rooms was erected in 1870 it should be reconstructed with ten rooms by 1930. This would be adequate for the present.

#### Pleasant Ridge School

As a possible alternative to adding 480 seats by 1940 to the reconstructed new



CENTRAL HIGH SCHOOL  
SPRINGFIELD, MASS.

The effectiveness of setting can make a great difference in the appearance of a public building.

grammar school building, a new school building could be provided in the southern part of Pleasant Ridge next to Norwood by 1940. The lot should contain two and one-half acres, and the building at least 480 seats. South Pleasant Ridge is growing so rapidly that it could be considered for a school building of its own, separate from the Pleasant Ridge Building. This school should also serve the county to the south and east. It would relieve a large proportion of the pupils of the need of crossing the heavy traffic of Montgomery Road.

#### Oakley Grammar School

The present site of the Oakley School should be retained, but 150 seats and a half acre for play should be added by 1940. Despite the fact that the present location is on one of the busiest thoroughfares in Cincinnati, the chief development of the school is on a minor back street, where there is reasonable quiet. Notwithstanding the fact that the region is growing rapidly, a shifting of the district boundary lines will make it unnecessary to put on earlier or larger additions.

#### Hyde Park Grammar School

While the present Hyde Park School building and grounds are large enough to take care of the growth of the district, especially if Kilgour School is enlarged or a new building is erected in Hyde Park East, nevertheless the possibility should be considered of eventually moving farther east, preferably near to Paxton Avenue, in which case the western part of the present Hyde Park district could be added to the districts of the Horace Mann School and the Evanston Schools. In that case the new grounds should contain about four acres and the building 800 seats. The change should be made whenever a good price can be obtained for the present property, and in any case by 1950. The present site is very valuable for residence purposes. The district, in consideration of the surrounding districts, should probably be shifted to the East, in which case the proposed location would be more central than the present one.

The present building will have become obsolete at latest by 1950. However, until the junior high school question is definitely settled, the present building should unquestionably be retained.

#### Lincoln Grammar School

The Lincoln Grammar School should be retained on its present site, but 300 seats should be added by 1940, and two acres of land by 1930. The present building is easily accessible, but more play space is needed for grammar school children in that immediate neighborhood. With the rearrangement of the districts, the present seating capacity will probably be adequate for some time.

#### Highlands Grammar School

The Highlands Grammar School should be retained at its present site on Eastern Avenue, near the foot of Torrence Road, but 100 seats should be added to its present 475 by 1950. Adequate playground space is furnished in the adjacent park to the south and east. There is no good reason for changing the present site, which is satisfactory.

#### Fulton Grammar School

The Fulton Grammar School should be retained on its present site, but .2 of an acre should be added to its play space by 1930. As there is no play area for grammar school children available in this immediate neighborhood, it is desirable that enough should be added to the present school yard to take care of the neighborhood needs.

#### Windsor Grammar School

The Windsor Grammar School should be retained on its present site. The present building, with its 16 rooms and 800 seats, is adequate for the growing needs of the future. As sufficient play area for children of grammar school age was lacking, it is most fortunate that the balance of the block was recently added to the school play space.

#### Douglas Grammar School

The Douglas Grammar School should be retained in its present location at the

corner of Chapel Street and Alms Place, but 400 seats should be added to the present 980 seats, and 2.2 acres of land should be added by 1940. This building is well located with respect to the district, but its necessarily rapid growth will require an extension by 1940, if not sooner. The district is particularly poorly supplied with playground space. Therefore, an addition should be made not later than 1940. It is conceivable that the eventual development of junior high schools will change this program.

#### Cummins Grammar School

The present location of the Cummins Grammar School is satisfactory. However, at least one acre should be added to the property by 1930. The district is badly in need of playground areas. The present building is plenty large enough to take care of future needs.

#### Horace Mann Grammar School

The Horace Mann School should be retained on its present site, and no addition to the building or grounds is necessary. The present building provides 672 seats in its 12 rooms, with only 258 enrolled. Even if the district be extended to include part of the Windsor School district, it will still be adequate to take care of the future needs.

#### Evanston Grammar School

The Evanston Grammar School should be retained on its present site, but 300 seats should be added by 1930. The present location on Montgomery Road and Dana Avenue is good, especially as the building is in the rear of the lot, as far from the thoroughfare as possible. The building is already crowded and the district is growing very rapidly, therefore eight rooms' seating capacity should be added by 1930. The play area is plenty large enough.

#### Hoffman Grammar School

The Hoffman Grammar School should be retained on its present site, but 100 seats should be added to the present 640 by 1940. The present building is almost large enough to take care of future

growth. It is excellently located and has an exceptionally large play area, in addition to facing on the Parkway.

#### Columbian Grammar School

The existing building should be retained on its present site on Harvey Avenue at Union Street, but one acre should be added to the play-yard by 1930. The building is plenty large enough to take care of future growth, and it is well located with respect to its district, but the playground space is badly needed in the neighborhood.

#### Avondale Grammar School

The Avondale Grammar School should be retained on its present location, and 320 seats and two and one-half acres of land added by 1950 and 320 seats more added by 1970. The building is plenty large to take care of its immediate growth, it is centrally located and the play area is also large enough to take care of immediate local needs, but with the growth of the district the proposed additions will be needed by 1950. If it were not for the erection of the proposed North Avondale School they would be needed much sooner.

As a possible alternative to adding to the Avondale Grammar School a new grammar school building could be provided in West Avondale to the northeast of the Zoological Garden by 1950. The site should contain at least two and one-half acres and the building a total of 640 seats, of which 320 will be needed by 1950 and the balance by 1970. At the rate at which Avondale is growing, this northwestern region will eventually be densely populated enough to consider having a school of its own. Otherwise the present central Avondale school might become too large and be a little too far from part of its patronage.

#### North Avondale Grammar School

In order to take care of the rapidly growing district in the northern part of Avondale, a new grammar school should be erected by 1940. The building should contain 750 seats and occupy about three acres of land. This rapidly growing re-

gion is much too far removed from the Avondale School building, which now serves it. By 1940 at latest, a new building should be built especially for this northern district near St. Bernard.

#### Bond Hill Grammar School

The Bond Hill Grammar School should be retained on its present location and 520 seats should be added by 1935 or 1940 at latest. The present building, erected in 1893, contains only eight rooms, plus two colony rooms. It should serve the area to the north of Blatchly Farm Park, as well as the area to the north of the railroad tracks, as with the imminent operation of the rapid transit line, this district is bound to have a rapid growth. Therefore, by 1935 there will be urgent need of the addition of rooms to this as yet uncrowded building. The lot area, recently enlarged, now provides adequate playground space for the neighborhood. The location of the site is excellent.

#### North Bond Hill Grammar School

By 1940 a new grammar school building will be needed outside of the city limits to take care of the county growth east of Carthage and north of Bond Hill. The building should contain 480 seats and the ground at least three acres. This district, surrounded as it is by country clubs and the large, open space of the County Infirmary, is bound to have a good, substantial development, and therefore eventually a school will have to be located here. If desirable, 240 seats could be provided by 1940 and the balance by 1950 or 1960.

#### Mary Dill School

The present school on Seventy-fourth Street just west of Fair Park Avenue is not central to its district. In fact, it is just on the edge of a future industrial district. As the present building was built in 1876, and has not been remodeled since 1895, and contains only 300 seats, in spite of an enrollment of 417 pupils, the school should be rebuilt on a new site, by 1940 at latest, preferably to the south, and the new site should contain 2.5 acres and the building 750 seats. As the district is

growing rapidly, and as it is obvious that a new building will have to be erected in the near future, it is most important that it should be built where it will best serve its district, and not bordering on an industrial district.

#### Hartwell Grammar School

A new grammar school is now being erected. The property contains about two and one-half acres, and the building will eventually contain 700 seats. Only half of them need be provided at once, and the balance by 1940. A good location has been chosen for the Hartwell Grammar School on Carthage Pike at the corner of Hartwell Avenue, on property now unimproved.

#### North Winton Place Grammar School

By 1950 a grammar school building should be provided north of Winton Place to take care of the growing region between Winton Place and the city line to the north. The plot should contain at least three acres, and the building should provide 240 seats by 1950 and 240 more by 1970. It is only a question of time before a grammar school will have to be provided in this northern area. The most accessible site would seem to be near the junction of the two principal thoroughfares; that is, near Winton Road, about a mile to a mile and a half north of Winton Place.

#### Winton Place Grammar School

The Winton Place Grammar School should be retained on its present site, and one and one-half acres of additional playground space should be added by 1940. The present school is well located and the building plenty large enough to take care of the growth of the district. However, additional playground area is highly desirable in connection with the school.

#### Chase Grammar School

A new grammar school should be located in North Cumminsville by 1935, to relieve the Kirby Road Grammar School, and the present Chase Grammar School on Chase Avenue should be abandoned. The dividing line between the districts

of the new Chase School and the Kirby School should be along Hamilton Avenue. The new Chase School should contain 800 seats, of which 400 should be provided by 1935 and the balance by 1950. The plot should contain three acres, and the best location is near Parker Woods. The present Chase Grammar School was built in 1888, and must be replaced within ten years at the outside. Its immediate neighborhood is well served by two large parochial schools. A business district will completely surround the present Chase School building within a short time; therefore, it is most important that it should move to the center of its logical residence patronage.

#### Clifton Grammar School

The Clifton Grammar School should be retained on its present site, but 640 seats and three acres of play space should be added by 1950. The building is well located for its district, on Clifton Avenue at the corner of McAlpin Avenue, but about sixteen additional rooms will be needed and three acres of play space to provide fairly for the growth of the neighborhood. As a possible alternative to the proposed additions to the Clifton Grammar School, a new grammar school building could be provided in South Clifton west of Burnet Woods by 1950. The plot should contain at least two and a half acres and the building eventually 480 seats, in which case only 16 rooms and one acre of land need to be added to Clifton School by 1950. Ultimately, the Clifton Grammar School district may well be too cumbersome unless a separate school is built in South Clifton, the best site for which would appear to be near Lowell Avenue.

#### Washington Grammar School

The Washington Grammar School, built in 1869, will have to be replaced or supplemented in the near future. The growth should be taken care of by a new building, preferably near Taft Field. The site need contain only one acre, as Taft Field can be used for play space, but the building should eventually contain 960 seats, of which at least 480 should be

provided by 1935. The present Washington School is in the heart of a rapidly growing business and industrial district, where land is too expensive for expansion. It would be desirable eventually to abandon the present building entirely, but for the next few decades at any rate the better solution is to take care of the growing enrollment by starting a new school development near Taft Field.

#### Twenty-Third District Grammar School

The Twenty-third District Grammar School should be retained on its present site, but about three acres should be added to the present site as a playground by 1930. The present building is large enough to take care of future decreasing needs, but the play area is utterly inadequate for the neighborhood; therefore, play area should unquestionably be added in the near future.

#### Mt. Auburn Grammar School

The Mt. Auburn Grammar School should be retained on its present site. The Mt. Auburn school building is plenty large enough to take care of the future growth, but the district will eventually need more play area. However, the cost of adding to the present site warrants a more intensive development of the present plot for play use.

#### Vine Street Grammar School

The Vine Street Grammar School should be retained on its present site. With the redistricting of the neighborhood, the present building should be plenty large enough to take care of the growth, but the immediate neighborhood of the school is lacking in play area. Inwood Park will have to serve that purpose, as the cost of land near the school is prohibitive.

#### Fairview Grammar School

The Fairview Grammar School should be retained on its present site, but 1.6 acres of play space should be added by 1930. The present building, with its 900 seats, is adequate in view of future growth, but as Fairview Heights is sadly

lacking in play area, more should be acquired in the near future.

#### GRAMMAR SCHOOLS IN THE BASIN

The grammar schools in the Basin form a unified problem in themselves. A special intensive study should be given to the whole Basin Grammar School Problem. Such a study is likely to considerably modify the following conclusions, especially if the junior high school system is introduced.

#### Twenty-Eighth District Grammar School

The Twenty-eighth District Grammar School should probably be retained on its present site on McMicken Avenue, but .5 of an acre should be added to the playground by 1940. It would seem to be impossible to find a better location for the present school building, bad though it is, and therefore it is recommended that it be retained. However, extra playground space is most needed, and therefore, by 1940 at latest, but preferably earlier, some should be added to the present site, and terraced off so as to render it available for play use.

#### Rothenberg Grammar School

The relatively new Rothenberg Grammar School should be retained on its present site, but 1.6 acres should be added to the play area by 1935. The present building is fully adequate to meet future needs, but playground space is much needed for this densely populated region.

#### Twenty-Seventh District Grammar School

The Twenty-seventh District Grammar School should be abandoned as soon as practicable. The Twenty-seventh District School building was erected in 1871, and as the district is decreasing, rather than increasing in population, and as the near-by schools are more than adequate for the eventual needs of the decreasing neighborhood, the Twenty-seventh District pupils can undoubtedly be absorbed by the other schools.

#### Sands Grammar School

The Sands Grammar School building should be retained on its present site, and

about 1.5 acres added to the play area by 1930. Sands School is well located and large enough to meet the decreasing demands of the neighborhood, even when some of the Twenty-seventh District pupils are added to it. On the other hand, the district is lacking in adequate play-ground area, despite the half acre north of Livingston Street.

#### Washburn Grammar School

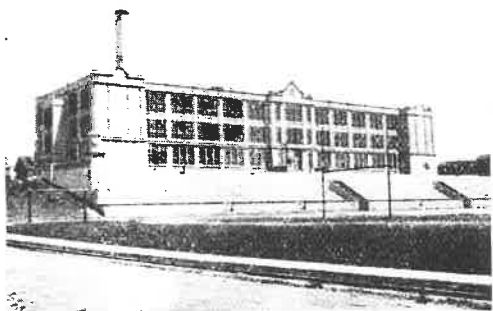
The Washburn Grammar School should be retained on its present site, but about .75 of an acre should be added to the present play-yard, by 1935. The building is adequate to take care of the future needs of the generally decreasing district, despite the recent access of population. Notwithstanding the nearness of Lincoln Park, there is a decided need for more play-yard area.

#### Raschig Grammar School

The Raschig Grammar School should be retained on its present site, but it is most desirable that its play-yard should be increased in the near future, by the addition of nearly one acre. This district is particularly badly off for play area, and the playground at the north end of Washington Park is too far away for real usefulness. With the decreasing population the building should always be large enough.

#### Sixth District Grammar School

The Sixth District Grammar School should be retained on its present site, and



HIGH SCHOOL, CANTON, OHIO  
The bleachers of the athletic field, which adjoins the high school, help remarkably in setting off the high school itself.

about one-half acre of play-yard should be added by 1930. This district is particularly in need of play-yard space.

#### Peaslee Grammar School

The Peaslee Grammar School Building should be retained on its present site, without change, but by 1940 at latest the building should be abandoned and the pupils absorbed into the surrounding districts. The building was erected in 1870, and with the neighborhood gradually decreasing in population, the building should be abandoned eventually. While more playground space is needed, it should be connected with the Woodward High School, leaving Ziegler Park, the present Woodward High School playground, for the Peaslee School.

#### Morgan Grammar School

The Morgan Grammar School, on the side of Mt. Adams, should be retained where it now is, but .75 of an acre of play space should be added by 1930. As the district is growing very slowly, the present accommodations should suffice, but playground area is needed as soon as it can be conveniently acquired.

#### Guilford Grammar School

The Guilford Grammar School at Lytle Park should be retained on its present site, but as the population in the neighborhood decreases, probably by 1940 at latest, it should be changed over into a special school and relieving high school to take care of the growing enrollment at the Woodward High School. As business and industries grow, the Guilford School will become less and less needed for grammar school purposes. On the other hand, the Woodward High School is growing and has little possibility of expansion. The Guilford School would seem to be ideal as an overflow of the Woodward High School and as a special study school.

#### Jackson Grammar School

The Jackson School should be retained on its present site without change. It is large enough to take care of the decreasing population of the neighborhood, and fortunately has a fairly large play-yard.

#### Stowe Grammar School

The Stowe Grammar School should be retained on its present site without change. Unless an exceptional influx of colored people continues in the future, the present Stowe Grammar School will continue to be large enough. The overflow is now taken care of by portables. It is fortunate in having adequate play space in the park directly across the street to the south.

#### Sherman Grammar School

The old Sherman Grammar School, built in 1879, should be retained on its present site, until the decreasing population of the neighborhood warrants its abandonment, possibly by 1940, or more probably by 1950. However, to take care of the recreational needs of the neighborhood, one-half acre should be added to the play-yard, preferably to the west. This should be done at latest by 1940. It is only a question of time before the Sherman School can and should be abandoned. As soon as sufficient seats become vacant in the surrounding schools, such as the Raschig and Dyer Schools, the Sherman School can be abandoned.

#### Twelfth District Grammar School

The old Twelfth District Grammar School, built in 1858, should be abandoned on its present site by 1935, or 1940 at latest. However, one-half acre of play space should be added immediately. With the invasion of industry and business in this neighborhood, it is only a matter of a relatively few years before there will be almost no one living in the neighborhood, and therefore an early abandonment of the building will probably be desirable. However, despite its eventual abandonment, more play space is needed right away.

#### Oyler Grammar School

The Oyler Grammar School should be retained on its present site, but as it is now full to capacity, and as the district is growing slowly, the four colony rooms should be replaced by permanent rooms, and four more rooms added by 1930. While this district is growing slowly, and

must eventually decrease in population with the invasion of industry and business, nevertheless it would be desirable to take care of the existing situation early. The play space is adequate.

#### Harrison Grammar School

The Harrison Grammar School should be retained on its present site, and a half acre should be added to the play-yard by 1940. The building is too large for the present, and even the future population in the neighborhood, but play space in the valley is still lacking.

#### Whittier Grammar School

The Whittier Grammar School should be retained on its present site, but as its play-yard is now encumbered with the colony rooms, an addition of at least 160 seats should be made to the existing building by 1930 at latest, and all of the grounds of the building turned into play-yard. Despite the nearness of Dempsey Park, it is important that the play-yard space in Whittier School should be as large in extent as possible.

#### Price Hill School

A new school building will be needed in North Price Hill by 1940. The building should provide eventually 550 seats, and the site should contain two and one-half acres. The desirable location would be north of Lehman Road. With the record growth of Price Hill, the Whittier Grammar School will soon prove inadequate. The addition to it of 160 seats will relieve the situation for a while, but by 1940 at latest, a new school starting with 240 seats will be needed in North Price Hill.

#### Twenty-Fifth District Grammar School

The Twenty-fifth District Grammar School, a new building, is fortunately being erected in this district. If the play area available after the completion of the new building is less than an acre, sufficient additional land should be acquired to make up the deficit. This building will eventually need 800 seats.

#### Central Fairmount Grammar School

The present building is adequate and should be retained on its present site. It

is fortunate in having an exceptionally large lot of nearly six acres.

#### North Fairmount Grammar School

The North Fairmount Grammar School should be retained on its present site without change. The building and the grounds are both adequate to take care of all future growth, even if the undeveloped areas to the north and west should have a large growth.

#### Garfield Grammar School

The Garfield Grammar School should be retained on its present site; however, by 1950 at least 160 seats should be added to the present building. The site is exceptionally large and desirable, but with the rapid growth of the region, an addition will be needed within 25 years at the outside.

#### Baltimore Grammar School

A new grammar school will be needed near Baltimore Avenue by 1950 to take care of the growth of the large area between North Fairmount and Mt. Airy Park. The building should eventually contain 600 seats, of which only 240 will be needed at first. The plot should contain at least two and one-half acres. A location near Baltimore Avenue between Yoast Avenue and McHenry Avenue would be desirable and central.

#### Kirby Road Grammar School

The Kirby Road Grammar School should be retained on its present site, but at least 120 seats should be added by 1950. The present building and site are quite adequate for fifteen or twenty years to come, but by 1950 at least 120 seats should be added.

#### College Hill Grammar School

The College Hill Grammar School should be retained on its present site, but the old six-room building should be replaced by a building which would eventually contain 1,200 seats, to take care of the overflow from the Mt. Airy School. Fortunately, a new building is now being erected to take care of the urgent needs of this neighborhood, but the balance of

seats should be added by 1950. The plot, which contains five and one-half acres, is plenty large enough.

#### Mt. Airy Grammar School

The Mt. Airy Colony School at Cole-rain Avenue and Kirby Avenue should be retained as it now is, and the overflow taken care of for the present in the new College Hill School. As this Mt. Airy district is growing, eventually new accommodations must be provided. It is more practicable to provide them for the present in the new College Hill School.

#### Cheviot Grammar School

The Cheviot Grammar School should be retained on the property owned by the Board of Education at the corner of Cleves, Bridgetown and Harrison Avenues. The building should contain 900 seats by 1950, although 400 are sufficient for the present. While the present property of the Board of Education is not ideal, being on a much traveled thoroughfare, nevertheless, it is central and of good size, and therefore should be retained.

#### Westwood Grammar School

The Westwood Grammar School should be retained on its present site, but 300 seats should be added by 1935. The building is well located on a large lot, with plenty of playground space, but the colony rooms should be replaced by permanent rooms not later than 1935.

#### South Westwood Grammar School

A new grammar school will be needed in the southwestern part of Westwood by 1940. The site should contain at least two and one-half acres, and the building 480 seats by 1960, of which only 240 need be provided by 1940. The location would be central to a large and growing district, now too far from any existing school.

#### Oskamp Avenue School

By 1940 a new grammar school will be needed half way between Fairmount and Westwood. The logical place to locate it would be near Harrison Avenue. It should contain at least two and one-half

acres, and the building 480 seats by 1960, of which only 240 need be provided by 1940. The rapid growth of the whole district on either side of Harrison Avenue indicates the need of a new school for the greater convenience of those who are now too far from West Fairmount.

#### Lick Run Grammar School

A new grammar school building will be needed by 1940, to take care of the growing district north of Warsaw Avenue. The site should contain at least 2.5 acres. The building should contain 640 seats by 1960, of which only 320 need be provided by 1940. This district is growing rapidly, and the Carson School is already crowded, therefore, a new building will have to be erected in the not too distant future. If a site is going to be acquired at a reasonable price, it should be bought within a few years at the outside.

#### Carson Grammar School

Carson Grammar School on Glenway Avenue is well located, but 560 seats should be added to the present building by 1940, and 400 seats more by 1950, and 320 more by 1960. Even despite the removal of the Seventh and Eighth Grades to the Western High School, and the provision of at least 320 seats in the proposed Lick Run Grammar School, the growth of the Warsaw district will necessitate adding the greater part of 560 seats in the Carson School by 1940 and 400 seats more by 1950, and 320 more by 1960.

This growth makes it desirable to consider whether it would not be preferable by 1950 to provide still another school in the West Price Hill district, near Rapid Run Pike. It should have four acres of land and 720 seats by 1960, of which only 400 need be provided by 1950. If this district continues to grow as rapidly as it has in the past, a new building in South Warsaw will be needed well before 1950, despite the additions to the Carson Grammar School and the erection of a new grammar school in North Warsaw and the diversion of Seventh and Eighth Grade pupils to the Western High School.

#### Riverside Grammar School

With the growth of Riverside to the west, the present grammar school at Henrietta Avenue should be relocated by 1940, about a half mile to the west. The site should contain at least four acres, and there should be 720 seats in the building. The present site of the Riverside Grammar School is unfortunate, coming as it does at a sharp bend in a steep road. There is no area for play. This district is growing to the west, therefore a new school building a half mile further west would be more conveniently located, and could provide an adequate play-yard.

#### Anderson Ferry Grammar School

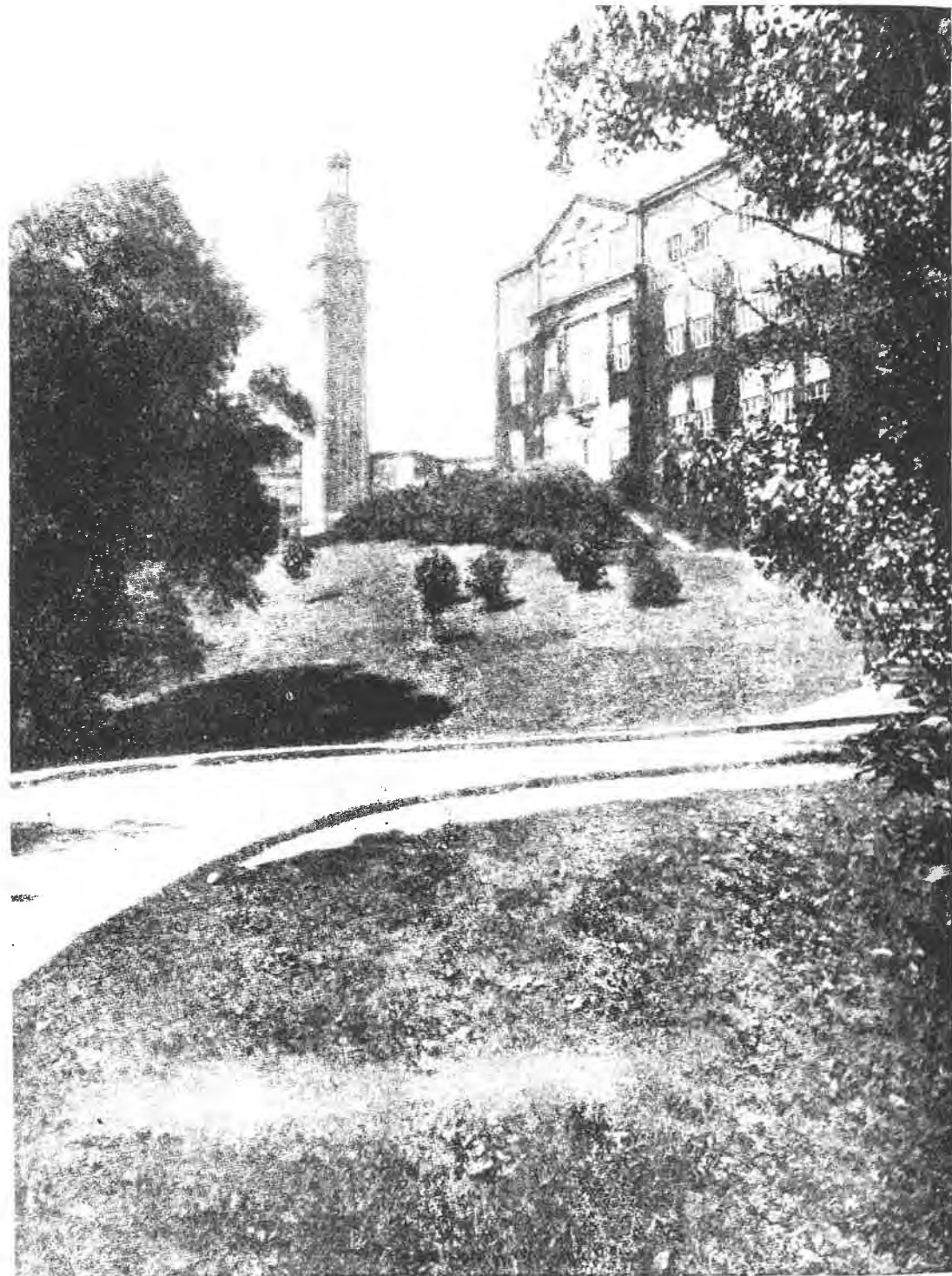
The present two-room Anderson Ferry Grammar School should be abandoned at once.

#### Sayler Park Grammar School

A new grammar school building should be erected adjacent to Short Woods Park by 1935. The site should contain at least two acres and the building should contain 720 seats. Instead of adding to the present Sayler Park Grammar School, the present building should eventually be abandoned, as it is in the heart of a rapidly growing business district. As a possible alternative, these additional rooms could be provided in Delhi to accommodate the growing population in the eastern part of the district. Additional accommodations should be provided first by the erection of a new building at the eastern end of this region. It would also serve to take care of those residing along the river east of Delhi and west of Anderson Ferry.

In any case the present Sayler Park Grammar School should be abandoned by 1950, and replaced by adding rooms to the new grammar school building, adjacent to Short Woods Park. If the 1935 building is erected at Delhi, the Short Woods site should contain one and one-half acres and the building should eventually contain 600 seats. The park should furnish the necessary playground space. If the west part of Sayler Park and Fernbank grow rapidly, a new Sayler Park





**WITHROW HIGH SCHOOL.** © Paul Briol 1924  
 One of the finest high schools in America. A model for the city's future schools

Grammar School will have to be built before 1950. In any case, the present Saylor Park Grammar School should be abandoned, since it can be replaced conveniently.

**HIGH SCHOOLS**

While in the case of grammar schools the simple use of the enrollment factor made it possible to forecast the probable future grammar school enrollment, an entirely different line of thought had to be followed in arriving at the probable future high school attendance for which provision would have to be made in the high school program. The question of expected high school enrollment is involved with that of the future vocational and night high schools and the parochial high schools and private schools, all of which absorb a certain percentage of the population of high school age. In addition, the State law does not make school attendance compulsory beyond the age of 16. Therefore, the problem resolves itself to one of making studies of the prevailing tendencies in the attendance at the above-mentioned schools collaterally with that of the high schools and projecting the tendencies so found into the future, as well as estimating the increase in the percentage of high school enrollment to the total population.

The details of this method are given in the following:

Total enrollment in public schools (1923)	41,131
Kindergarten enrollment (9 per cent of total)	3,720
Balance enrollment I to VIII grades (inclusive)	37,410
Special schools	566
Total, approximately	38,000
Total enrollment in parochial schools (total)	17,952
Kindergarten enrollment (5 per cent of total)	900
Balance, approximately	17,000
Total I to VIII grade enrollment (inclusive) approximately	55,000
Average enrollment for any one year range	6,875

This latter figure can be taken as the approximate number of children of any grammar school age within the range of any one year, for theoretically, every child of grammar school age is attending school. There being

no good reason to the contrary, the enrollment of any four grades of grammar schools, 27,500 (4x6,875), has been assumed as the total 1923 population of high school age. To be exact, it is a fact that there is a decrease in the older age groups due to deaths in the previous age groups and to the increased death rate, but this difference has been found to be negligible in so far as it might affect this study.

City population, 1923	410,000
Percentage of population of high school age	6.7 %
Estimated city population in 1970	525,000
Estimated high school age population, 1970	35,200
Percentage of high school age population in vocational, night high schools, etc., 1923:	
Vocational	4.4 %
Night High School	2.4 %
Parochial High School	5.5 %
Private Schools	2. %
Day Public High Schools	26.5 %

Total.....40.8%

Estimated percentage of day high school enrollments in vocational and night high schools and private schools:

	1923	1970
Vocational	16.6%	20%
Night High School	10.0%	10%
Parochial High School	19.0%	19%
Private Schools	2.0%	2%
	47.6%	51%

Assuming that 60 per cent of the total high school age population may attend school beyond the Eighth Grade in 1970, as against approximately 40 per cent at present, the expected enrollment of all kinds of high schools would amount to 21,100.

Assuming 50 per cent of the total population of high school age will attend the public day high schools, the expected public day high school enrollment in 1970 would amount to 10,500.

**Capacity of Existing High Schools**

Withrow (4 grades)	2,060
Hartwell (4 grades)	600
Hughes (4 grades)	2,500
Walnut Hills (4 grades)	900
Woodward (4 grades)	1,650

Total.....7,710

The Superintendent of Public Schools shares the opinion of most modern educators that physical and social conditions in the city call for the geographical distribution of high schools rather than for the segregation by types of curricula. If

this policy is to be carried out consistently to its logical conclusion, the **Walnut Hills High School**, primarily a classical high school, should be discontinued as such, particularly because of the antiquated condition of the building and the lack of modern high school grounds and facilities. **The High School in Hartwell, which can not be considered as other than temporary, will have to be replaced some day by a more centrally located high school serving the northern and northwestern suburbs of the city.** Adding to the calculated enrollment increase, the present enrollment of these two high schools, 4,090 new seats would have to be provided by 1970. **Thus it seems that two more new high schools will be sufficient to provide for future needs.**

Recently the Board of Education acquired a piece of property between Westwood and Cheviot and between Ferguson Road and Bridgetown Pike, on which it is erecting a six-year high school for the western section of the city.

A second new high school should be located somewhere between Ludlow and Colerain Avenues and near the proposed Central Parkway. It would be easily accessible from Bond Hill, Hartwell, Carthage, Winton Place, Cumminsville, College Hill, North College Hill, Mt. Airy, as well as Camp Washington, by using existing and proposed transit facilities. Part of the House of Refuge property could be used as a play-field in connection with this proposed high school, if necessary.

The probable enrollment of high schools in 1970 would be approximately as follows:

Withrow .....	2,600
Hughes .....	2,500
Woodward .....	1,650
Proposed Western Hills .....	1,700
Proposed West Clifton .....	1,900
Total .....	10,350

The distribution of high school enrollment would necessitate an addition of 500 seats to the Withrow High School by

1940. It would be advisable to build the proposed two new high schools to accommodate 1,900 and 2,100 pupils, respectively, in consideration of the rural county territories they will be called upon to serve.

In case it is found desirable to build a new classical high school in place of the Walnut Hills High School, instead of completely abandoning it, this high school should not be located too far from the present and future center of population, and the repetition of conditions as they now exist there should be guarded against by acquiring sufficient ground for the accessory activities of high school education.

The suggestion that has been made of locating a new classical high school in Eden Park will probably meet with a strong opposition on the part of the Park Board, as well as on the part of the general public. **If a new Walnut Hills High School must be built, it should be located farther out, and farther west, nearer the center of the future population.** A location somewhere near Gilbert Avenue, along the Boulevard, the latter serving to improve the setting of the school, would undoubtedly be a more feasible and more practical solution.

The Woodward High School is rapidly becoming inadequate, and at latest by 1940 the additional seats required in the Woodward High School in the Basin should be provided in the Guilford Grammar School, which latter should be abandoned as a grammar school by that date. The potential grammar school pupils are gradually disappearing from the neighborhood of the Guilford School. The building is particularly well suited for special and high school use, and when the moment arrives that the grammar school patronage can be absorbed by other existing neighboring schools, then it should serve as an overflow for the Woodward High School and other special school purposes.

## CHAPTER XII

### Public and Semi-Public Buildings and Tracts

According to the contract, section 2, sub-section (k), the Plan should include recommendations with regard to "Civic centers and sub-centers, including general group and block plan or plans of public and semi-public structures."

Sub-section (n), "Markets, both open and in buildings, including central, community and neighborhood markets."

Sub-section (g), "General location of aircraft terminals, landing fields, hangars and shops. This shall include the metropolitan district of Cincinnati on the Ohio side."

#### The Public Building Program

Cincinnati's public buildings have not caught up with its growth. Except for the County Court House, the recent schools, the University of Cincinnati and the General Hospital, Cincinnati has almost no up-to-date, or even adequate public buildings.

The City Hall, while of interesting architectural design outside, is inadequate in space and inefficient in layout for today's needs.

The main public library has no redeeming feature except its location. Such a building is inadequate and obsolete for a city the size of Cincinnati, and the library

trustees are to be heartily commended for their continued insistence on a proper building.

Cincinnati has no auditorium of any size except the Music Hall, which is antiquated and much too small to meet the modern needs of a city the size of Cincinnati. Its only redeeming feature is its location, which with the growth of the city has turned out to be very wisely chosen, as it happens to be at the focus of many main lines of communication.

The Board of Education headquarters, while practical and fairly well located, is hardly dignified enough for a city of the importance of Cincinnati.

The Fire Department headquarters and the Police Department headquarters in the City Hall are inadequate.

The Post Office and Federal Building was very good for its time fifty years ago, but has been entirely outgrown in size and character, and will be much too far away from the proposed rail center.

The Court House is a dignified and impressive building.

The Art Museum is a distinct credit to the city. Charmingly located in Eden Park and housing an exceptionally fine collection, it has become, as it should be,



THE SILHOUETTE OF CINCINNATI

Courtesy of H. H. Wessel

a place of pilgrimage for art lovers from all over the country. The buildings, however, are quite inadequate.

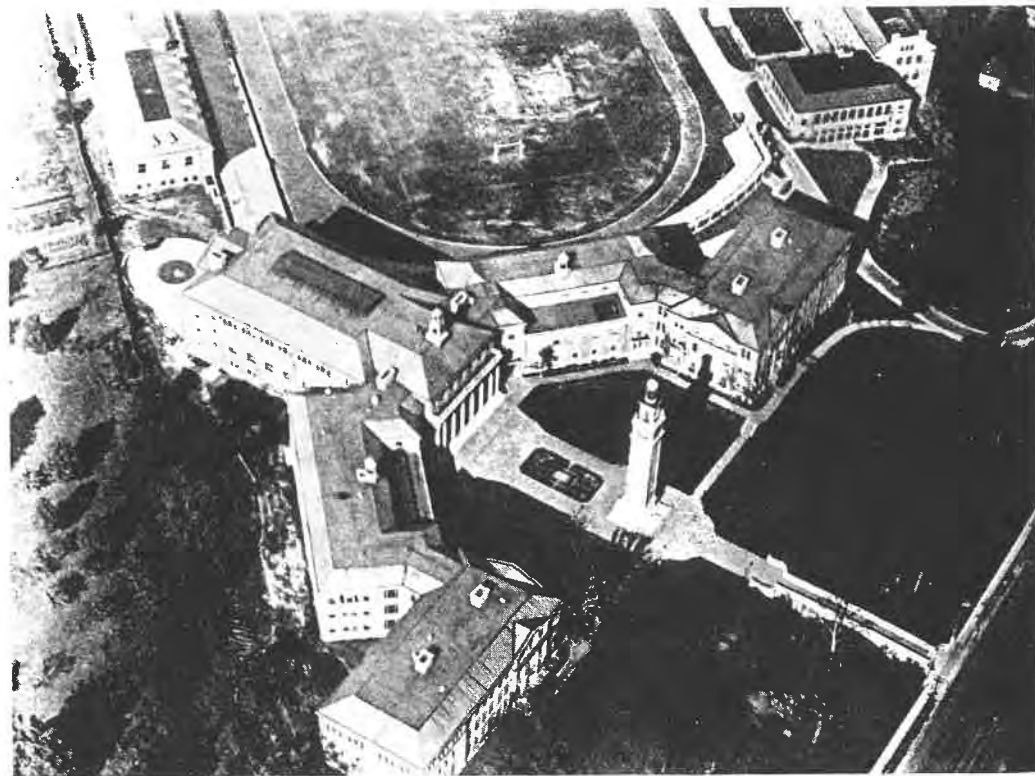
The University is beautifully set in the southern end of Burnet Woods. The old buildings are dignified; the new are good in design, although it is unfortunate that the whole group could not have been constructed according to a well-thought-out general block plan, as it is difficult now to tie the existing and future buildings together in a harmonious whole. However, the new general lay-out plan to which the university is working, is probably the best solution of a difficult problem.

The schools are, many of them, very attractive in design and layout, while the Withrow High School presents one of the most interesting school groups to be

found anywhere in the country. It is justly famous. It should serve as an inspiration for all future high school and junior high school groups, for it sets a standard that should certainly be maintained.

Cincinnati should have a War Memorial, but the form it should take should be left to local sentiment.

The Board of Park Commissioners has no buildings in its parks and few in its play-fields. Those existing are fully up to standard as far as they go, but owing to the inadequate funds available, a number of new park and play-field buildings are needed right away, in order to round out the usefulness of the parks to the public. These include shelter houses, comfort stations, baths, indoor gymnasiums, refectories, etc.



WITHROW HIGH SCHOOL  
One of the best high school layouts in the country

(Courtesy of Mr. Morgenthaler)

The problem of public works will be treated later in this chapter.

With regard to local public buildings in the various sub-centers, such as branch libraries, fire stations, police stations, comfort stations, public baths and public works, the type of building and architectural treatment throughout Cincinnati is up to the average of most cities of its size, although, like most other cities, no thought has been given to the grouping of such outlying buildings so as to create attractive civic sub-centers.



FIRE STATION, CANTON, OHIO  
The setting of this fire station makes it one of the most attractive features of the city.

With regard to semi-public buildings, such as churches, clubs, private hospitals and institutions and public utility buildings, Cincinnati is better off than most cities. The appearance of buildings and their architectural quality is fully up to the average. But again, as in the case of local public buildings, no attempt has been made at grouping them in local sub-centers.

#### Locating and Grouping Public and Semi-Public Buildings

The problem of locating any public building is difficult and complex. There always are a great many factors which controls the location. Of course, convenience and accessibility for those who are most likely to use the building are the outstanding considerations. Nevertheless, it is also important that the building should count for its full value and not be lost in the midst of sordid surroundings that tend to drag it down or hide it. There is really

no public building in the "Basin" that is worthily set except possibly the old Post Office, the Guilford school building near Lytle Park and the Music Hall. Each of these three buildings, especially the two latter, has an adequate setting and approach, so that the buildings count for their full value. While on the other hand, the Court House, the City Hall, and particularly the public library, are shut in by their surroundings and inadequate approaches.



COURT STREET TOWARD COURT HOUSE  
BEFORE WIDENING  
One-third of facade visible



COURT STREET TOWARD COURT HOUSE  
AFTER WIDENING  
One half of facade visible

There is no attempt at grouping public and semi-public buildings, except for the quite charming ensemble of the City Hall with the three neighboring churches, especially as seen along Garfield Square looking west.

Outside of the "Basin," the best set grouping of public buildings is probably the Withrow High School, with its inter-

esting approach across the bridge from Madison Road. The Art Museum group is also well set on top of its hill in Eden Park, while the University buildings are only fairly well set. Unquestionably the latter group could have been much better located than it is, if thorough study had been given to the general block plan before any buildings were erected.

The chief trouble with the public buildings of Cincinnati is their haphazardness. Each public building seems to have been located entirely independently of all others. There appears to be no attempt to group related buildings, either for convenience or for combined effect.

The experience of other cities in the grouping of public and semi-public buildings, shows that without question, the public convenience is better served by locating related buildings near together. Experience also shows unquestionably that the combined effect of grouping related public buildings is far greater than the sum of the separate effects of the same buildings isolated from each other. In other words, where public buildings are properly grouped together, they form an ensemble that is often far more impressive than any one of the buildings by itself. The citizens can develop little civic pride over a single public building, but the great civic center groups of Denver, Cleveland, Harrisburg, San Francisco, Springfield, Mass., are an inspiration to the citizens as well as to the visitors. Such a center of civic life becomes a focal point for all civic interests, thereby tending to consolidate the loosely jointed parts of the city into a cooperating whole. There seems to be nothing a city can do that tends so to head up civic consciousness as the creation of a central gathering point in a civic center.

The same principle applies to the grouping of educational and cultural buildings, such as libraries, museums, universities and schools of various sorts.

Therefore, as a guiding principle in locating the various public and semi-public buildings that must be built, sooner or later in Cincinnati, the possible creation

of a civic center group and of a cultural center group has been borne constantly in mind.

Obviously it is ridiculous to try to locate public buildings without considering their relation to the thoroughfare and transit system and the effect which zoning will have on them and they will have on zoning.

Therefore, the location, size and grouping of the various public buildings that are going to be needed, have been studied concurrently with the rest of the City Plan, so that all parts of it will fit together as a unit.

Furthermore, in locating each public building, the various possible sites for each have to be weighed as to their relative advantages and disadvantages, and the one most appropriate site has to be determined by a process of elimination.

It is also to be borne in mind that few, if any, of the proposed public buildings will be erected immediately, or even for a number of years. In other words, the public building plan must be carried out over a long period of years. However, as some buildings will be needed sooner than others, a program of urgency has been worked out.

#### City Hall

The present City Hall is too good a building to abandon. Cincinnati is not growing rapidly enough to justify tearing down the present building and erecting a new one in its place. On the other hand, a certain amount of supplementary space is needed, and more will be needed as time goes on and the various city departments are able to function at normal capacity. Therefore, the most economical and the most practical solution is to erect an annex to the present City Hall. As the existing building fills its block, and as none of the boundary streets can be vacated for traffic reasons, an annex would have to be built on one of the adjoining blocks. Other things being equal, an annex should be across the street that is least used for traffic and on the cheapest land. The busiest bordering street is Central Avenue, the next busiest is Plum

Street and the third busiest is Eighth Street. Therefore, the normal tendency would be to locate the annex on the next block to the north. This block to the north has the further advantage of being fully as cheap as any of the other three, and being relatively less improved with costly buildings.

**By 1940 at latest, a municipal office building should be erected on the block to the north of the present City Hall.**

#### Public Auditorium

At the same time, in the not distant future, possibly as a commercial venture, possibly as a municipal enterprise, Cincinnati is going to erect a large auditorium. The present Music Hall, with its 3,600 seats and the Emery Auditorium, with 2,200 seats, are neither of them large enough for a city the size of Cincinnati, under modern conditions. The recent experience of cities like Cleveland, Oakland, Denver, Portland and San Francisco, would seem to prove that an auditorium that will be of real service to the city must contain from 8,000 to 12,000 seats. Such an auditorium will require several acres of land, and in addition there must be sufficient automobile parking space in the immediate neighborhood to take care of 1,000 to 2,000 automobiles without interfering with normal traffic and other local parking demands.

It is obvious that such an auditorium must be located as near the downtown hotel and shopping district as practicable, and at the same time be at a focus of the various transit lines and thoroughfares leading from all parts of the city to the center. It is also manifest that in acquiring a site for such an auditorium, the fewer existing improvements that have to be acquired and razed, the better.

Any study of the downtown district shows at a glance that there are only two locations which begin to answer these requirements. One is just east of the present Court House and the other is the old hospital site between Central Parkway and Central Avenue north of Twelfth Street. The property at the bend of the canal just east of the Court House, al-

ready contains several fairly costly improvements. It is readily accessible to the whole eastern part of the city by Reading Road and Gilbert Avenue, and it is at the terminus of the subway. On the other hand, it is not as accessible to the whole Mill Creek Valley and the rapidly growing western and northern parts of the city as the old hospital site, nor is it as near the converging point of as many transit lines as is the latter site.



PARIS, LUXEMBOURG GARDENS  
Suggestions for the setting of downtown parks

Furthermore, an auditorium east of the Court House could probably provide less adjacent space for parking than is possible near the old hospital site, and the latter site is much nearer various other public and semi-public buildings in conjunction with which it would probably be used, than is the site east of the Court House. Therefore, all things considered, the old hospital site probably presents many more advantages for auditorium use than the site east of the Court House.

**Within 10 to 25 years, and by 1950 at latest, a public auditorium containing at least 8,000 seats should be erected on the old hospital site at the corner of Twelfth Street and Central Parkway.**

#### Post Office and Federal Building

In the not far distant future, a new Post Office and Federal building will have to be built. It is a rule nowadays, of the Federal Department, to locate new central post offices as near the railroad center as possible, and at the same time within easy walking distance of the center of the city. If the railroad center of the

future is to be in Mill Creek Valley, the Federal authorities would probably want to locate the central post office somewhere on the line between the union passenger station in the Mill Creek Valley and the central downtown district. For ready access to the downtown district, the Post Office obviously should not be farther west than Central Avenue. The most direct line of access from the downtown district to the new union station would be along Central Parkway extended to the west. Therefore, a location at the junction of Central Parkway, Plum Street and Central Avenue, would be a happy compromise between Post Office and public convenience.

**A new Post Office and Federal Building should be located not later than 1950 at the junction of Plum Street and Central Parkway, preferably just north of the proposed municipal office building.**

#### Board of Education Building

The present loft building quarters of the Board of Education will sooner or later be supplanted by a worthy building especially suited to the needs of the School Board. Such a building should obviously be near other public buildings. This would mean that a location near the corner of Central Parkway and Plum Street would be desirable.

**By 1940 at latest a new building for the Board of Education should be located in the vicinity of Central Parkway and Plum Street.**

#### Central Public Library Building

Several times recently, bond issues have been proposed for a new public library building. The present building offers little protection against fire to a most valuable collection of books and documents. It is of the utmost importance that a new public library building, dignified in character and properly located and laid out, should be built in the near future.

Modern library practice demands that a central public library should be readily accessible to the downtown business district for consultation and noon hour use.

Therefore, any new public library building must be within easy walking distance of the central business district and readily accessible to all lines of transit and all thoroughfares converging in the "Basin." Reasonable quiet and a peaceful outlook is also most desirable, at least in a part of the building. The only site that seems to offer these various advantages in a marked degree would be one facing on Washington Park, preferably on the south side across Twelfth Street, and preferably running through to Central Parkway. A building located on this site would not only contribute greatly to the appearance of Washington Park, but would also be a great aid in determining a dignified character to the development of the western end of Central Parkway. It would also have the advantage on this site, of being near the various municipal and Federal buildings.

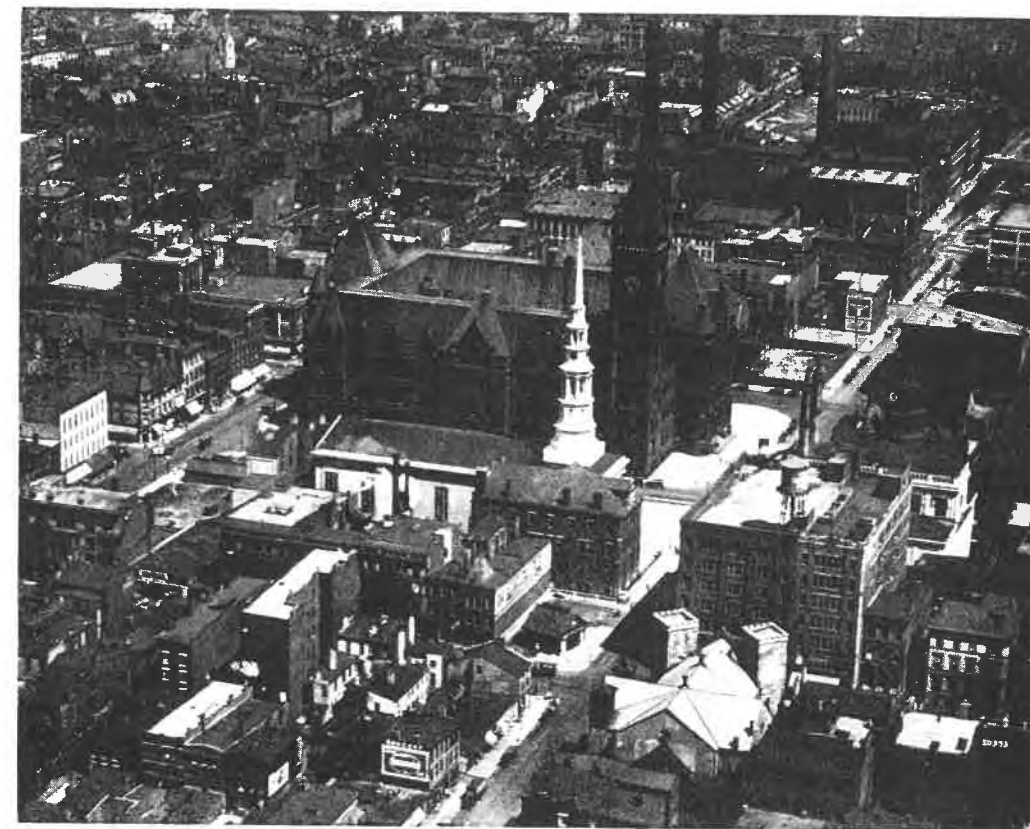
**A new public library should be built by 1930, preferably on the south side of Twelfth Street across from Washington Park, and if possible, running through to Central Parkway.**

#### A Civic Center

The location of a civic center appears to be automatically determined by the fact that most of the public buildings which must be erected during the next 25 years in the downtown district, would one and all be located between the present City Hall and the Music Hall. In other words, around the elbow of Central Parkway where it intersects Plum Street.

Of course a civic center is not the work of a day. It would normally be realized only over a period of 25 years or more. The development of the famous civic centers in Cleveland and Denver has already taken 15 or 20 years and they are not yet completed. San Francisco, on the other hand, as a result of the earthquake and fire, nearly completed its civic center in ten years.

If it is going to be desirable to locate the City Hall and its extension, the Post Office, the Board of Education building, the Auditorium, the remodeled Music Hall and the Public Library in the same part



CITY HALL TO MUSIC HALL — PROPOSED "CIVIC CENTER" SITE  
Aeroplane view showing buildings included within proposed center

of the downtown district, obviously everything is to be gained by so grouping them, that together they will form a worthy and impressive center. As a result of many studies, the scheme was evolved which is presented on a bird's eye perspective of the "Basin" in 1975, and on the Downtown Plan. According to this scheme, the present City Hall and the three churches to the south of it, would stay where they now are and serve as the south terminus of the civic center. The present Music Hall would stay where it now is and serve as the north terminus.

Everything between the two from Central Avenue to Plum Street would gradually be remodeled, block by block, to create an effective public building group, with the new Auditorium on the old hospital site, the City Hall office building annex on the block next to the north of the

present City Hall, with the Post Office and Federal Building on the block next north, of the City Hall annex and the Educational building on the block south of the Audi-



CENTRAL PARKWAY, LOOKING WEST

The power plant chimneys mark the site of the proposed Memorial Tower with a Civic Center. The Parkway would be continued west to a union station and a Gest Street viaduct.

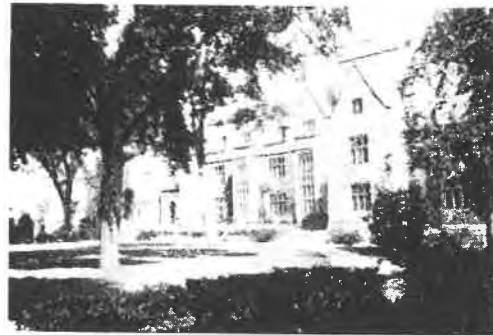
torium; the public library, meanwhile would be located between Washington Park and Central Parkway.

This grouping would make it possible to create eventually at the elbow of Central Parkway, a civic center, through which a broad parkway would extend to the proposed Gest Street Viaduct and to the proposed union passenger station.

A civic center in this location would be remarkably central, in fact there is no point in the city where so many thoroughfares and transit lines would converge as at this point. It would make excellent use of the present existing public buildings that should be retained, and at the same time present opportunities for a group development which architecturally would be unique.

Other possible public or semi-public buildings including clubs and society or company buildings, could be built on the remaining sites facing or adjacent to the proposed center. Other cultural buildings, such as a Natural History Museum, an Historical Museum or a Technical Museum could be located around Washington Park. Thus Cincinnati could have, in the ordinary course of events, by 1960 or 1975 at latest, a civic and cultural center comparable with any in the country.

The various public and semi-public buildings that must be built within the next 25 years or more, should be located as shown on the Civic Center Plan, so that



THE HARKNESS MEMORIAL  
YALE UNIVERSITY, NEW HAVEN, CONN.

It is quite possible to secure a group of public or semi-public buildings fully as charming a character and setting in America as it is in Europe.

eventually the complete scheme will be realized.

#### Memorial Tower

The rounding out of the civic center scheme calls for a memorial tower on the axis of Central Parkway and its extension westward to the Gest Street Viaduct. This tower should be connected by a colonnade or arcade with the Post Office to the south and the Board of Education building to the north. The roadways leading to the west extension of Central Parkway would pass through these colonnades. In that way, this tower, with its supporting colonnades, would become the Memorial Gateway to the city from the union station and from the west. This tower would be seen, approaching the city from the west, along Central Parkway, up Plum Street and down the part of Central Parkway above the elbow.



CHAMBERS STREET, NEW YORK CITY  
Passing Through the Municipal Building  
Central Parkway could be continued to the west through the proposed civic center group in a similar manner.

By 1950 a memorial tower, with supporting colonnades, should be built on the axis of Central Parkway and its extension to the Gest Street Viaduct, between the proposed Post Office and the proposed Board of Education building.

#### A Rapid Transit Terminus

The new rapid transit line should eventually terminate just east of the Court House. The block there between Sycamore Street and Broadway, as yet little developed, should lend itself admirably

for use as an underground rapid transit terminus. If plenty of space is to be allowed for the loading and unloading of trains, and for the storage of cars, nearly the whole block will be required. If this area could be cleared and treated with planted terraces, transfer stations and trolley and bus approaches, it would at the same time, give a splendid and much needed setting for the Court House. This will be further enhanced by the entrance of Eggleston Avenue into the corner of this site at Court Street and Broadway, and by Reading Road extended to come down into the other east corner of the square at Broadway and Central Parkway. This should induce the erection of dignified buildings to the east and north of this square.

A rapid transit underground terminus, with a transfer plaza above, should be de-

veloped by 1940 on the block east of the Court House from Sycamore Street to Broadway.

#### An Industrial Art Center

Cincinnati, more than any other city in the country, is a center of artisanry. It is not only noted for its exceptional proportion of high skilled workmen, but for the artistic value and finish of its products. It is only natural, as Cincinnati stands out among American cities as a center of art and music, that the skill of the workmen should be applied artistically. With such a background, it is manifestly to the advantage of the city to emphasize its artisanry, and assure its permanent leadership in this field.

However, to do this, a conscious effort will have to be made to develop artisanry



THE "BASIN" FROM THE NORTHWEST — MT. ADAMS IN THE BACKGROUND

as a special science of art. It is already approached on one side in the Art Museum school in Eden Park, and on another side in the trade schools and at the University of Cincinnati. The Mechanics' Institute is well known for its work along this line. A collaboration of the three in a distinct school of artisanry is an ideal to which Cincinnatians with vision should work.

Such a school would gradually develop into a group of buildings, among which would be a historical and working museum of applied arts.

In locating such a school, it should, of course, be readily accessible from the various parts of the city, at the same time not too far distant from the Art Museum, the University and the Mechanics' Institute.

Advantage should also be taken of the development of such a group, to place a "Jewel in the Crown" of the hills which surround the "Basin" on the north. It would present a splendid opportunity of repeating to the north what the development of Mount Adams already presents so strikingly on the east.

The only location which suits all of these conditions is up on the hill near Filson Outlook, where a group could readily be developed. It could be seen from all parts of the "Basin", and add remarkably to the beauty of the hilltop. Better access to this site should be provided.



CONCERT PARK, EXPOSITION GROUNDS,  
SAN DIEGO, CALIFORNIA

A similar treatment would be possible in Washington Park, Eden Park, or in connection with the proposed community center at Fairview Avenue.

By 1950 at latest, and preferably much earlier, a school of artisanry should be considered on the hilltop at Filson Outlook.

#### Music and Dramatic Art Center

The Conservatory of Music is developing a group of buildings to the south of the Cincinnati Hospital. The College of Music is located south of the Music Hall downtown. Other schools of musical and dramatic art are scattered about the city.

Cincinnati is known throughout the country as one of the greatest music centers. It has an even still greater future ahead of it. While it is extremely difficult to uproot the present Conservatory and College centers, it would be a marvelous thing for the future of the musical and dramatic arts in Cincinnati, if they could be located together in one place, which might be known throughout the world as the Cincinnati Music Center. If in addition to combining the musical and dramatic interests in one place, the buildings could be so located that they would be seen from all parts of the downtown city, it would help wonderfully in focusing the interest of Cincinnati citizens on their development.

There is one site on the crown of hills to the north of the "Basin" that stands out above all others in its picturesqueness of location and aspect, and in the superb view from it which can be had at any hour of the day or night, and that is the location at the top of the long flight of steps leading to Upper Main Street. There is a great deal of ground there entirely undeveloped, and it is possible to conceive of a group of buildings there, which, in their appearance and effect would be unique in American cities, and which would give a setting to the Cincinnati "Basin" which it would be impossible to duplicate anywhere. The buildings on this site could be so laid out, with colonnades or cloisters looking out over the valley and down the river, that it would be a real inspiration to the art student.

Before the Conservatory or College of Music, or any of the other musical or dramatic schools make any further developments in their present location, and at latest by 1940, a concerted effort should be made to create at the top of Main Street, a combined music and dramatic art center.

#### Community Center

There is one more promontory in the line of the northern hills that must be developed in order to complete the "Crown of Jewels," and that is the hilltop at the head of the incline at Fairview Avenue over to Ravine Street. It is a most slightly location, whether seen from below, or looking out from above, for it not only gets the full sweep of the "Basin," but of the whole lower Mill Creek Valley as well. It is now hardly devel-



FREEMAN AVENUE TOWARD FAIRVIEW  
HILLTOP  
Suggested site for a "Community Center"



—Water color by Emma Mendenhall  
MT. ADAMS FROM EDEN PARK  
Published by the Woman's Art Club



PRAGUE, THE HARADCANY  
Suggestion for a "Jewel in the Crown" of  
northern hills

oped. It should be enjoyed by all. That there should be a public park there, cannot be questioned. The further ideal is, however, to see if it cannot be made so attractive and appeal so strongly to the imagination that it will become a resort for all.

If people are going to resort to such a place, there must be something to pull them there that will counteract the many insistent appeals in other directions. The strongest pull now is to the Zoo, to Coney Island and to Chester Park. Is it not possible to develop on the Fairview Avenue hilltop a similar pull which will have the added attraction of the inspiring, unique view that this site offers?

This would suggest the possibility of creating on this site a concert hall and restaurant of the same general character as that in the Zoo, combined with dance halls and a certain number of Coney Island features of attractive design, as part of an architectural ensemble, which would not only be most attractive in itself, but would also be most effective when seen from below.

By 1950 at latest, and preferably much earlier, a community resort for winter, as well as summer use, should be developed on the heights at Fairview Avenue.

#### A Church Group

There remains one promontory somewhat recessed between Clifton Avenue and Ohio Avenue.

It is already more or less developed. However, in order to complete the "Crown" it would be desirable to assure the development of this remaining projecting hilltop, with a group of striking buildings. It should appeal strongly to some church group or order to erect buildings here in a good architectural composition for the use of their denomination or order.

By 1960 at latest, it is to be hoped that some order or church body will develop a group of buildings on the hilltop, between Clifton Avenue and Ohio Avenue.

#### The Western Hills

The ring of hills to the west of the "Basin" presents no outstanding promontories. They are most attractive today in their present form, covered as they are with trees and shrubs. The Zoning Ordinance already passed, prevents the abuse of the sites on the tops of these hills with industrial or business structures. Thus their future character is assured. It is most important that the projects of the Park Board for conserving these hillsides as a part of the park system, should be carried out. Any special development with groups of public or semi-public buildings, is unnecessary, although the location of churches or other such buildings near the crest, should be encouraged in order to give variety to the silhouette of the western "Crown."

In order to assure the permanency of the present charming aspect of the western hills, the Park Board projects should be carried out and the location of churches and other such buildings on the crest of the hills, should be encouraged.

#### Local Civic Centers

The Building Zone Map indicates several scores of local business centers out-

side of the "Basin." Each of these tends to become a local community center for the surrounding tributary residence districts. Each of these is the focal point to which everyone gravitates who lives within easy walking distance of it. Such local buildings as branch libraries, public baths, public comfort stations, fire stations, local telephone exchanges, police stations, churches and clubs, as well as stores, motion picture houses, bowling alleys and billiard parlors, all tend to locate at or near these centers. This is especially true, as the centers are usually at the junctions of important thoroughfares and transit and bus lines. On the other hand, except for stores, garages, filling stations and commercial amusements, these various common use buildings should, in their own interest, be located outside of the actual business center, for they demand quiet, adequate parking space and an open setting.

Therefore, in locating each of these buildings as needed, special consideration should be given to the possibility of grouping them so as to secure all the advantages that may come from a local community center where buildings, related in function, may form part of a common group.

The grouping of the various public and semi-public buildings at Mariemont offers a striking example of how this can be done in a practical, and at the same time, in a most artistic way.

More or less similar groups are tending to form in places like Westwood, Price Hill, Cumminsville, Winton Place, Hyde Park, College Hill, Carthage, Bond Hill, Oakley, Madisonville, Mount Washington, Sayler Park and Columbia.

It is decidedly to the advantage of the local improvement association in each of these districts, and in any others that have a real homogeneity, to follow the location of each new public and semi-public building, with a view to seeing if it may not be possible to locate it alongside of existing similar buildings, so as gradually to create a local community group.

Each local improvement association should miss no opportunity to assure the erection of each new public and semi-public building, where it may contribute to the development of a local community group, and in each case, should secure the advice of the City Planning Commission, as to the best location from the standpoint of the City Plan.

#### Semi-Public Tracts and Cemeteries

In Cincinnati, as in all other cities, there are large tracts, usually near the borders of the city, that are used by institutions of various sorts, or by country clubs or public utilities. The city usually has no control over the location of these tracts, and they are placed wherever the promoters can find the sort of land they want at a cheap price. These tracts may be used for cemeteries, hospitals, institutions for dependents and for correctional purposes, or for country clubs, exposition grounds, water supply reservations, or for a myriad of other uses. It happens in many cities, although fortunately it has happened very little in Cincinnati, that these tracts tend to group themselves so as to create a formidable barrier to the growth of the city. So far, Cincinnati has been quite free from this menace, but with its 23 cemeteries, its seven golf courses, and with the number constantly increasing, great care should be given in the future to avoid the tendency to the creation of barriers which can now be seen in embryo, first in the three German cemeteries and the Zoological Garden, between Clifton and Avondale; and second, in the huge unbroken strip in Spring Grove Cemetery, and third in the group of public and semi-public buildings in Carthage, including Longview Asylum, the County Infirmary, the Fair Grounds and the City Infirmary. Each development of this sort, if too large in extent, or if the units are too close together, can do more to choke the normal growth of the city than almost any other factor. On the other hand, all of these types of use including the art museum, parks, camps, race tracks and baseball parks, colleges and private schools, are essential to the growth of the com-

munity. So important is the location of these larger tracts in respect to the city's growth, that it is highly desirable that the City Planning Commission should be consulted by the promoters of any new purchase of this type before action has gone too far so as to give the Commission a chance to advise whether or not the proposed site may have a harmful effect on the reasonable development of the city.

It is true that the Planning Commission has no right to insist that the promoter must follow its advice, but it is probable that in nine cases out of ten, the Commission would be able to convince the promoter that in his own interest as well as that of the community, he would be better off to conform to the needs of the City Plan.

Fortunately, the Board of Health itself does control, to a certain extent, the cemeteries and their extension, but in order to check up with the City Plan needs, it is decidedly to the advantage of the city that the Board of Health should consult with the City Planning Commission on each of these problems, as it arises.

Before purchasing any new or additional tract of land for semi-public, institutional, recreational or public utility use, the promoters should consult with the City Planning Commission, in order to be assured that each tract, as purchased, fits into the general scheme of development of the community under the City Plan, and so that no tract will interfere with the full use of the various present and proposed arteries of travel.

#### Aviation Fields

Cincinnati has only one aviation field, and that is just to the northwest of Blue Ash. Aviation fields are rather difficult to locate around Cincinnati, on account of the broken topography. Nevertheless, there seems to be little doubt that within a limited number of years, aviation will have considerable expansion on a commercial scale, and to a limited extent, governmentally.

Therefore, appropriate sites for landing fields should be reserved where they





CURB MARKET, COURT AND MAIN STREETS  
Should be abandoned as it is poorly located

will be easily accessible by auto or trolley to the center of the city.

There are various possible sites, as follows:

1. In the Little Miami Valley below Newtown.
2. Just south of Mt. Washington.
3. Between Mariemont and Ault Park.
4. Southeast of Madeira.
5. Between Madeira and Deer Park.
6. Just west of Deer Park.
7. Between Bond Hill and North Norwood.
8. East of Hartwell.
9. North of Lockland.
10. East of North College Hill.
11. West of North College Hill.
12. Southwest of Bridgetown.
13. Between Price Hill and Monterey.

Some of these sites are better than others, although all of them are relatively unimproved at the present time.

Whenever any one of the tracts that could be used as aviation landing fields comes into the market for other development, the City Planning Commission should give consideration to the possible need of setting aside the tract for aviation use.

Aviation experts ask for a flat field of at least 3,000 feet square, although 2,000 feet square, or even a trifle less, is pos-

sible. If it is impossible to provide a square field, an L-shaped field of the same over-all dimensions is desirable, or if that is impracticable, a T-shaped field. However, with the rapid improvement of airplanes which can mount vertically from a field, the time may soon arrive when large landing fields are no longer necessary. Therefore, too much stress need not be placed on the reservation of large tracts for possible landing field use.

#### Public Markets

The lower rentals in the five public markets are, to a considerable extent, reflected in correspondingly lower prices for foodstuffs. Thus the Cincinnati public markets, while they serve to bring in little revenue to the city, do probably help to lower somewhat the cost of living for the poorer citizens.

The Court Street market east of Elm Street, and the Pearl Street market should be abandoned by 1930, as their local clientele is moving away with the incursion of business.

The West Court Street, the Findlay and the Sixth Street markets can be retained without serious damage to traffic or the extension of business, but their usefulness does not warrant any large expenditures for enlargement or even for renewals.

## CHAPTER XIII

### Street Structures and Appearance

#### The Appearance of Cincinnati

Cincinnati is one of the most beautiful cities in America. It not only has a wonderful setting by nature with its picturesque hills rising sharply from the narrow, winding valley of the Ohio, but in its buildings and in its streets it preserves a charm of form and color that is rare in American cities.

There are innumerable corners in Cincinnati that delight the artist, many of which have been preserved in painting or etching by local artists. Cincinnati has all of the picturesque quality of Boston, or New Orleans or Quebec, and in addition color and atmosphere.

Cincinnati has an unusual number of striking vistas and alluring outlooks, and what is more interesting still, these views are enjoyed by the citizens. For example, at least 50 people have been counted stopping to enjoy the sunset over the "Basin" and the western hills on a hazy day as seen from the top of the steps at Upper Main Street. Consciously or unconsciously, Cincinnatians would greatly miss the charm of their city if it were to be replaced by the more or less standardized development of so many of our American cities.

In other words, Cincinnati has a real and vivid personality that is a great asset and should be retained at all costs, for if allowed to disappear through inadvertence, much of the charm of living in Cincinnati and its appeal to the stranger, would be lost.

Even in its more central residential sections, Cincinnati differs from most cities in its wide spread-outness, which is due to the broken topography, for in every part of the city there are tracts of virtually waste land on steep hillsides or in hollows that are left open because it



THE HARKNESS MEMORIAL  
YALE UNIVERSITY, NEW HAVEN, CONN.  
It is quite possible to so combine public and semi-public buildings and to so set them with trees and shrubs as to make a beautiful picture.

does not pay to build upon them. All of this again, adds to the charm of the city.

Cincinnati is also fortunate in its splendid park system, following the Kessler Plan, one of the most extended in proportion to the population, in the United States. Every part of the existing park system has been chosen with due feeling for its actual beauty, so that a large proportion of the more charming natural sites have been permanently preserved for the use of all the people. In this connection the only regret is that the greatly curtailed funds available to the Park Department have made it, and are making it impossible to develop and maintain the parks as they must be maintained, if their charm and usefulness is not to be destroyed.

As a first essential to conserving the appearance of the city, the charm, as well as the usefulness of the existing park system, should be maintained by the immediate appropriation of reasonable funds to the Park Board, and the system should be rounded out, as proposed in Chapter X, on "Parks and Playfields."

The rounding out of the park system will also conserve for public enjoyment, most of the worth while views and outlooks of the Cincinnati district.

The majority of the picturesque corners in the old city, are maintained indirectly by their conservation in residence districts under the Zoning Ordinance, also by a conscientious effort to avoid them in developing the circulation system of the future city.

#### Historic Sites

The points of historic interest in Cincinnati include the following:

1. The first landing and the settlement of Losantiville, December 24, 1788. The landing which took place at the public landing at the foot of Sycamore Street, should be marked. The water gate provided for in the Report in Chapter IX, on "Waterways and Flood Control," which is approximately at this location, could well be treated as a monumental water gate to the city, commemorating this first landing.

2. The landing of Benjamin Stites, November 18, 1788, about three-quarters of a mile below the Little Miami River in what is now Columbia, should be marked by a monument, or by an appropriate small park.

3. General Wayne's camp near the west end gas works, probably near Seventh Street, between Rose and Mill Streets, is unmarked. It was the only bit of land in that district out of water at that time.

4. Dr. Richard Allison's house was located in what is now Lytle Park. A tablet or monument could well be dedicated to him as the first surgeon to be stationed at Fort Washington.

5. The house in which Reed wrote "Sheridan's Ride," on the south side of Eighth Street, east of Walnut Street, is now marked by a tablet which, unfortunately, is so badly placed that it is rarely noticed.

6. The site of Fort Washington at Third Street, between Broadway and Ludlow Avenue, is marked by a monument erected in 1901.

7. Governor St. Claire's house on the east side of Main Street near Eighth Street, should be marked.

8. The Bloody Run fight with the Indians probably took place just southeast of Carthage, along what is now known as Bloody Run. It was not on or near the former Bloody Run Parkway, since called Victory Parkway. It should be marked with a small park or monument.

9. The White Station fight with the Indians in 1793 can not be located.

10. The Court House mob in 1884 to demonstrate the slowness of justice, stormed the jail and burned the county records, on what is now the site of the present Court House.

11. The block between Main, Walnut, Fourth and Fifth Streets was originally dedicated for churches, courts, jails and schools. The old jail, with whipping post, gallows and stock, was located at the southwest corner of Fifth and Main Streets. It should be marked. The old Lancaster Academy was replaced by The Cincinnati College and The Mercantile Library Building.

12. The old Bazaar built by Madame Trollope in 1829, is now replaced by the Lorraine Apartments on the south side of Third Street, just east of Broadway.

13. There used to be prehistoric mounds near Fountain Square.

14. The Baum House, erected 1825 at 316 Pike Street, is now occupied by Mr. Charles P. Taft.

15. Kemper House in Zoological Gardens is preserved by a historical society.

16. The Drake House, completed 1813 at Third Street near Ludlow.

17. The Mansfield House, built in 1827 at Third Street between Ludlow Street and Broadway.

18. St. Xavier, at Seventh and Sycamore Streets, first built in 1821.

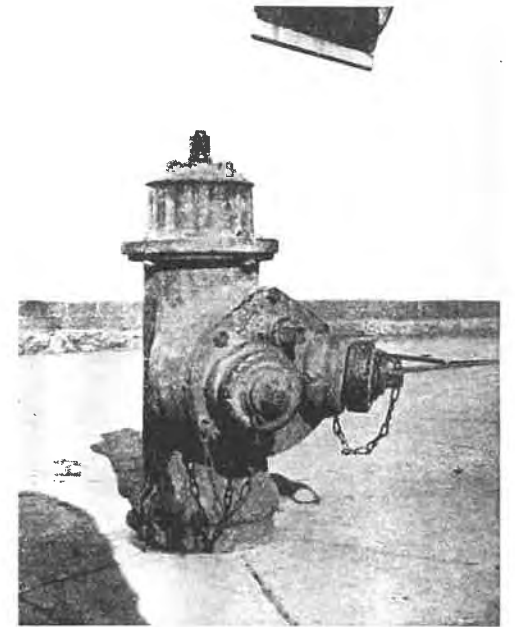
19. Prehistoric burying ground in Madisonville, one of the most interesting in the country.

20. Clark's Block House, the first in Cincinnati probably, at the foot of Sycamore Street.

21. The burial ground on Water Street below Main Street, near the Suspension Bridge.

22. The old graveyard at Columbia.

23. Filson Outlook commemorates John Filson, the first surveyor and original city planner of Cincinnati.



TYPICAL STREET FIXTURES  
Four feet of sidewalks usurped by fixtures



HIGH STREET, OXFORD, ENGLAND



TYPICAL STREET FIXTURES  
Four feet of sidewalk usurped by fixtures



TYPICAL CALL BOX  
It adds nothing to the appearance of the street

It should be of great interest to the future citizens of Cincinnati that these sites among others, should be approximately marked by tablets, monuments or small parks, or by the erection of dignified public or semi-public buildings appropriately named or marked. The City Planning Commission in locating public works of

art, should bear in mind the possibility of also utilizing them as monuments to mark historical sites.

#### Appearance of the Streets

The impression that Cincinnati's streets make on the visitor depends on their orderliness, their harmony, their setting, and the intrinsic beauty of the structures on, or bordering them. Orderliness means freedom from clutter, due to poles, wires, superfluous street fixtures, ragged pavements or curbing, trees and grass strips poorly distributed and maintained, overhanging street advertising signs and a ragged silhouette of bordering buildings and too bad architecture.

Street fixtures may be bad from their placing as well as in their design. Bordering buildings, by their shabbiness or ugliness, can ruin any street. Poles, wires and overhanging street signs can make any street look like a back alley. Most fortunately, curb gasoline pumps have been abolished. In proportion to its extent, Cincinnati is unusually free of poles and wires along its thoroughfares and in its downtown sections.

In general, the public should be fully aroused to the need of orderliness, harmony and attractiveness in the appearance of streets, so that popular sentiment, representing the self respect of the community will insist on the preservation of a dignified character to the streets.

#### Poles and Wires

Most fortunately, the policy of the Telephone Company and the various other public service corporations, is to bury wires in conduits as rapidly as practicable, and on many of the streets there are today no poles except those of lighting fixtures and trolley poles. In consideration of the remarkable improvement in the downtown streets of Rochester N. Y. since trolley cross wires were attached directly to abutting buildings, the removal of the downtown trolley poles is most desirable, especially also, if the sidewalks are to be narrowed in order to increase the number of moving traffic lanes in the roadways.

Not only should the present policy of burying wires be continued actively, but in the downtown business section at least, even trolley poles should be removed and the trolley cross wires connected directly to abutting buildings.

#### Street Fixtures

Fire alarm boxes, police call boxes, hydrants, letter boxes, waste cans, sewer gratings and other such street fixtures, present a great variety of designs in Cincinnati, most of which add little to the appearance of the streets. The various leading street fixture supply concerns have of late, greatly improved the artistic quality of their designs for these fixtures, so that for the same price, a good, modern fixture is usually much more attractive than its predecessors. With a little discrimination in purchasing, a very considerable improvement can be made in the attractiveness of the streets.

For every new street fixture installed in Cincinnati, the design should be passed upon as required under the charter by the City Planning Commission, with a view to improving the general appearance of Cincinnati's streets.

#### Street Lighting

The new boulevard lighting in the downtown district is as good as any in the United States. The lights are of the most efficient type, and the design of the fixtures is excelled nowhere. It is an excellent standard for the city to live up to. Unfortunately, throughout most of the city, the electric and gas light fixtures are below standard, both from the standpoint of efficiency and appearance. This is largely due to the limited funds available of late for proper renewals and replacements. The street lighting fixture manufacturers have developed recently a number of most attractive types, fully as reasonable in cost as the older purely utilitarian types.

Each new type of lighting fixture located in Cincinnati should be passed upon, as required under the charter, by the City Planning Commission, with a

view to gradually bringing the rest of the city up to the high standard of the boulevard lighting in the downtown district.

#### Street Name Signs

Street name signs are singularly lacking in Cincinnati, more so than in most cities. This makes it particularly difficult for the stranger to find his way about. Furthermore, the signs where they do exist, are of the old, simple type, which could be easily read in the old days of the slow moving, horse-drawn vehicle, but which are illegible today to the driver of the faster moving automobile. Fortunately, the Department of Public Service realizes this fact, and is experimenting with new modern types of fixtures, with excellent results, but the lack of funds has prevented the installation of even the cheapest modern types.

In the experience of other cities, the type which proves most useful and is at the same time good looking, consists of white letters on a blue enamel field, with the name of the intersecting streets in small letters just above that of the designated street in large letters.

Within the next five years, efficient and good looking blue enamel street name signs should be installed throughout Cincinnati, and each type used should be passed upon, as required under the charter, by the City Planning Commission.

#### Advertising Signs Overhanging Streets

According to section 345 of the official 1924 Building Code, all advertising signs overhanging streets shall be at least 12 feet above the sidewalk, and a fee is charged by the city in proportion to the size of the sign. There is no further restriction on the projection or size of signs.

In other cities, it is customary, both for fire protection and for appearance, and also to avoid the possibility of signs falling during a high wind, to limit the projection and size of overhanging street signs. The average projection in such cities is less than three feet.

The Building Code, section 345, should be amended to prohibit the projection of advertising signs over streets.

#### Billboards and Sky Signs

Under the Zoning Ordinance, billboards and advertising signs of all sorts are prohibited in all residence districts. In all business districts, according to section 452-21 (d) "Any structure not against a wall of a building, used as a billboard, or as an advertising sign board, is prohibited if it has less than two feet of space under it, between it and the ground, or is at any point higher than 12 feet above the ground level, or that is longer than 25 feet, or that is distant less than six feet away from any other structure, or from any lot line, or less than two feet from any billboard, or that is not well lighted, both front and rear, all night. Any sky sign is prohibited that sets back less than five feet from a wall on a street front, or that projects more than 25 feet above the roof of the building, or that has a space of less than 6½ feet in height, between the bottom of the sign and the roof." In addition, according to section 345 of the Building Code, every billboard and advertising sign board must be passed upon by the Commissioner of Buildings, and must pay a fee according to its size.

All of this is a long step forward, and is excellent as far as it goes. However, the State of Massachusetts has set a worthy example of a much more effective control of billboards. For example, no billboards are allowed within 300 feet of a public park or reservation visible from any part of the same, except for electric display signs on buildings, under certain restrictions. No outdoor advertising can be painted or fixed upon any fence or pole within 50 feet of any public way, nor upon any rock or tree, nor directly upon the wall of any building, and no advertising device of any sort is allowed where it would obstruct traffic visibility, or interfere with any unusual scenic beauty. Outside of business districts, no advertising device is allowed within 150 feet of the center line intersections of two public ways, nor within 50 feet of any other advertising device, except back to back, nor nearer than 50 feet to a boundary line of any public way, nor nearer than 100 feet if it covers more than 32 square feet of



TYPICAL OVERHANGING ADVERTISING SIGNS

Nothing makes a street look so tawdry

area, nor nearer than 300 feet if it exceeds 12 feet in height, and all existing signs that offend, must be removed at the owner's expense.

It is well within the province of a Municipal Art Society to insist upon similar control of billboards and other advertising devices in Cincinnati.

By 1930, an ordinance should be passed further limiting billboards and other advertising devices along the lines of the regulations now in effect in the State of Massachusetts.

#### Structures for Protecting Sidewalks During Building

There is nothing so tawdry in the appearance of streets as the average structure built over the sidewalks during building construction to protect pedestrians from falling tools or building materials. Experience in the larger cities has shown of late that at very little extra cost, these sidewalk protection structures can be made quite attractive.

The City Planning Commission should insist that at least in the downtown district and along thoroughfares, some attention should be given, if only by the application of a little paint, to making all sidewalk protection structures good looking, as well as safe.

#### News Stands and Kiosks

There is hardly any street news stand or kiosk in Cincinnati that adds to the appearance of the street. Most of them are distinctly sloppy. It should be no real hardship, and would certainly add vastly to the orderliness of the streets, if these news stands and kiosks were abolished entirely, except where a part of a store front.

Street news stands and kiosks should be abolished.

#### Public Comfort Stations

The three public comfort stations in Cincinnati other than in parks, are, in two cases located on lots, and in the third, underground. They in no way obstruct the streets, and in each case are reasonably attractive in appearance. Further facilities are gradually being provided in connection with the parks and playgrounds, and it is to be expected that with the carrying out of the proposed park system, all of the needed additional facilities will be provided.

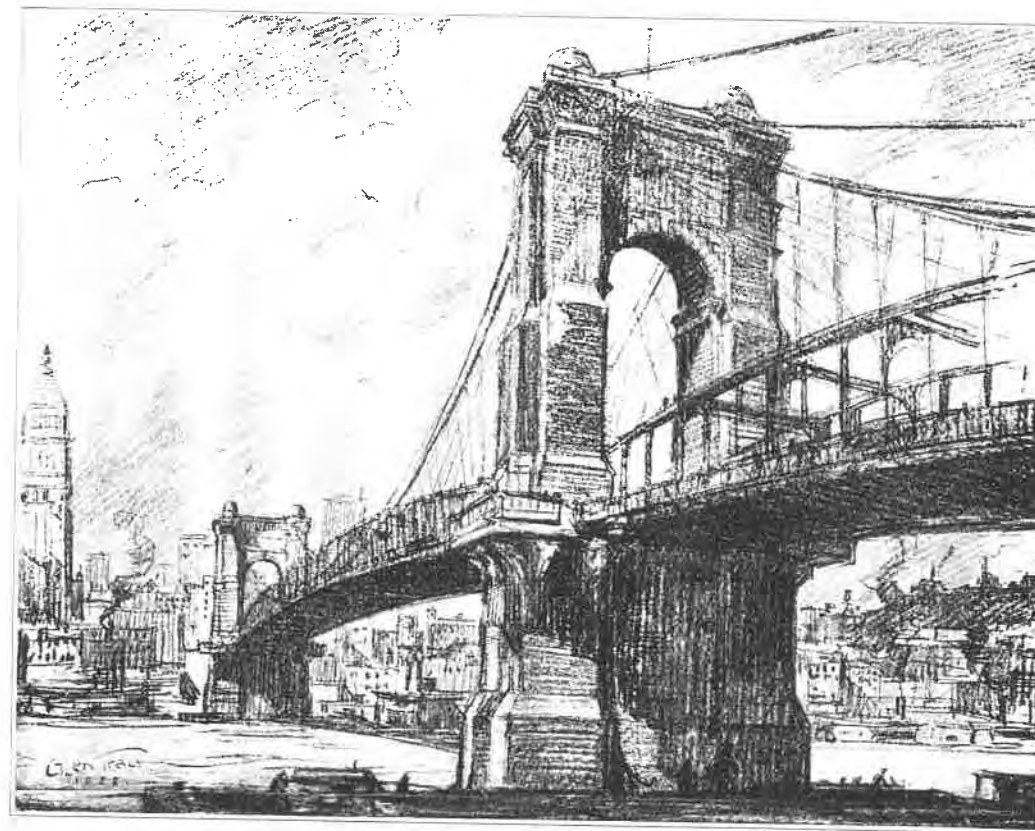
Future additional public comfort facilities should be provided in connection with existing or proposed parks or playgrounds, and at least the present standard of design should be maintained.

#### Street Railway Shelters

There are few street railway shelters in Cincinnati, the best known one being that on Main Street alongside of the post office; (not used at present). If additional ones are provided in the future, their design should be controlled by the City Planning Commission.

#### Bridges and Viaducts

The bridges across the Ohio are not attractive in design, except for the old



THE OHIO SUSPENSION BRIDGE (Courtesy of Glen Tracy)  
A worthy approach to the city

Suspension Bridge, between Walnut and Vine Streets. The Hopple Street Viaduct and that over Kemper Lane are good in design, as is also the new viaduct at the foot of Ludlow Avenue and the new viaduct of the Rapid Transit line over Clifton Avenue; also, to a lesser extent, Grandin Road Viaduct. Fortunately, the modern tendency is to design better structures. Several interesting suggestions for such viaducts, notably for the Zoo-Eden trolley bridge in Eden Park and the Ida Street bridge on Mount Adams, were presented by the Municipal Art Society in the 1921 report entitled, "A City Plan for Cincinnati." Modern engineering has also found that a bridge or a viaduct structurally perfect, can usually be made attractive in its lines and proportions at little or no added cost.

All new bridges and viaducts in Cincinnati should be approved as to their design by the City Planning Commission, with a view to securing at least simplicity of line and beauty of proportion.

#### Street Tree Planting

There is no shade tree commission in Cincinnati. The planting and care of trees in public streets is left entirely to the initiative of abutting property owners. In former years, the Mabley & Carew Company contributed a great many trees through the school children. In the "Clean-up and Paint-up Campaign" of 1914, 84,000 trees were thus distributed.

The field survey, conducted throughout the city and surroundings to acquire data for the City Plan, disclosed an unusual absence of good street trees in Cincinnati.

This is greatly to be regretted, as the charm of the city as a place of residence, depends so much upon the bordering of its streets with trees and grass strips. Unless there is constant incentive to maintain existing trees and to plant new ones, and unless subdividers are encouraged to plant trees, Cincinnati will eventually become a barren city, with residential streets void of charm. There is nothing that adds so much to the appearance of residential streets and that costs so little, relatively, as the planting and care of street trees.

A shade tree commission should be appointed, or the Park Board should be delegated, and eventually a city forester should be appointed, to encourage street tree planting, and to provide trees and maintenance at cost. Tree guards and tree gratings should also be supplied at cost.

The same applies to a lesser degree to grass strips between the roadways and the sidewalks, not only to give ample moisture to the roots of the trees, but to preserve within the residence portions of the city the illusion of the country. Further encouragement should be given to abutting property owners to maintain these grass strips in good condition.



**NORWOOD WAR MONUMENT**  
An attractive example of street art



(Courtesy of L. Segoe.)

**BUDAPEST BRIDGE APPROACH**  
Compare with the approach to any Cincinnati Bridge

#### Street Art

Cincinnati has surprisingly few street monuments, statues or fountains; the one most notable exception is the fountain in Fountain Square. Also noteworthy is the Lincoln statue in Lytle Park and the Norwood World War monument. There are also the Lincoln statue in front of the Avondale School and the Garfield and the Harrison monuments in Garfield Park, and several interesting monuments in Spring Grove Cemetery. Even aside from the historic sites previously mentioned, which should be marked wherever practicable, there are a number of points within the city, particularly with the execution of the proposed City Plan, that are or will be admirably suited to the location of monuments, statues or fountains. There will be several such locations in



**FOUNTAIN SQUARE**

—Copyright, Paul Briol, 1925

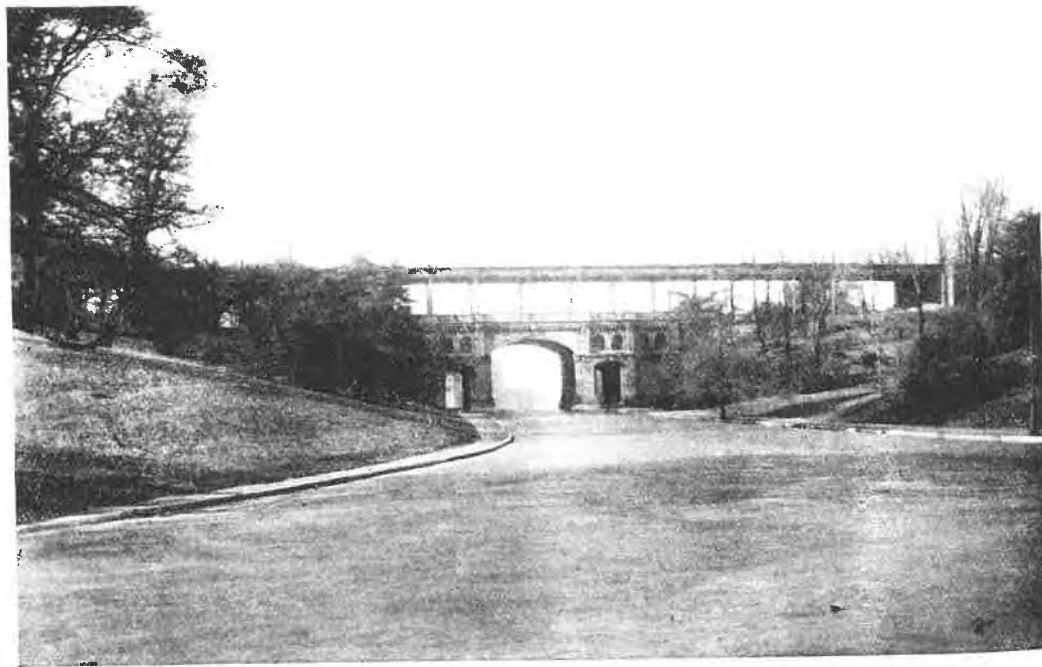
Beautiful civic art in the city's busiest square

connection with the proposed civic center and along Central Parkway, east of the Court House, at the junction of Broadway and Fifth Street, and at the junction of Fifth and Plum Streets on the extension of Central Parkway to the proposed union station, and in each of the local civic centers, as developed.

All new works of public art to be located in public streets, should be approved, as provided in the charter, by the City Planning Commission, and should be located where they will count the most in the development of the City Plan.

#### Fountain Square

The present development of Fountain Square and the setting of the Memorial Fountain is quite undignified. For traffic purposes each roadway needs to be widened from two to four feet. This widening of each may be the occasion of remodeling the treatment of Fountain Square, with a view to making it a real asset to abutting property. Fortunately, a committee has been working on this



EDEN PARK ENTRANCE BRIDGE  
Not as dignified as it should be

problem and designs for the improvement of the Square have been prepared.

In general it can be said that a square of the size and shape of this in the heart of the busiest retail and hotel section, should be formal in character, in harmony with the surrounding buildings, and should strictly avoid a naturalistic or picturesque effect.

The European capitals offer many suggestions for the treatment of downtown squares of this sort. The cost of such improvement should be borne by the abutting and nearby property owners, for if properly done, it should enhance the value of their properties.

#### Public Squares, Plazas and Bridge Approaches

Cincinnati has several interesting squares, but unfortunately, their full value is rarely brought out by their present treatment.

Fort Washington Place is bald and lacks distinction. The treatment of Fountain Square is quite inadequate. Court



From Artists City Plan, 1920  
Plan for a larger, stronger, better looking Bridge, Eden Park.

Square and the setting of the Court House is arid. Garfield Park has a certain charm, which is enhanced by the attractive buildings about it, although it is possible to conceive of a more attractive treatment of the Square itself. Brighton Corner has no distinction. Peebles Corner is tawdry. In fact, except for Garfield Park, it is hard to find a Square that the city can look to with pride.

The same is true with respect to the bridge and viaduct approaches. The approaches to all of the Ohio bridges are disgraceful, and utterly without dignity. Gilbert Avenue Viaduct, Eighth Street Viaduct, Harrison Avenue Viaduct, Hopple Street Viaduct and Ludlow Avenue Viaduct, one and all, have failed utterly to feature their approaches.

The recent bridge or viaduct approaches in Boston, Philadelphia, New York, Albany, Rochester, Cleveland, Detroit, Chicago, Dayton and San Francisco suggest some of the possibilities of approaches of this sort.

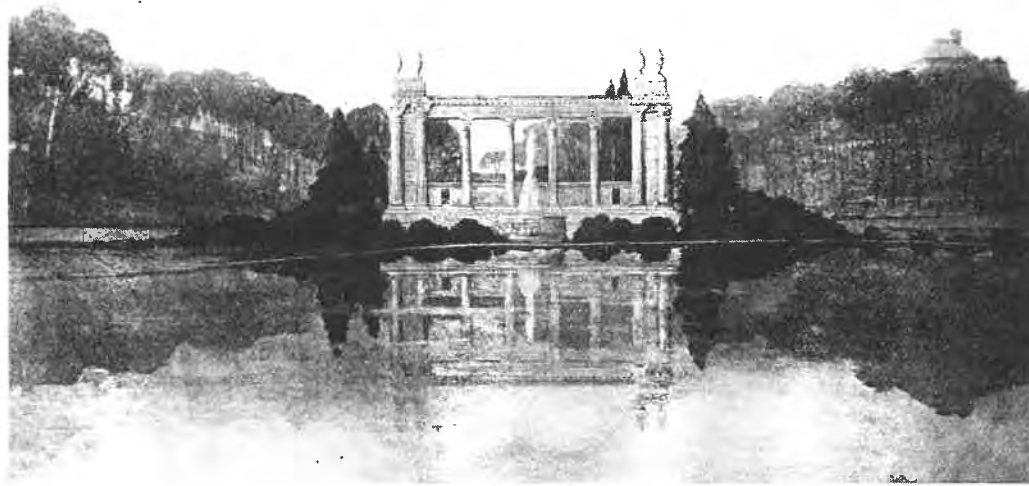
For the treatment of public squares, there are several very interesting suggestions in the 1921 City Planning Report of the Cincinnati Municipal Art Society.

In the carrying out of the City Plan, special thought should be given to the detailed architectural and landscape treatment of each square and bridge approach, so as to make it contribute to the beauty of the city.

#### Street Decoration for Festivals, Parades or Memorial Occasions

It is often desirable to decorate certain streets. Such decoration has frequently been undertaken along Central Parkway, at the occasion of fairs. The decorative treatment of streets can make or mar them. At best it is a matter that requires a great deal of study and taste. The ability to do this sort of thing effectively certainly exists among Cincinnati's architects and artists.

However, in order to preserve all that is best in the personality or character of the streets to be decorated, all major pro-



From Artists City Plan, 1920  
Suggested Stage and Accessories for Music and Pageantry in Natural Amphitheater, Eden Park

jects for street decoration for festivals, parades or fair purposes, should be approved by the City Planning Commission.

#### Open Air Theater

With a climate as mild as that of Cincinnati, with such enjoyment of the open air as is evidenced, and with the exceptional interest that obtains in music, drama and art, it is surprising that Cincinnati has never developed a permanent open air theater, although various good, temporary ones have existed. It has been often recommended, particularly in the 1921 Municipal Art Society Report, where a splendid scheme was presented for the development of such a theater in a perfectly suited natural hollow in Eden Park.

Another suggestion would be, with the creation of a community center at the crest of the hill on Fairview Avenue, to feature there a public open air theater, facing the southwest, so that the wonderful panorama of the "Basin" and the Ohio Valley would serve as a background to the stage. Its dramatic possibilities are unique.

Not later than 1930, a permanent public open air theater should be developed

either in a park or in connection with a community center on the hillcrest at Fairview Avenue.

#### Street Architecture

Cincinnati boasts of quite a number of interesting semi-public or private buildings. Among them may be mentioned the following:

- The Rookwood Pottery Building
- Gruen Watchmakers' Guild
- The Baldwin Piano Company Building
- Western & Southern Life Insurance Building
- The new Schmidt Realty Company Building
- Union Central Life Insurance Company Building
- Two large hotels
- Dixie Terminal Building
- Keith Building
- The Telephone Building
- The Gwynne Building
- LeBlond Machine Tool Building
- The Business Men's Club and the new Doctors' Building, across Garfield Park from it

to say nothing of many smaller buildings, such as churches, clubs, stores, apartment houses and homes.

In general, however, the business street architecture of Cincinnati is rather common place. It lacks distinction. Little or no attempt has been made to preserve any harmony or unity of street treatment.

It has been found worth while in various other cities, to try to preserve a certain harmony of architectural treatment along principal streets, especially in the downtown district, by the creation of street associations, the most famous of which is the Fifth Avenue Association of New York. These street associations obviously have no legal control over those who build along the street; nevertheless, representing as they do, a considerable consensus of opinion among property owners along a given street, they can, by persuasion if not otherwise, point out to the proposed builder, that by even minor modifications in the design of his building, he can make his building contribute far more to the general harmony of the street.

On various of the important streets, especially in the downtown district, the ex-



PARIS, BACK OF NOTRE DAME  
A riverfront promenade of merit

isting street associations, or new ones that might well be formed, should endeavor to persuade prospective builders to modify their designs where practicable, so as to harmonize with the general development of the street.

#### An Art Jury

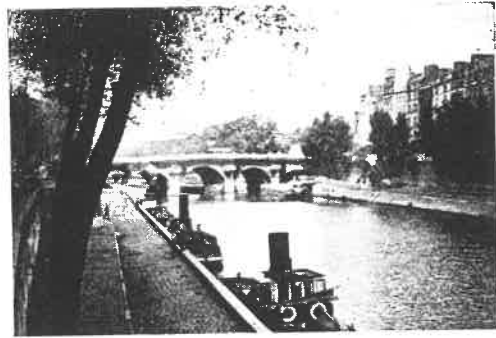
With as much natural and inherited charm as exists in Cincinnati, and with its pre-eminence as a place of enjoyable residence, it is a great pity not to do every-



A HILLTOP FACTORY  
Even a factory can add strongly to the charm of the city

thing possible to preserve that charm. The work of the Municipal Art Society is a long step in the right direction, but if results are to be obtained, a more active and insistent control over public and private development is needed. Various cities have solved this problem by the creation of an art jury that passes upon the location, character and design of all public structures, and which endeavors to influence the design of semi-public and private structures. Such an art jury in its long existence in New York and in Philadelphia has served not only to considerably improve the character of public structures, but also to simplify them, and in so doing, has often reduced their cost; in other words, saved money.

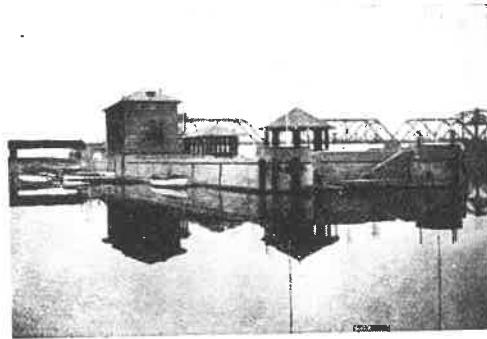
Under the Ohio State law, the location of all public structures and to a limited extent, the control of their design, is a duty of the City Planning Commission.



PARIS ALONG THE SEINE  
Docks below, Boulevards above

The powers of the City Planning Commission in this respect are not as broad in the State of Ohio as in some other States. It would be well to modify the present law so as to assure to the City Planning Commission all of the art jury powers that similar bodies have in other States. This means simply more insistence in the State law on the control of the design as well as the location of all public structures.

The City Planning Commission should insist that the location and design of all public structures of any sort, whether works of art or not, should be submitted to it for approval from the standpoint of art, as well as in relation to the rest of the City Plan, and the State Enabling Act should be modified to clarify their control of design as well as of location.



PORT AND DOCKS, ALBANY, N. Y.  
This recently created dock development is having a most beneficial effect on local commerce.

## CHAPTER XIV

### Garbage and Refuse Disposal

Paragraph (p) of Section Second of the Agreement between the City Planning Commission and the Technical Advisory Corporation, dated June 30, 1922, requires a report upon "General Location of Garbage Disposal Facilities."

The "Program for a City Plan" submitted to the City Planning Commission in revised form on January 10, 1922, contains the following paragraphs with reference to the handling of ashes, rubbish and garbage in Cincinnati:

"Statistics show that Cincinnati's collection of ashes and rubbish (including street sweeping) have been decreasing rather steadily for eight years past, and in 1920, amounted to about 0.817 cubic yards per capita per year. During the same period, garbage collections decreased slightly, though irregularly, reaching the 1920 rate of 191 lbs. per capita per year, but having been as low as 146 lbs. for a single exceptional (war) year.

"The great majority of American cities range from 185 to 200 lbs. Most large industrial cities like Cincinnati approximate the lower of these values. The total production of garbage in Southern cities tends to be high, although collections are not always high, so that reported figures are to be accepted with hesitancy.

"In Cincinnati, observation indicates that not all of the garbage is collected, some being locally incinerated. It is somewhat higher in fats than the average. Statistics furnished by the Ohio State Board of Health indicate an unusually large seasonal variation in quantity of garbage collected for an Ohio city, the daily quantity in September being 2.6 times that from January to March.

"The ash and refuse rate varies oppositely, being 2.75 times as great in December as in August, and this variation is also abnormally high in Cincinnati. The average rate for the year is about normal for a large American city, but in view of the rather unusual factors which apply in Cincinnati, must be regarded as high. It is much higher than in Cleveland or Columbus.

"Garbage is collected by contract and utilized commercially in a reduction plant. The city government has investigated the possibilities

of municipal construction and operation of either an incinerator, the by-product heat of which can be utilized for street lighting or ice manufacture, and the possibility of a municipally owned and operated reduction plant of modern design and construction."

Studies made in accordance with the contract with reference to the best location of a plant to care for the handling of garbage, naturally divided themselves into two main problems. These are (a), a study of the principles and facts upon which a decision should be reached, and (b), a study of possible alternative locations in the light of the principles which had been formulated.

Sound economics would dictate the location of a plant or plants as near as possible to the centers of gravity of the garbage actually collected, at collection points. Any future plant should be located with reference to a future center. Studies with reference to the distribution of population (which is the best general measure of distribution of garbage collection), show the following facts:

In 1900 the center was at the intersection of McMicken and Race Streets.

In 1920 the center had moved to the intersection of Charlton Street and Euclid Avenue.

Careful studies of the distribution of population fifty years hence, lead to the conclusion that the center will then be near the intersection of Jefferson Avenue and Nixon Street.

Transportation methods must be especially devised for the proper handling of garbage, because of its very nature, and so as to minimize the nuisance features. Of necessity, the primary method of collection must be by vehicles operating through the streets. The length of haul which can economically be handled by such vehicles is approximately five miles



and for greater distances, means of transportation by trolley, by trunk line railroad, and by water must be provided. Since the area of Cincinnati is so large that many hauls will exceed five miles, it is essential that any plant site selected be advantageously located with reference to rail and also possible water transportation facilities. Trolley facilities can be extended with comparative ease but locations on trunk line railroads largely limit the possible site locations to the Mill Creek Valley, the banks of the Ohio River and the line of the B. & O. R. R. from St. Bernard to Norwood. The choice will depend also on the area of land which is available adjacent to a railroad or easily reached by special siding. If water transportation is to be employed at the present time, the plant must be located on the Ohio River. Distances are not great enough to make water transportation a vital element. However, it may be possible that some time in the future a canal will be constructed through Mill Creek Valley. Sites along such a canal would obviously be suitable from a water transportation standpoint.

The size of site required will depend to a considerable extent upon the method of treatment. If straight incineration is adopted, some disposition must be made of the clinker. Some success has been achieved in the manufacture of paving blocks with a fused clinker. However, the normal means of disposal is simply by dumping on lowlands. If a reduction plant is adopted, certain areas must be set aside for the temporary storage of the fertilizer product during the seasons when it is not in demand.

Based upon information already quoted as to the per capita production of garbage in Cincinnati, it is estimated that the future city should have two units capable of handling one hundred tons per day each. These units might be located at widely separated sites, or together. If a suitable location capable of accommodating a full plant could be selected fairly close to the center of gravity of garbage collection, it would be wiser for administrative reasons to combine the plants. If, however, such location could

not be secured, it would obviously be wiser to separate the plants at opposite ends of the community. In either event, about five or six acres would be required for both plants together.

**Whichever type of plant is selected, and wherever it is located, it will probably be found best not to undertake to carry to it garbage which originates in the outlying sections of the city, (like the extension westerly to Addyston, the territory on the easterly side of the Little Miami River or Pleasant Ridge and Kennedy Heights), but to dispose of local garbage by suitable local methods such as plowing under, local feeding by farmers to pigs, local domestic incineration, or otherwise.**

Since modern plants, especially those of the high temperature incineration variety are odorless in operation, the location of a plant with reference to wind direction and its orientation with respect to residential districts is not now of as much importance as was formerly the case. However, since transportation facilities have not been improved to the same extent as have the treatment plants, there is still some difficulty connected with the transportation of the garbage to the plant, with reference to which, prevailing wind directions are of interest. If a reduction plant is adopted and fertilizer material is stored in the open, a certain amount of objection is sure to be raised and wind direction is again of interest. In Chapter I. of this report are windroses for Cincinnati and vicinity. These diagrams show that a large majority of the winds, both as to total mileage and frequency, come from the southwest. A plant should therefore be located as far as possible toward the north-easterly side of any residential area, or so that winds blowing toward the northeast from the plant will not be objectionable to residences which might be reached. Generally speaking, a plant should be located toward the northwest of Cincinnati if it is to be least objectionable, because of wind direction.

In connection with the formulation of the Zoning Ordinance, detailed investigations were made of the best present and potential uses of all properties within the

city, and the Zoning Map was prepared to crystalize the uses of all areas in such a way as to effect the greatest good to the greatest number. The zone in which a garbage plant would logically be located is Industrial "C." Districts of this designation are in the Mill Creek Valley in the vicinity of the present stockyards, and westerly of St. Bernard. The formal adoption of the Zoning Ordinance and map makes it incumbent upon the city to consider with the greatest care any location of such a plant outside of an Industrial "C" District.

Five alternative general sites were studied in the light of the principles outlined above. These five sites are as follows:

- (a) The present reduction plant vicinity.
- (b) The Little Miami Valley.
- (c) Areas zoned for industry on the B. & O. Railroad between St. Bernard and Norwood.
- (d) Upper Mill Creek Valley, adjacent to Center Hill Avenue.
- (e) Mill Creek Valley, near the present stock yards in the vicinity of the Hopple Street Viaduct.

As far as a location adjacent to the center of population is concerned, the site in the vicinity of the stockyards, is far superior to any other. The site between St. Bernard and Norwood comes second, with the other sites about equally more distant. Street accessibility would be somewhat difficult from the upper plateau, directly to a site in the vicinity of the stockyards, but otherwise that location would be easily reached from all directions. Since it is at a low level, even vehicles coming from the upper plateau would have down grades on which to operate and would return light. That site can be reached from practically all directions, whereas the street system leading to the site of the present plant or to any

site in the Little Miami Valley would have to carry practically all the garbage going to the plant over one thoroughfare or by railroad. Each site has been selected with reference to railroad accessibility. The site of the present plant is the only one which might be made easily accessible by water, with the site in the vicinity of the stockyards coming second, because of a possible future water connection by canal. The site in the upper Mill Creek Valley is best from the point of view of wind direction, with the stockyards site probably being least advantageously located in this respect. The latter is however so situated that prevailing winds would blow up Mill Creek Valley and over almost exclusively industrial territory, not affecting residence property appreciably. Furthermore, the stockyards have been in existence for a large number of years and the whole vicinity has adjusted itself to the presence of such industries. Finally, if incineration is adopted for such a plant, and the by-product heat is used for the generation of electricity or for the manufacture of ice, distribution will be more readily effected from the stockyards region than from any other of the alternative sites. The land in that vicinity is low, and ample space is available for the dumping of clinker or for the storage of fertilizer material in the open.

**Any first new garbage plant, municipally owned and operated, should be located in an Industrial "C" District, as designated on the Zoning Map in Mill Creek Valley, and should contain at least five or six acres.**

If more than one plant is to be erected and since economical reasons would dictate that no plant be operated with a less capacity than 100 tons, only two plants at most should be considered. One of these should be located as above described with the other in the Little Miami Valley.

## CHAPTER XV

## Financing Improvements

According to the contract, Sixth Section, "the report on the Plan shall include a plan of financing and the execution thereof, including a schedule for such execution and the methods of financing same, together with drafts of such laws as may be necessary to make the proposed plan of financing possible and legal."

**The Problem**

This City Plan Report should not deal with the financial condition of the city, as that is not a matter of City Planning, but rather of city administration. This report will be confined to a discussion of possible methods of financing public improvements other than renewals and repairs, substructures and paving, for the latter are distinctly matters of current administration and not of City Planning.

As compared with most cities of its size, Cincinnati suffers from three severe handicaps. The first is the absurdly unreasonable Smith One Per Cent Law, which forces the city into a straitjacket and prevents its doing many things which are vitally necessary for its development. The second is a fact over which the city has more control, and that is, its excessively large area in proportion to its population. The third is the rugged topography and treacherous rock of many hillsides. The combination of these elements obliges Cincinnati to forego many necessary improvements and worse yet, it forces the city to carry on its improvements in a hand to mouth way, by patching and temporary construction, instead of by permanent renewals and improvements.

After three years of continual observation in all parts of the city, the planning engineers are convinced that the poorness of various public improvements in Cincinnati is not the fault of the city administra-

tion, but is due to conditions over which the officials have little control. The engineers believe further that with the limitations imposed on the city administration by lack of funds, peculiar topography and extended area, that the administration has and is giving good value for money expended, and has shown considerable ingenuity in getting results.

On the other hand, as is also true of the administrations of other cities, the Cincinnati government has not laid out its public improvements according to any comprehensive plan for taking care of future growth.

As far as the topography and extent of Cincinnati is concerned, there is no direct remedy for what exists and will continue to exist as a handicap. However, recognizing this fact, it is the endeavor of this City Plan Report to concentrate funds available for public improvements on the essentials, and to plan for taking them up in the order of their relative urgency.

The waste occasioned by Cincinnati's undue extent seriously affects the question of further annexation; therefore, unquestionably, great care should be taken in approaching any question of new annexation, to make sure that it will not involve the city in further expense for improvements out of proportion to the benefit which will accrue from the annexation.

Furthermore, as the satellite municipalities, such as Norwood, St. Bernard, Elmwood Place, etc., profit by the public improvements of Cincinnati, to the cost of which they contribute little or nothing, it is reasonable to investigate whether there is not some way of securing participation on the part of these municipalities in the cost of such Cincinnati improvements as particularly benefit them. Except for certain special types of as-

essment districts, this could be done only through voluntary participation in the improvements, or by a new State law requiring participation.

The Smith One Per Cent Law provides that except for certain exempt features, the city, county and school budget for both current expenses and improvements shall not exceed one per cent of the tax duplicate in any one year. Various interest, sinking fund and other charges are exempt from this one per cent.

Fortunately three years ago, as a relief measure, the Taft Act raised the levy maximum to  $2\frac{1}{4}$  per cent, but as that act went out of effect at the end of 1924, this relief is not possible in 1925. The result is that the total tax rate as fixed by the County Budget Commission has necessarily been decreased from \$21.28 in 1924 to \$17.96 in 1925, on each \$1,000 worth of taxable property within the county. The only redeeming feature in this reduction is that a special reappraisal of all land within the county (the first since 1918) has increased the total tax duplicate of the county from \$772,371,800 in 1924 to approximately \$875,000,000 in 1925. Therefore it should be obvious that the city not only can undertake few of even the vitally necessary improvements, but must cut down its current operation far below the minimum standard for safety and health.

Everything possible should be done to secure legislation which will permit Cincinnati, as well as other Ohio cities, to raise by taxation each year, an amount equal to at least the minimum sum that cities generally throughout the country, have found necessary for reasonable operation and development.

The city's bonded indebtedness can never exceed  $2\frac{1}{2}$  per cent of its tax duplicate except for certain self supporting bonds which are exempt; however, by a vote of at least 60 per cent of the electorate another  $2\frac{1}{2}$  per cent on the tax duplicate can be used for non-exempt bonds. The total of the two can never exceed five per cent. As states go, this is exceptionally low, many states authorizing between five and ten per cent. Of course, until

such time as the city can secure more revenue, it can ill afford to float new bond issues, as it now must apportion to interest and amortization charges, all that its revenue will stand without further reducing operating expenses.

However, at such time as the State Legislature may permit the city and county to levy more taxes, it could also consider adjusting the bonding limits for Ohio cities to the average in other States throughout the country.

The infrequent reappraisal of assessable property loses to the city a large possible income. It is customary in various other states and cities to reappraise continuously as fast as values increase, thereby deriving additional income from increased values as soon as the increased value is apparent. At least there can be no question but that the city should tax immediately any increased values occasioned by public improvements.

It remains to consider if there are not other means of paying for public improvements which will in part, at least, relieve the burden on the city's tax revenue. To this end, study should be made of the following possibilities:

1. Taking every advantage of the possibilities of local assessments for benefits.
2. Securing possible benefit from excess condemnation.
3. Imposing building line easements.
4. Working out a policy of keeping buildings out of mapped streets.

These all directly affect the City Plan.

**Local Assessment of Benefits**

Under the present Law of Ohio, not more than 50 per cent of the cost of taking private property for a public improvement can be assessed locally. This is a lower limit than in most states; in fact, in many states the whole cost of acquiring property for a public improvement can be assessed locally, provided the actual benefit to neighboring property is at least equal to the cost of such taking plus the cost of the physical improvement.

As permitted by Sec. 2, Article 18, of the Ohio Constitution the Legislature passed the following law on March 13, 1923:

AN ACT

Authorizing municipalities to establish districts for assessment purposes, including in the assessment not more than fifty per centum of the cost of appropriating private property for a public improvement.

Be it enacted by the General Assembly of the State of Ohio:

Section 1. That section 3812 of the General Code of Ohio be, and the same is hereby supplemented by the enactment of supplementary sections 3812-5 and 3812-6 to read as follows:

Section 3812-5. Whenever any municipality appropriates or purchases property for a public improvement, the council of the municipality may provide funds in part by assessments upon the lots and lands benefited by such improvement when a district established by ordinance of council, to pay any part of the entire cost and expense connected with such public improvement, and may include as one of the items of such total cost and expense, not more than fifty (50) per centum of the cost of appropriating private property for such public improvement. Such assessments may be levied by any of the following methods:

First. By a percentage of the tax value of the property assessed;

Second. In proportion to the benefits which may result from the improvement; or,

Third. By the foot front of the property bounding and abutting any street, alley, public road or place, or part thereof, within such district.

Section 3812-6. Such special assessments shall not be in excess of the special benefits conferred upon such lots and lands by such public improvement, and the proceedings of Council providing for levying and collecting such special assessments shall be the same as are provided in title 12, division 3, chapter 5, of the General Code of Ohio, and the amendments and supplements thereto, providing for the improvement of streets, except that in setting forth specifically the lots and lands to be assessed it shall be sufficient to describe them as all the lots and lands bounding and abutting the respective streets, alleys, public roads, or places, or parts thereof, within the district established by Council, and in describing those which do not so abut, it shall be sufficient to describe the lots by their appropriate lot numbers, and the lands by metes and bounds.

During the last five years the city has authorized the following bond issues for public improvements, for which there have been no assessments against benefited property:

Bond Issues for Public Improvements Without Local Assessments

1924	
Muddy Creek Interceptor Sewer.....	\$102,900.00
Gest Street Bridge.....	35,600.00
Court St. Widening (additional land)....	118,000.00
1923	
Liston Ave. and Amanda Pl., Widening and Acquisition of Land.....	72,600.00
Duck Creek Interceptor.....	275,000.00
Court St. Widening (Land).....	132,530.00
Gilbert Ave. Viaduct (Resurfacing).....	60,696.00
1922	
Improvement of McLean Ave. Sewer.....	14,976.00
McMillan St. Extension.....	239,760.00
McMillan St. Extension (Land).....	60,000.00
1921	
Intersection of Moorman Ave. and McMillan St., Widening (Land).....	10,000.00
Intersection of Freeman Ave., Liberty St. and Western Ave. (Resurfacing and Land).....	109,000.00
1920	
Widening of McMillan St.....	104,000.00
Widening Intersection of Ninth and McLean Ave. ....	2,600.00
Warner St. ....	10,000.00
Land for Extension of Carplin Place to Stewart Pl., 1919-1920.....	
Land for intersection of Laidlaw Ave. and Matlock Ave. ....	
Land for Intersection of Montgomery Road and Kennedy.....	1,000.00
Extension of 28th St. to Robertson Ave. (Land).....	4,250.00
Public Landing Repavement.....	67,000.00

In many other cities it is customary to assess locally the larger part if not all of the cost of similar improvements, thus relieving the general tax levy.

The widening of Carnegie Avenue in Cleveland actually increased the value of abutting and near-by property by an amount nearly double the total cost of the improvement, including both condemnation and the physical reconstruction of the street. In that case, the property owners, by mutual agreement, undertook to raise 55 per cent of the total cost by special assessment over a ten-year period among themselves, while the city assumed the other 45 per cent. The interesting fact is that the increase in taxes which the city of Cleveland is receiving on account of the benefit conferred on neighboring property solely because of the improvement, not only pays the in-

terest on the city's 45 per cent of the total cost, but should serve to amortize it several years before the maturity of the bonds issued against the improvement. If laid out as a part of the City Plan, and executed when needed, and not before, many public improvements should tell a similar story.

In Minneapolis and Kansas City, where the acquisition as well as the construction of parks and even playgrounds is paid for almost entirely by local assessment, the benefit is now so generally recognized that the property owners of various districts are coming to the city petitioning the creation of parks and playgrounds within their districts, to be provided entirely at their own expense.

Obviously, these principles must not be abused to the extent of loading on neighboring property owners such proportion of the benefit as is enjoyed by the city as a whole. In fact, in the case of Carnegie Avenue in Cleveland, it probably is a fact that nearly one-half of the benefit is enjoyed by the citizens of the whole city, and therefore nearly half of the total expense should have been, and was, borne by the city treasury.

Consideration should be given to the possibility of extending the range of local assessments for physical improvements, as well as property acquisition, so that instead of confining them, as is usually the case in Cincinnati, to immediately abutting property, they could be spread over as large a local area as is actually benefited, with the expectation that the rate would decrease with the distance from the improvement. The principle of the Sewer District Law of the State of Ohio, probably the best model for the distribution of benefit assessments, could well be adapted to most city improvements. It is based mainly on the idea that assessments should be levied proportionately throughout a district, and in accordance with the special benefits conferred.

By spreading the area of assessment, it should be possible in various cases to decrease the strain on general taxation.

Excess Condemnation

Excess condemnation, or excess acquisition, is a term applied to the taking of more property than is actually needed for a public improvement, with the expectation of selling the excess property after the improvement is completed, at an increased price, due to the benefit conferred by the improvement. Where the excess area is so small for the erection of a practicable building on it, it is known as remnant condemnation or acquisition. A Virginia Court has defined a remnant as a parcel containing not over 225 square feet, or not larger than 15 feet in any direction.

Usually the excess parcels, whether remnants or large enough for self-contained buildings, are sold to abutting property owners, so as to give them a frontage on the new improvement.

Although Ohio is one of the limited number of states, including New York, Massachusetts and Wisconsin, where excess condemnation is permitted by law, nevertheless it has probably never been applied as yet anywhere in the State, except for the purchase of remnants, that is, leftover portions of lots that are so small that they are worthless to the original owners. It is true that in the case of the above mentioned Carnegie Avenue widening in Cleveland, some parcels rather larger than remnants, were acquired and sold to abutting property owners at a good profit. In the widening of Belmont Street in Worcester, Mass., the excess parcels were sold for over three times what they cost the city.

While the principle of excess condemnation has been little used as yet in America, it is being currently and most successfully used abroad. In England today there are literally hundreds of cases where the application of this principle has made it possible to secure public improvements at little or no cost to the City. It means, however, the creation of a revolving fund to carry the excess purchases until they can be sold at an advanced price.

The principle of excess condemnation should be studied with a view to its possible application to various urgent improvements in Cincinnati, and in any case where it may be found practicable it should be applied.

#### Building Lines

In Cincinnati, as in most other Ohio cities, there are various thoroughfares that need widening to carry the rapidly increasing traffic. A few sections of these thoroughfares need to be widened immediately or in the near future. In these cases, the land needed for increasing the width of the street will have to be acquired outright by purchase or condemnation.

However, where the street widening will not be needed for ten, fifteen or twenty years, it is probable that during this waiting period, costly buildings will be erected on the existing street lines, making eventual appropriation prohibitively expensive. Therefore, anything that can be done to ward off the erection of these costly buildings within the strip that must be eventually taken for street widening, is going to save the city considerable sums of money. There are two methods of preventing the erection of costly buildings where they would be in the way of eventual street widening. One is under the police power, and the other under the power of eminent domain.

The setback building line ordinance which was passed nearly two years ago in Cleveland, and which applies to about 100 miles of present or eventual thoroughfares, is in practice working out remarkably successfully, in that not only new residences, but scores of new stores have been set back without question and without law suit, on the new setback building line, to the common advantage of all. No one has as yet protested that he is damaged because he can not build out to the original street line.

Under the Ohio law a city has the right to acquire for a public use an easement to private property, providing of course, it pays damages, where damage exists. This would also make it possible

to apply in Cincinnati the principle that is being used so successfully today in various Massachusetts cities. The specific Massachusetts law under which this action is taken, is as follows:

According to Chapter 82, Section 37, of the General Laws, (Massachusetts):

"If a city by its city council or a town accepts this section or has accepted corresponding provisions of earlier laws, a building line not more than forty feet distant from the exterior line of a highway or town way may be established in the manner provided for laying out ways, and thereafter no structures shall be erected or maintained between such building line and such way, except steps, windows, porticos and other usual projections, appurtenant to the front wall of a building, to the extent prescribed in the vote establishing such building line, and except that buildings or parts of buildings, embankments, steps, walls, fences and gates existing at the time of the establishment of the building line may be permitted to remain and to be maintained to such extent and under such conditions as may be prescribed in the vote establishing such building line. Whoever sustains damage thereby may recover the same under chapter seventy-nine. A building line established under this section may be discontinued in the manner provided for the discontinuance of a highway or town way. Whosoever sustains damages by the discontinuance of a building line may recover the same under chapter seventy-nine."

The procedure in Massachusetts is as follows: Instead of widening a narrow street that is needed as a thoroughfare by purchasing outright a strip of land along one or both sides of the street (together with such parts of existing buildings as may overlap it) the building line power makes it possible for the city to merely acquire an easement over the needed strip of land, while the actual property owners retain the full use of their land and the buildings on it, until such time as the city is ready to physically widen the street. This has several advantages over the method of purchasing property outright in fee. In the first place, the taking of the easement prevents the erection of even comparatively costly structures on this strip. Thus, eventually, when the city is ready to take over the strip by purchase, only the existing depreciated, and often obsolete, buildings have to be acquired. In practice, the Massachusetts cities find that the majority, if not most, of the abutting

property owners are willing to waive damages on the imposing of the building line easement, so that the city actually acquires a large portion of the easement for nothing.

Where damages are not waived, the adjusting is done by the court, but the disposition of a large proportion of the property owners to waive their damages is taken as evidence that benefits may largely cancel damages. The result is that the actual amount of damages paid by the city is found to be relatively small.

When eventually the city is ready to purchase the easement strip in fee and carry out the street widening, it has to pay only a small amount for the buildings and plots that have to be acquired, for the benefits to the abutting property owners largely cancel the value of the property and the strips taken, so that the actual money paid by the city to the property owners is small.

In general, it can be said that except in the solidly built-up downtown section of the city, the application of this building line principle is much the cheapest way in which the city can provide ahead for its growing street traffic.

Wherever streets will need to be widened during the next twenty years to provide for the growing traffic, the city should acquire a building line easement to take care of the necessary widening, and make every endeavor to secure a waiver of damages on the part of the property owners affected.

#### Controlling Building in the Bed of Mapped Streets

To quote from the 1924 Report of the Legislative Committee of the Ohio State Conference on City Planning:

"Every one familiar with city planning recognizes that one of the great handicaps to carrying out a city plan is the fact that, in many cases, the cost is made prohibitive by virtue of buildings which are erected within the limits of proposed new streets or street extensions as located on the map or plan. Naturally the city plan

must look far ahead, and, therefore, must include proposed locations for future streets which may not be needed for many years. If there be no control over the erection of buildings within the limits of these future streets, the cost of actually acquiring the necessary property and establishing and opening the streets may become prohibitive and the city plan thereby defeated. An effort needs to be made, therefore, to devise some procedure which will not be too costly and will not do injustice to the owners of private property, whereby communities may be empowered to keep the land lying within these mapped streets free from the erection of costly buildings.

Naturally there are constitutional difficulties in the way of unconditional prohibition of buildings in mapped streets without compensation to the owners. Just how far the Constitution would permit regulation of this matter under the police power must remain an open question. We are suggesting that provision be made in the statutes whereby the city can acquire, as a sort of easement, the right to keep the property lying within a mapped street free of buildings for a specified time, that is, for such number of years as the city may determine; the city to pay compensation to the owner for the value of this easement, that is, compensation for the loss to the owner of the use of that portion of his property lying within the mapped street, for the designated period.

In all probability Ohio cities now have power to acquire this easement under the general statutes relating to appropriation of property; but the procedure provided in the present statutes is unnecessarily elaborate and difficult. A model for a more simplified procedure is furnished by the present statutes relating to the laying out, establishing and opening of county roads. These provide that the County Commissioners may locate the road and may provide for an appraise-

ment of the property to be taken, all after notification to the property holders and a hearing. A dissatisfied property holder may appeal the matter to a court and jury. The State Constitution requires that the property owner be given a right of jury trial. The statutes relating to appropriation of property by cities, however, requires a jury trial as the initial stage of every case. We therefore suggest and recommend that the proposed bill include provisions along the line of the county road statutes whereby the city may, by a similar procedure, acquire the right to keep territory within the mapped streets free from improvements for a designated period, paying compensation therefor to the owners of the property affected. To summarize the contents of the bill, it would provide:

"That cities shall be given express power to acquire by eminent domain the right to keep territory within such mapped streets free from improvements for a period designated by the city in the appropriation measure, and that such appropriation may be made by means of a simplified procedure analogous to the county and road statutes, whereby the City Council or other appropriating body may provide for an appraisal after notice to the property owner and hearing, subject to the right of the property owner to appeal to a court and jury."

A similar procedure was recently developed by Mr. Philip Nichols, a member of the Massachusetts Federation of Planning Boards, and was presented by him at the annual meeting of the Federation in the fall of 1924. Mr. Nichols' plan provides further that if the property owners affected do not claim damages within one year after the street map is made, that they shall be considered to have acquiesced and to have waived damages. If and when the demand for damages is presented in the courts, the city would have the opportunity of changing the map within three months to satisfy the claimant and to pay merely the court

costs. The Massachusetts plan also includes the waiving of taxes on such lands as may lie within the bed of the mapped streets. As a matter of fact, in Massachusetts, the general city procedure for acquiring land is similar to the county procedure in Ohio.

**The City of Cincinnati and all other cities in Ohio should strongly support a bill for the control of building in mapped streets.**

#### Bonds Versus Pay-As-You-Go

Most fortunately, since 1922, the City of Cincinnati has started on a serial bond basis. Cincinnati is also fortunate in the comparatively short life of the various outstanding bonds. Its credit is excellent as a result of this fact. There is no question but that the serial bond policy should be continued, and that the life of bond issues should be strictly limited to less than the life of the improvements.

The city has also adopted in a large measure the pay-as-you-go policy, which while excellent for current repairs and renewals, is most harmful if applied generally to permanent improvements. It is only too evident in cities where the pay-as-you-go policy is generally applied, that the cities are forced into a hand-to-mouth existence of patching and temporary piece-meal improvements that cost the city far more in the long run than workmanlike permanent improvements.

Furthermore, Cincinnati, with its excellent credit, can borrow money on long-time obligations at an average of not over 4½ per cent. The taxpayer, meanwhile, has to pay or can get at least 6 per cent for his money. Thus on the "Pay-as-you-go" policy the taxpayer has to give up his own money to pay the full cost of the improvement at its inception, thereby losing at least 1½ per cent per annum over at least half of the life of the improvement; whereas the city, borrowing money at 4½ per cent on a serial bond basis, would save the taxpayer at least 1½ per cent plus compound interest on at least half of the cost of the improvement. On the average such operation, bonds mean a saving to the taxpayer of 15 to

25 per cent, as compared with the pay-as-you-go policy for permanent improvements.

**While the pay-as-you-go policy should be continued for current operation and ordinary renewals and repairs, it should rarely be applied to permanent improvements.**

#### Conclusion

The credit of the city is excellent. Its legal borrowing authority is much too limited and it could be considerably increased without straining its credit. It must be increased if vitally important improvements are going to be carried out.

The tax revenue of the city is impossibly low. No city can function properly and serve the citizens effectively with such a small revenue in proportion to the size of the city. The tax rate must be increased.

In any case, anything that can be done to shift the cost of public improvements on to those who will especially benefit by them should be done, and done immediately, so that imperatively needed improvements can be undertaken. To this end, full use should be made of the following sound practical principles:

1. Public improvements should be assessed on those who benefit by them in proportion to the benefit.

2. Tax valuations should be immediately increased in proportion to the benefit conferred by an improvement.

3. The city itself should profit directly by the benefit conferred by an improvement, by applying, wherever practicable, the principle of excess condemnation.

4. Building line easements should be imposed and a waiver of damages secured ahead of street widenings.

5. Buildings should be kept out of mapped streets by the securing of a waiver of damages on the part of the property owners within a year after the publication of a mapped street.

With the borrowing authority of the city as limited as it is now, it is of the utmost importance that every proposed bond issue should be considered with the greatest care, to make sure that the small balance of bonding power is used only for those items of the City Plan and Program of Development that are most urgently needed. On the other hand, a special bond referendum program should be prepared, to cover only the most urgently needed items, and that, and that only, should be presented for popular referendum until such time as the State Legislature increases the bonding and taxlevying limits to at least the average for American cities.

## CHAPTER XVI

## Administration

**Organization of the Municipal Government**

Cincinnati is governed by a Mayor and a City Council of 26 members elected by wards and six at large. The City Council is a legislative body and as such controls all matters, except such features as are lodged by statute in other bodies, relating to the City Plan, such as street extensions, street widenings, roadway widenings, the purchase of land for common public use (except schools), traffic regulation, building zone ordinances and other similar matters.

The Board of Education of the School District of Cincinnati is a distinct and separate legal entity.

**Administrative Problems Affecting the City Plan**

The City Council is divided into a large number of standing and special committees, one of which is the Committee on the City Plan. As is true in all cities, the Council Committees on account of pressure of work, are forced to study independently those parts of the city development program which are assigned to them.

There are a number of different city official committees and other bodies affected by each part of the City Plan.

The City Planning Commission has an exceptionally broad scope of power under the Ohio City Plan Enabling Act and the Cincinnati Charter.

To assure co-ordination and to avoid overlapping, it is most desirable that the City Planning Commission should keep in close touch with the City Planning Committee of the City Council, and refer to it at the earliest possible moment every matter over which the Planning Commission does not have exclusive jurisdiction. The Council Committee should check the given proposition with the Planning Commission to see whether the project conforms or not to the City Plan, and if not, the Commit-

tee, with the consent of the Commission, should decide whether the given project should be adjusted to conform with the Plan, or whether the Plan should be modified to take in the new project, while at the same time preserving the continuity and spirit of the Plan itself.

**City Planning Commission**

The powers of the City Planning Commission, as defined in the General Acts of the State of Ohio, Section 4366-1 to 4366-12, and the powers as defined in the City Charter, adopted January 1, 1918, are as follows:

**CITY PLANNING COMMISSION LAW**

Sec. 4366-1. The council of each city having a board of park commissioners may establish a city planning commission consisting of seven members, the mayor, the service director, the president of the board of park commissioners and four citizens of the municipality, who shall serve without compensation and who shall be appointed by the mayor, terms of six years each, excepting that the term of two of the members of the first commission shall be for three years.

The council of each city without a board of park commissioners may establish a city planning commission consisting of five members, the mayor, service director and three citizens of the municipality who shall serve without compensation and who shall be appointed by the mayor for a term of six years, except that the term of one of the members of the first commission shall be for four years and one for two years.

The commission of each city with a commission plan of government adopted as provided in sections 3515-1 to 3515-18 of the General Code of Ohio may establish a city planning commission consisting of five members, the chairman of the commission and four citizens of the city to be appointed by the commission for terms of six years each, except that the term of two of the members of the first commission shall be four years and two for two years; all members to serve without compensation.

The council of each city with a city manager plan of government adopted as provided in sections 3515-1 to 3515-6 and 3515-19 to

3515-28 of the General Code of Ohio may establish a city planning commission consisting of five members, the chairman of council, the city manager and three citizens of the city who shall serve without compensation and who shall be appointed by the city manager for terms of six years each, except that the term of one of the members of the first commission shall be for four years and one for two years.

The council of each village may establish a city planning commission consisting of five members, the mayor, one member of council, to be selected by the council for the remainder of his term as a member of council, and three citizens of the municipality to be appointed by the mayor for terms of six years each, except that the term of one of the members of the first commission shall be for four years and one for two years, all such members to serve without compensation.

Whenever such a commission is appointed, it shall have all the powers conferred in section 4344 of the General Code. Except as otherwise provided in its charter, the city planning commission of a charter municipality created in the manner and as provided in or by virtue of authority granted by its charter, shall have the powers and the plan or plans made by it shall have the effect of a planning commission or a city plan created and made under and by virtue of the authority of this chapter.

Sec. 4366-2. The powers and duties of the commission shall be to make plans and maps of the whole or any portion of such municipality, and of any land outside of the municipality, which in the opinion of the commission bears relation to the planning of the municipality, and to make changes in such plans or maps when it deems same advisable. Such maps or plans shall show the commissions' recommendations for new streets, alleys, ways, viaducts, bridges, subways, parkways, parks, playgrounds, or any other public grounds or public improvements; and the removal, relocation, widening or extension of such public works then existing. With a view to the systematic planning of the municipalities, the commission may make recommendations to the mayor, council and department heads concerning the location of streets, transportation and communication facilities, public buildings and grounds. The commission shall have the power to control, preserve and care for historical land marks; to control in the manner provided by ordinance the design and location of statuary and other works of art, which are or may become the property of the municipality; and the removal, relocation and alteration of any such works belonging to the municipality; and the design of harbors, bridges, viaducts, street fixtures and other public structures and appurtenances. Whenever the commission shall have made a plan of the municipal-

ity, or any portion thereof, no public building, street, boulevard, parkway, park, playground, public ground, canal, river front, harbor, dock, wharf, bridge, viaduct, tunnel, utility (whether publicly or privately owned) or part thereof shall be constructed or authorized to be constructed in the municipality of said planned portion of the municipality until and unless the location thereof shall be approved by the commission; provided that in case of disapproval the commission shall communicate its reasons for disapproval to council, and the department head of the department which has control of the construction of the proposed improvement or utility; and council, by a vote of not less than two-thirds of its members and such department head shall together have the power to overrule such disapproval. The narrowing, ornamentation, vacation or change in the use of streets and other public ways, grounds and places shall be subject to similar approval, and disapproval may be similarly overruled. The commission may make recommendations to any public authorities or to any corporations or individuals in such municipality or the territory contiguous thereto, concerning the location of any buildings, structures or works to be erected or constructed by them.

Sec. 4366-3. The municipal planning commission shall be the planning commission of the municipality, and all the powers and duties provided by law for planning commissioner or commissioners of municipalities shall upon the appointment of a municipal planning commission under this act, be deemed transferred to such commission.

Sec. 4366-4. Council may authorize the commission to control the height, design and location of buildings.

Sec. 4366-5. The commission shall have power to control, appoint or employ such architects, engineers and other professional service, and to appoint such clerks, draughtsmen and other subordinates as it shall deem necessary for the performance of its functions; the expenditures for such service and employments to be within the amounts appropriated for such persons by the council of the municipality; and council shall provide for the expenses and accommodations necessary for the work of the commission.

Sec. 4366-7. The city planning commission of any municipality shall have the power to frame and adopt a plan or plans for dividing the municipality or any portion thereof into zones or districts, representing the recommendations of the commission, in the interest of the public health, safety, convenience, comfort, prosperity or general welfare, for the limitations and regulation of the height, the bulk and location (including percentage of lot occupancy, set back building lines, and area and dimensions of yards, courts and other open space), and the uses of buildings and other structures and of premises in such

zones or districts. The council of any village is hereby empowered to create and appoint a planning commission with the powers set forth in this act.

Sec. 4366-8. Whenever the city planning commission of any municipality or any board or officer with city planning powers, whether such commission, board or officer is created under state statute or municipal charter, or the planning commission of any village appointed under the provisions of section 4366-7, certifies to the council or other legislative body of the municipality any such plan for the districting or zoning of the municipality according to the uses of buildings and other structures and of premises, then said council or other legislative body, in the interest of the promotion of the public health, safety, convenience, comfort, prosperity or general welfare, may regulate and restrict the location of buildings and other structures and of premises to be used for trade, industry, residence or other specified uses, and for said purposes divide the municipality into districts of such number, shape and area as may be deemed best suited to carry out the purposes of this section. For each of such districts regulations may be imposed designating the kinds or classes of trades, industries, residences or other purposes for which buildings or other structures or premises may be permitted to be erected, altered or used subject to special regulations.

Sec. 4366-9. Whenever any such planning commission, board or officer certifies to such council or other legislative body any such plan for the districting or zoning of the municipality according to the height of buildings and other structures, then such council or other legislative body, in the interest of the promotion of the public health, safety, convenience, comfort, prosperity or general welfare, may regulate and limit the height of buildings and other structures thereafter erected or altered and for said purpose divide the municipality into districts of such number, shape and area as may be deemed best suited to carry out the purposes of this section. Any such regulation imposing a lower height limitation than may be provided by state statute shall, within the district for which it is imposed, prevail over the said limitation provided by state statute.

Sec. 4366-10. Whenever any such planning commission, board or officer certifies to such council or other legislative body any such plan for the districting or zoning of the municipality according to the bulk and location of buildings and other structures (including percentage of lot occupancy, set back building lines, and area of yards, courts and other open spaces), then such council or other legislative body may, in the interest of the promotion of the public health, safety, convenience, comfort, prosperity or general welfare, regulate the bulk and location of buildings and other structures thereafter erected

or altered, the percentage of lot occupancy, set back building lines and the area of yards, courts and other open spaces and for said purposes may divide the municipality into districts of such number, shape and area as may be deemed best suited to carry out the purposes of this section. Any such regulation imposing a less percentage of lot occupancy, wider or larger courts, deeper yards or other more strict limitations than those provided by state statute shall within the district for which it is imposed, prevail over the said limitations provided by state statute.

Sec. 4366-11. The districting or zoning of any municipality or part thereof may be based upon any combination of two or more of the purposes described in the foregoing three sections. In the determination and establishment of districts as above provided, buildings and other structures may be classified on the basis of the nature or character of trade, industry, profession or other activity conducted or to be conducted therein, the number of persons, families or other group units to reside in or use them, the public, quasi-public or private nature of the use thereof, or upon any other basis or bases relevant to the promotion of the public safety, health, morals, convenience, prosperity or welfare. The council or other legislative body may, from time to time, amend or change the number, shape, area or regulations of or within any district or districts; but no such amendment or change shall become effective unless the ordinance proposing such amendment or change shall first be submitted to the planning commission, board or officer for approval, disapproval or suggestions and the planning commission, board or officer shall have been allowed a reasonable time, not less than thirty days, for consideration and report. The council or other legislative body may create an administrative board to administer the details of the application of the regulations and may delegate to such board, in accordance with general rules and regulations to be set forth in the districting ordinances and regulations, the power to hear and determine appeals from refusal of building permits by building commissioners or other officers, to permit exceptions to and variations from the district regulations in the classes of cases or situations specified in the regulations and to administer the regulations as specified therein; or these administrative powers and functions may be delegated by the council or legislative body to the planning commission or board. Before any ordinance, measure or regulation authorized by this and the three foregoing sections may be passed, the council or other legislative body shall hold a public hearing thereon, and shall give thirty days' notice of the time and place thereof in a newspaper of general circulation in the municipality; and during said thirty days the text or copy of the text of such ordinance, measure or regulation, together with the maps or plans

or copies thereof forming part of or referred to in said ordinance, measure or regulation and the maps, plans, and reports submitted by the planning commission, board or officer shall be on file, for public examination, in the office of the clerk of the council or other legislative body or in such other office as may be designated by the council or other legislative body. No such ordinance, measure or regulation which violates, differs from or departs from the plan or report submitted by the planning commission, board or officer shall take effect unless passed or approved by not less than three-fourths of the full membership of the council or other legislative body.

Sec. 4366-12. Nothing contained in the foregoing sections 4366-7 to 4366-11 inclusive shall be deemed to repeal, reduce or modify any power granted by law or charter to any municipality, council or other legislative body of a municipality nor to impair or restrict the power of any municipality under Article XVIII of the Constitution of Ohio.

Should any section or provision of this act be decided by the courts to be unconstitutional or invalid, the same shall not affect the validity of the act as a whole or any part thereof other than the part so decided to be unconstitutional.

Nothing herein shall be construed as authorizing a municipality to reserve the use of any private property for future public use for the purpose of extending or widening streets.

#### CINCINNATI CHARTER—Jan. 1, 1918

##### VII. City Planning Commission

1. The City Planning Commission shall consist of seven members, five of whom shall be the Mayor, Director of Public Service and the members of the Board of Park Commissioners. The Mayor who takes office January 1, 1918, shall appoint two other members of the Commission, who shall be citizens of the city, to serve one for a term of three years and one for a term of six years from the dates of their respective appointments and until their successors are appointed and qualified and thereafter as the term of each expires the Mayor shall appoint one member to serve for a term of six years and until his successor is appointed and qualified, and shall fill all vacancies in the Commission for the unexpired terms. The Members of the Commission shall receive no compensation for serving as such Commissioners.

2. The powers and duties of the Commission shall be to make plans and maps of the whole or any portion of the city and of any land outside the city which, in the opinion of the Commission, bears a relation to the planning of the city, and to make changes in such plans or maps when it deems same advisable. Such maps and plans shall show

the Commission's recommendations for new streets, alleys, ways, viaducts, bridges, subways, parkways, parks, playgrounds, or any other public grounds or public improvements, and the removal, relocation, widening or extension of such public works as then exist. Such maps and plans may also include the division of the city into zones or districts in accordance with the Commission's recommendations for the limitations and regulation of the height, bulk (including percentage of lot occupancy and set back building lines), and use of buildings and other structures in such zones or districts.

3. The Commission shall have the power to control, preserve and care for historical landmarks; to control in the manner provided by ordinance of council the location of statuary and other works of art which are or may become the property of the city, and the removal or relocation of any such works belonging to the city.

4. Whenever the Commission shall have made a plan of the city or any portion thereof, no public building, street, sidewalk, boulevard, parkway, park, playground, public ground, canal, river front, harbor, dock, wharf, bridge, viaduct, tunnel, utility (whether publicly or privately owned), or part thereof shall be constructed or authorized to be constructed in the city or said planned portion of the city until and unless the location thereof shall be approved by the Commission; nor shall any street, avenue, parkway, boulevard or alley be opened for any purposes whatsoever without the approval of the Commission; provided that in case of its failure to approve, the Commission shall communicate its reason for failure to approve to Council, and Council by a vote of not less than two-thirds of its members shall have the power to overrule such failure to approve and Council or the proper board, officer or person, as the case may be, shall have power to act without such approval. The widening, narrowing, relocation, vacation, or change in the use of streets, street intersections, sidewalks and other public ways, grounds and places shall be subject to similar approval, and failure to approve may be similarly overruled by Council.

5. The Commission may at all times make recommendations to the Mayor, Council, department heads, or any public authority, or to any corporations or individuals in Cincinnati, or the territory contiguous thereto, concerning the location of streets, public buildings, public works and places, transportation and communication facilities, public utilities, or any buildings, structures or works to be erected or constructed in the city or contiguous territory.

6. In and for each of the years 1918, 1919 and 1920 Council shall appropriate for the work of the Commission such amount or amounts as the Commission may certify to Council as its estimate of the cost and ex-

pense of its work during each of such years; provided that the aggregate amount of such appropriations for said three years shall not exceed the sum of thirty thousand dollars, unless Council approve and appropriate a larger sum. In and for subsequent years, Council shall annually appropriate for the work of the Commission such amount or amounts as Council deems necessary for the work of the Commission.

7. The City Planning Commission shall be the Platting Commission of the city, and as such shall provide regulations governing the platting of all lands so as to require all streets and alleys to be of proper width, co-terminous with adjoining streets and alleys, and otherwise to conform to the regulations prescribed by the Commission.

8. All plats of lands within the corporate limits of the city or within three miles thereof, upon which streets, alleys, ways, commons, or other ground intended for public use are laid out, shall be submitted to the Commission and approved thereon in writing by it before being offered for record. Failure to submit, or the disapproval of the Commission of any such plat, shall be deemed a refusal of the proposed dedication shown thereon. The approval of the Commission shall be deemed an acceptance of the proposed dedication, but shall not impose any duty upon the city to maintain or improve any such dedicated parts.

9. In addition to the powers herein enumerated, the Commission shall have advisory powers upon all matters relating to the planning of the city and its development.

10. No consent of the owner of property abutting on any public way or public grounds shall be required for the construction, extension, maintenance or operation of any street railway, provided the City Planning Commission approves the same.

Fortunately the composition and appointment of the City Planning Commission is authorized under the Charter and conforms exactly to that authorized by the State Enabling Act; therefore, the City Planning Commission is entitled to exercise the powers conferred on it by both the State Act and the Charter.

In general the powers and duties of the City Planning Commission are as follows:

1. To make or amend plans and maps of the whole Cincinnati metropolitan area, insofar as they can in any way affect the planning of the city and surroundings.
2. To draft and recommend building districts and restrictions.
3. To preserve and care for historical landmarks.

4. To control the location of statutory and other works of art that are, or may be, the property of the city.

5. To approve the location of any public building or work, of public or private utility.

6. To refuse or accept any street or parkway, or refuse permission for its opening, unless overruled by a two-thirds vote of the City Council.

7. To pass upon all permanent street locations.

8. To make recommendations to the Mayor and Council or any other public authority, or to any corporations or individuals, even outside of the city limits, concerning the location of streets, public buildings, public works, transportation, public utilities, etc.

9. To refuse or accept for record any plat for any property within the city limits or within three miles thereof.

10. To approve the construction, extension or operation of any street railway, without the consent of the owners of abutting property.

As outlined above, the prime function of the City Planning Commission is to make a Comprehensive City Plan, which should be made only when the Commission has become thoroughly familiar with the needs and tendencies of Cincinnati and the surrounding area. This City Plan, instead of being a patchwork adjustment of a number of ideas of various city officials and others, is an entity developed scientifically from the basic underlying facts as determined by a fresh and impartial investigation.

In so far as it is practicable to incorporate or adjust the individual ideas of the various city departments and committees into the City Plan as integral parts of it without material sacrifice of the other parts of the Plan, such adjustment should be made. Wherever such an adjustment cannot logically be made, the facts, as brought out by the City Planning investigations, should of themselves convince the proponents that the best good of the community in the future, demands a modifica-

tion of their desires. Thus, the City Planning Commission can act in a most useful and unique capacity by serving as a clearing house for all projects which affect the physical development of the city.

**The City Planning Commission in its capacity as a clearing house should co-ordinate all matters that affect the City Plan, and should make a point of currently passing upon every matter allocated to it by the City Charter and the State City Planning Act.**

To assure complete co-operation between the City Council and the City Planning Commission, it is desirable that the complete City Planning program should be constantly before every Council Committee, City Department and City Board or officer affected by it. The City Plan report should serve as a point of departure for all the physical development of the city, and no project should be considered by any city body without assuring its relationship to the rest of the City Plan.

#### Making the City Plan Official

Under the Ohio City Planning Enabling Act and the Cincinnati City Charter, the City Planning Commission is alone granted the unique power of making a City Plan the official plan of the city. This means that once the City Plan has been officially adopted by the City Planning Commission, it can force all subdividers to conform to it in laying down their plats, including conformance to the thoroughfare, parkway, park and other public open space projects of the Plan. Failure to conform on the part of the subdivider would mean that the plat could not be approved for record and the streets for dedication.

The existence of an official City Plan also means that all public improvements made by the City, or any official department, or by any public or private utility, must conform to the official City Plan, unless the plan in that respect is modified by a two-thirds vote of the City Council.

The City Planning Commission and the City Planning Commission alone, serves as an art jury to accept or refuse the location of all public works of art.

In general, the City Planning Commission has all of the powers which it needs

for the effective preparation and administration of a Comprehensive City Plan. It remains to see that the Commission is not missing any of its opportunities for service by failing to exercise its powers. Probably the only one of its powers that is not being used as much as it might be today is that of an art jury to pass upon the location of public works of art.

**It is of great importance that the City Planning Commission should not fail among its other duties to pass upon the location of every public work of art that is or may become the property of the city in order to make sure that every such work of art is properly placed and in harmony with its surroundings.**

#### Regional or County Planning

No modern city constitutes within its corporate limits a complete self-sustaining unit, socially or economically. There exists about every city a local tributary region which uses the city as a shopping and amusement center, or as a place of employment, while in this tributary region the central city finds its supply of fresh food stuffs and seeks the advantages of motoring, picnicing and country residence.

The city boundaries are always arbitrary political lines, with only a negligible effect as to economic limits. Therefore, in dealing with the physical structure of the city, which is laid out to serve its own business and social life, the political boundaries cannot be used as economic or social limits. The metropolitan plan must embrace in its scope the whole area which is intimately related to the central city, regardless of corporate limits. This is known as Regional or County Planning.

Regional Planning is expressing itself in many ways and under various names. The State Highway System is in one sense a product of Regional Planning; since it is the result of a co-operative effort of State and local authorities to secure a complete system of good roads connecting the more important points within the State. The famous Miami Conservancy District accomplishments about Dayton could only have been attained through Regional Plan-



ning. The proposed Ohio State Park System is an endeavor at Regional Planning.

More particularly the Cuyahoga County Planning Commission and the Regional Planning work now taking place around Toledo, are direct outcomes of the keenly felt need of solving development problems as a unit for the whole region, rather than limiting them arbitrarily at the city boundaries.

Cincinnati is far more fortunate than Cleveland or Dayton in that it now comprises within its corporate limits most of the surrounding outlying developments which logically form part of the Cincinnati metropolitan district.

There remain about Cincinnati only such communities as Norwood, St. Bernard, Elmwood Place, Lockland, Wyoming, Reading, North College Hill and Cheviot, to round out the more built-up metropolitan area. In fact, the area of Cincinnati is so large relative to its population and to its rate of growth, that even at best it could readily take care of all of its probable future inhabitants within the present corporate limits, without inconvenience or undue overcrowding. Such a condition is rare among cities. On the other hand, considerable development is taking place not only in the eight satellites above mentioned, but also in the unincorporated territory lying beyond the city limits. Therefore, in order to round out the city's growth and to protect itself against a harmful development of the satellite communities and the surrounding territory, some method must be devised of planning and controlling the development of the whole metropolitan area in the common interest.

In theory the County Commissioners might act as the County Planning Commission, but in practice, they do not represent the various bodies of property holders most interested in County Planning, because they cannot officially represent the various incorporated municipalities within the county. On the other hand, the Cincinnati City Planning Commission cannot represent these surrounding communities, as they would naturally tend to be suspicious of anything that a City Commission did for them, for every surround-

ing community, incorporated or not, is likely to be jealous of its own prerogatives and is apt to look with suspicion on any move made by the central city or its representatives, fearing that it may mean annexation.

The only way in which this fear of losing their independence can be allayed, is by the formation of a co-operative body representing all of the various communities involved.

Realizing this, the State legislature in its wisdom, passed an act in the Spring of 1923, permitting the creation of a Regional or County Planning Commission. This act is as follows:

**REGIONAL AND COUNTY PLANNING LAW  
OF APRIL 17, 1923**

**AN ACT**

To provide for regional and county planning.

Sec. 4366-13. The city planning commissions of any municipality or group of municipalities, and the county commissioners of any county or counties in which such municipality or group of municipalities is located or any adjoining county or counties may co-operate in the creation of a regional planning commission for any region defined as may be agreed upon by said planning commissions and county commissioners, exclusive, however, of any territory within the limits of a municipal corporation not having a city planning commission. The number of members of such commission, their method of appointment and the proportion of the costs of such regional planning to be borne respectively by the various municipalities and counties in the region shall be such as may be determined upon by said planning commissions and county commissioners. Such county commissioners and the councils or other legislative bodies of such municipalities are hereby authorized to appropriate their respective shares of such costs. The sums so appropriated shall be paid into the treasury of the County in which the greater portion of the region is located and shall be paid out on the certificate of the regional planning commission and the warrant of the auditor of such County for the purposes herein authorized. Within the amounts thus agreed upon and duly appropriated, said regional planning commission may employ such engineers, accountants and other employes as may be necessary.

Sec. 4366-14. The board of county commissioners of any county may and, on petition of the city planning commissions of a majority of the municipalities in such county having such planning commission, shall provide for the organization and maintenance of

a county planning commission. Such planning commission shall consist of eight citizens of the county appointed by the board of county commissioners, together with the members of the board of county commissioners. If the population of any city in the county exceeds fifty per cent of the total population of the county, then at least three of the appointive members shall be selected from persons nominated by the city planning commission of such city. The appointive members shall be appointed for terms of three years, except that of the eight members first appointed, three shall be appointed for terms of two years and two shall be appointed for a term of one year. The members shall serve without pay. The county planning commission may employ such engineers, accountants and other employes as may be necessary. Their compensation and the expenses of the appointive members of the county planning commission shall be paid from appropriations made by the county commissioners.

Sec. 4366-15. The powers and duties respectively of a regional or county planning commission shall be to make plans and maps of the region or county respectively, showing the commission's recommendation for systems of transportation, highways, park and recreational facilities, the water supply, sewerage and sewage disposal, garbage disposal, civic centers and other public improvements which affect the development of the region or county respectively as a whole or more than one political unit within the region or county and which do not begin and terminate within the boundaries of any single municipality.

Sec. 4366-16. The regional planning commission of any region or county planning commission of any county, shall, after making the regional or county plan, certify a copy thereof to the city planning commission of each municipality of the region or county and the county commissioners of each county or part of county included in the plan. In the event of the subsequent creation of a city planning commission for any municipality within a county having a county planning commission, or for any municipality subsequently incorporated within the area of a region having a regional planning commission, a copy of the county plan shall be immediately certified to such city planning commission.

Sec. 4366-17. The city planning commission of any municipality to which a regional or county plan is so certified, may adopt such plan, and it shall thereupon and thereafter have the same force and effect within such municipality as is provided by law or charter for plans prepared and adopted by the local planning commission. The county commissioners of any county may adopt such plan so far as it relates to non-municipal territory. Thereafter no public building, road-

way, bridge or viaduct or other public improvement or utility (whether publicly or privately owned), whose construction or location would constitute a departure from the plan, shall be constructed or authorized by the county commissioners except by unanimous vote. Such plan shall not designate the specific lots or parcels of land upon which said system, facilities, buildings and improvements are proposed to be placed, but only the general site or location thereof. The effect of the adoption of such plan by the county commissioners shall cease as regards the location of any sewage or garbage disposal plant and no official action of the county commissioners shall be controlled thereby in such respect, unless the site shown on the plan as the location of such plant is purchased within six months after the adoption of such plan by the county commissioners, or unless proceedings for the appropriation of the necessary property are commenced within such period of six months and such property is then or thereafter appropriated in such proceedings.

Sec. 4366-18. The county surveyor of the county or counties for which any regional or county planning commission has been organized, shall give, within the scope of his resources and without interference with his regular duties, such assistance to the commission as may be requested by it.

Sec. 4366-19. Whenever a county or regional plan is adopted by a city planning commission or by the county commissioners, the fact of such adoption shall be certified by the adopting authority to the regional or county planning commission, as the case may be. Thereupon such regional or county planning commission shall deposit a copy of so much of such regional or county plan as is affected by such adoption in the office of the county recorder; but in case such plan shows a recommendation as to the location of a sewage or garbage disposal plant, such deposit shall not be made until after six months from and after the adoption of such plan, and when so deposited the copy of such plan shall also state the action or non-action of the appropriating authority with respect to the purchase or appropriation of property for such plant, as provided in section five of this Act.

According to this Regional and County Planning Act, the various City and Village Planning Commissions and the Board of County Commissioners can together create a County or Regional Plan Commission of any size, they may determine upon, and assess their respective communities in amounts they may agree upon, or on petition of the Planning Commissions of a majority of the municipalities in a county having such Commissions, the Board of County Commissioners must

provide for the appointment and maintenance of a County Planning Commission to consist of eight citizens of the county appointed by the County Commissioners on which Board the County Commissioners shall sit ex-officio. On such Commission three of the eight members would be appointed by the Cincinnati City Planning Commission.

In general this County Commission has the right to make plans for, and to pass upon, all matters affecting the physical development of the county and which affect more than one incorporated municipality.

Especially as concerns the eight incorporated municipalities which were named above and the territory just outside the city necessary to round out its development, there is a very decided need of co-operative planning and control which the operation of this act alone can give.

A Regional or County Planning Commission as authorized by the State Enabling Act of April 17, 1923, should be created at the earliest possible moment, and vested with the full powers conferred upon it by the act. Such a Regional Commission should at least include Norwood, St. Bernard, Elmwood Place, Lockland, Wyoming, Reading, North College Hill, Cheviot, and the unincorporated territory lying between these communities and immediately outside of the city limits, where needed to round out the development of the city.

#### Regional Planning Versus Annexation

Cincinnati has already annexed more surrounding territory than most cities of its population. It has a great deal of outlying undeveloped farm land which it may never need for its development; while, on the other hand, the communities of Norwood, St. Bernard and Elmwood Place are entirely or almost entirely surrounded by the City of Cincinnati. There exists therefore an anomalous condition of divided control of what is, and what should be an economic unit.

Obviously these three communities have a right to their autonomy and cannot and should not be forcibly deprived of the

right to govern themselves as they see fit. On the other hand, surrounded as they are by the City of Cincinnati, they are bound to profit by the public services of the surrounding city to an extent considerably beyond any contribution they may have made, or are making, to the development of these services. In other words, these satellite communities are getting considerably more from the City of Cincinnati than the larger city is securing from them in return, as the State laws do not provide for adequate compensation to the central city for such services.

Therefore, in all fairness, a study should be made with regard to each of the satellite communities to determine whether it is better in each case for all concerned that the municipality should be annexed to Cincinnati, and if so, when and under what conditions; or if it is better for it to preserve its present autonomy, to determine how it can compensate Cincinnati fairly for the services the latter renders to it, and also how, by means of co-operative regional planning, a development plan may be worked out which will satisfy the needs of all concerned in an effective and orderly manner.

A competent citizen body, truly representative of the various satellite communities about Cincinnati, sitting with a corresponding group of Cincinnati citizens, should consider the question of annexation versus regional co-operation and determine for each of these satellite communities which of the two principles is the better in each case, for all concerned, and when and under what conditions the policy should be carried out.

#### New State Laws Affecting the City Plan

The Ohio State Conference on City Planning which has been in existence for a number of years, is directly responsible for the excellent State legislation in Ohio affecting City Planning. In fact, it is considered elsewhere that the Ohio City Planning Acts are almost the best, if not the best, in the country, and there is no question that in practice, they are justify-

ing the wisdom of their creators. At the Annual Conference on City Planning, held in Columbus in the fall of 1924, at which most of the City Planning Commissions in Ohio were represented, it was unanimously decided to present and support two City Planning measures in the forthcoming legislature.

The first is a bill which would provide for a constitutional amendment, striking out the fifty per cent limitation on the

assessment of benefits locally for taking private property for public improvements, and the other is a bill for controlling under the power of eminent domain, the location of buildings, or other structures within the bed of streets once they have been set apart as such on a street plan. The passage of bills covering both of these matters is of the utmost importance for the proper and effective carrying out of the City Plan.

## CHAPTER XVII

## Comprehensive Plan and Program

**The Need of a Comprehensive City Plan**

The whole City Plan is divided into subjects or chapters for the purpose of this report. The matters treated in various chapters have not been studied separately. Each has been studied in connection with all of the others, as a part of the common Plan. All of the parts of this Plan are interrelated, so that studying any one part separately is liable to give an incomplete, or even false, impression.

It now becomes important to see how the various parts of the Plan interweave and where there is bound to be a certain amount of give and take for the common good.

Almost at the beginning of the study, a tentative City Plan was made on which each detailed recommendation was indicated, so that its rightful place in the general scheme could be determined. This tentative City Plan Map, with the completion of the studies, became a final City Plan Map, on which is indicated every recommendation of the whole report that can be indicated graphically. No change should be made in any part of the Plan without checking back to see how it affects the rest of the Comprehensive Plan.

**Order of Urgency**

The carrying out of the City Plan should not increase the normal expenditure of municipal funds. The yearly budget is more or less fixed and limited, whether the funds be derived from the tax levy or from bond issues. The usual policy in nearly every city is to struggle along from hand to mouth and year by year, patching here and there, and doing those things, and usually only those things on which the taxpayers insist most strongly. As a rule in all cities it is customary for the strongest demand to secure the earliest satisfaction. In fact, it is difficult to do

otherwise, unless there are means at hand of showing the public just where each particular demand fits into a general plan and program for a fully rounded out development of the community.

It should be of the greatest advantage to city officials, to be able to show to a petitioner the exact relation of his demand to the other parts of a complete program for the city's development, and just when, logically, his demand should be taken up. There is, therefore, the utmost need of such a scheduled program for public improvements extending over a long period of years.

In each chapter of this Report, and for each part of the City Plan, the relative urgency of the proposed improvements is indicated, and in most cases, approximate dates of undertaking the improvements are stated. On the School and Play-yard; Thoroughfare and Parkway; and Trolley and Bus Tables, the order of urgency is worked out in great detail.

The study of these tables and proposed dates of execution, shows at a glance that there is a certain limited number of items that calls for immediate attention, and it is that immediate list that is made the subject of the next chapter, entitled "Immediate Program to Meet Deficiencies."

The execution of the rest of the proposals is grouped by five or ten-year periods, spread over a range of fifty years.

In general the proposals are so distributed that there can be no abnormal burden on the taxpayer in any given five or ten year period.

If Cincinnati should fail to grow as rapidly as the prognostication in Chapter I would seem to warrant, then the program of execution would be retarded correspondingly. On the other hand, if Cincinnati should have an unexpected boom, then the program could be readily acceler-

ated. Of course, the exact date allotted to any specific improvement is open to change. At best it is only the relative time of execution that can be planned for now.

In general, the conclusions embodied in this Report can be divided into two main classes as follows:

1. Those matters which affect the control of the character and intensity of use of private property, all of which can be controlled by ordinance or law.
2. Those matters which have to do with the acquisition or improvement of property for public use, all of which involve more or less expense to the city.

All of the matters which affect the use of private property can and should be taken care of immediately by the City

Council, especially as they can all be handled virtually without expense to the city or the taxpayers. These matters include the following:

1. Building Zone Ordinance (already enacted).
2. Amendments to the Building Ordinance (already enacted).
3. Fire districts amended to conform with the Building Zone Ordinance.
4. The revision of traffic regulations.
5. Billboard and advertising device regulations.
6. Overhanging street sign regulations.

As far as the City Planning Commission is concerned, and in accordance with the powers and duties delegated to it by the



THE "BASIN" FROM THE SOUTHEAST

City Charter, it should take care immediately of the following matters:

1. The official adoption of the City Plan (already adopted).
2. The adoption of rules and regulations for controlling the layout of plats and subdivisions (adopted).
3. The expansion of its functions as a Municipal Art Jury.

With regard to the improvements for which the city must pay, the immediate expenditure is limited as is described in detail in the Citizens' Survey Report.

All of the public improvements and the other features of the Plan that must be carried out within the next five years are listed and described in the following chapter, "Immediate Program to Meet Deficiencies." These immediate needs, are also listed in detail on the borders of the City Plan Map.

With regard to all of these proposals, everything possible should be done to live up to the program as here presented, so that the city will never find itself anywhere stifled or throttled by inadequate public services. If it is found to be impossible for Cincinnati to execute this program on schedule and thereby keep abreast of its growth, then it will be obvious that the Smith One Per Cent Law and the other financial restraints are doing far more harm than good, and should be modified as may be necessary to meet the changing conditions.

#### The Metropolitan Plan

In studying this Report it must surely be evident that the Comprehensive Plan

cannot be cut off sharply at the purely arbitrary political boundaries of the city. The physical, the economic and the social problems of Cincinnati extend beyond these imaginary lines, just as though they did not exist. The problems of the whole tributary region are one, and in any study must be treated as one. Therefore, as permitted by the State law and as directed by the City Charter, this Comprehensive Plan includes the whole region directly tributary to Cincinnati. Therefore, the City Plan is really a metropolitan, or regional or county Plan, and to a certain extent, especially in matters of circulation, includes the adjacent area on the Kentucky side of the river as well.

#### Mobility of the City Plan

Obviously the City Plan cannot be made once and for all. Conditions are constantly changing. It is impossible to foresee today just how conditions are going to develop 25 and often even 10 years hence. Therefore, it should be understood that the City Plan as described in this report is not fixed and unchangeable, but rather is plastic and capable of change by the City Planning Commission and the City Council, whenever and wherever changing conditions demand. However, a Plan once made continues in spirit, if not in detail. It becomes the duty of the City Planning Commission, with the help of the City Departments and any other bodies and individuals interested, to preserve the continuity of intent through the decades.

## CHAPTER XVIII

### Immediate Program to Meet Deficiencies

During the last decade public improvements in Cincinnati have not kept up with the city's growth. This is largely due to the tax limitation imposed by the Smith One Per Cent Law and also to the inability of cities in Ohio to assess for lands appropriated for public use to the same extent as is done in other states. The most urgent matter before the city today is to catch up with its growth. The problem is to see how the City Council and other cooperating bodies can secure remedial financial relief, and in the meantime provide the greatest amount of effective relief consistent with the City's finances.

In the complete City Plan Program, the execution of the proposed improvements is to be spread over a period of about 50 years. However, a comparative study of the complete list shows that some are more urgent than others, while the sifting out of the more urgent shows that there are a certain limited few that should be undertaken immediately. It is this latter group only that is considered in this emergency program.

All of the various elements of the complete City Plan may for convenience be divided into two main classes:

1. Everything that has to do with the control by the city or State of the character and intensity of use of private property. This includes the Building and Zoning Ordinances, fire districts, subdivision control and traffic regulations.
2. Everything that has to do with the construction in or physical development of public lands or structures, such as streets, parks, playgrounds, public buildings, water supply, sewage disposal, etc., including many semi-public utilities and properties.

The first class which has to do with the control of private property can be dealt with simply by the passage of ordinances or regulations, usually under the police power, without compensation by the city to the owner, it being understood that the police power can be used only where necessary for the common good, and where it works no unreasonable hardship on individual property owners.

Thus, as there are various ways in which private property can and should be regulated immediately in the interest of the common welfare, and as it can be done without expense to the city, it is highly desirable that the necessary steps should be taken right away to carry this part of the City Plan Program into effect. These matters are as follows:

#### Platting Rules

Rules and regulations for the control of subdivisions not only within the city limits, but for three miles outside, should be adopted by the City Planning Commission, as provided by law.

#### Thoroughfare Park and Public Open Grounds Map

A map showing all proposed primary and secondary thoroughfares, parkways, reservations, parks, playfields and other open public spaces, not only within the city, but for three miles outside, should be officially adopted by the City Planning Commission as provided by law, and all subdivision plats as submitted for record should be made to conform to this map and to the above-mentioned rules and regulations.

#### City Engineer's Details of Thoroughfare Map

On the adoption of the Thoroughfare Park and Public Open Grounds Map, the City Engineer should be instructed to determine the details of the location of each thoroughfare, parkway and public open space as fast as needed by the city or by property owners affected, always subject to the approval of the City Planning Commission.

#### Amendments to Zoning Ordinance and Map

The Building Zone Ordinance and Map should be amended in the near future to incorporate the improvements that the experience of nearly a year of operation has shown to be desirable.

#### Fire Limits and Blocked Squares

The Building Ordinance should be amended so that the fire limits and "blocked squares" may be simplified and made to conform with the business and industrial districts of the Zoning Ordinance.

#### Controlling Building in Mapped Streets

The city and the citizens of Cincinnati should strongly uphold proper legislation providing for the control of building within the bed of mapped thoroughfares and parkways, so that the city will not be obliged to pay unduly for private improvements within the bed of the streets when ready to physically open them, always having in mind the protection of the rights of owners of private property.

#### Raising the Tax Limitation to the Average of American Cities

If Cincinnati is going to properly care for its public services, it must support bills presented to the Ohio State Legislature providing for an increase of the tax limitation in Ohio cities to at least the average current in other States.

#### Raising the City Bonding Limit

The city and the citizens of Cincinnati should support bills providing for raising the bonding limit of the city to the average limit provided in other States, excluding from such limitation bonds issued for publicly controlled utilities that are self-supporting.

#### Traffic Regulations

The city should adopt immediately the complete new scheme of traffic and parking regulations described in detail in Chapter V. and Chapter IV. of this City Plan Report, and as fast as it is practicable to repave the roadways, the latter should be widened at the expense of the sidewalks, as indicated in these Chapters.

#### Trolley Re-Routing

Whenever the city adopts the scheme of traffic regulations proposed in Chapter V. of this City Plan Report, the Traction Company should re-route the street cars in the downtown district as proposed in detail in Chapter VI. of this City Plan Report.

#### Trolley or Bus Extension to Bond Hill

Transit service should be given immediately as far as Regent Avenue, Bond Hill. When it is practicable to remove the grade crossing over the B. & O. tracks, a trolley extension would be desirable. Otherwise, for the time being, a bus extension as a feeder for the trolley line should be installed.

#### Advertising Signs Projecting Over Streets

In the interest of fire fighting and orderly appearance, the Building Code should be amended to provide that no advertising sign shall project over any public street and that the size of marquees and canopies should be restricted to cover only the entrance served.

#### Controlling Billboards

Ordinances should be adopted in the interest of public safety and morals,

drastically controlling billboards and sign boards, as they are now being controlled so effectively in Massachusetts.

#### The City Planning Commission as an Art Jury

Every public building and structure and street fitting of every sort should be submitted, as provided by law, to the City Planning Commission for approval as to location and design. Thus only can the orderly appearance of the city be safeguarded.

#### A Regional or County Planning Commission

Immediate steps should be taken toward the creation of a regional or county planning commission, as provided by law, like those recently provided around Cleveland and Toledo, for the common planning of the whole region tributary to Cincinnati.

#### Annexation Versus Regional Co-operation

It is highly desirable that a Citizen's Committee representing all of the political units in the Cincinnati district should consider for each local community, whether annexation or regional co-operation is to the best interest of all concerned.

#### Building Lines

The principle of establishing building lines a number of years ahead of actual physical widening of streets should become established in Cincinnati, and for all streets that must be widened for traffic purposes within 15 or 20 years, building lines should be established now.

#### Pay-As-You-Go Policy

The commendable pay-as-you-go policy should be confined strictly to repairs and renewals, and should not be extended to permanent improvements or new construction, as experience shows that in the long run the pay-as-you-go policy imposes a much heavier burden on the taxpayer than

does the policy of the placing of serial bonds limited to less than the life of the improvement.

#### Excess Condemnation

The principle of condemning land in excess of the actual requirements should be considered for each new public improvement, to see whether it will probably be financially profitable to the city to take advantage of it.

#### Subdivision Art Juries

All subdividers should be encouraged to impose the control of an architect or an art jury on all buildings and structures erected within their holdings.

#### Street Associations

The various existing street associations, and others that should be formed, should endeavor by every means to secure harmony and order in the development of their streets by interesting themselves in the appearance of each proposed building or structure.

#### Sidewalk Protection Structures

All structures built over sidewalks to protect them during the construction of buildings should be made decorative as well as practicable, and be free from all advertising and signs, and the design should be passed upon by the City Planning Commission.

#### News Stands

News stands in the public ways and streets should be prohibited.

#### Street Lighting and Other Fixtures

The design of all new types of street lighting and other street fixtures should be passed upon by the City Planning Commission in the interest of uniformity, simplicity and order.

#### Burying Wires

The present policy of burying wires and removing poles from streets should be pushed as fast as practicable, and trolley poles in the down-

town district should be removed and the trolley suspension wires attached to the front walls of the buildings.

#### Street Shade Trees

Either a street shade tree commission should be appointed, or the Board of Park Commissioners should act as a shade tree commission to aid and encourage, especially on parkways and residential streets, the planting and maintenance of good shade trees. All subdividers should be required to plant trees on all residence streets.

#### Historical Sites

Historical societies and local improvement associations should be encouraged to properly mark every historical site in the city.

#### Union Passenger Station

The city should do everything within its power to aid and encourage the private development of a union passenger station for Cincinnati.

#### Improving Freight Handling Facilities

The city should encourage in every way possible, the expansion of the motor truck transfer business already so well under way, and should also encourage the routing of incoming shipments to local stations nearest the consignee. It should also encourage the creation of railroad freight by passes on the Kentucky side of the river to relieve the freight congestion south of Fourth Street, Cincinnati.

#### PHYSICAL IMPROVEMENTS

In addition there are various matters of extreme urgency that should be undertaken by the city, despite the fact that they will demand an actual outlay of money. These immediately necessary matters are as follows:

#### Park and Playfield Improvements and Maintenance

As it is obvious that the large investment of the city in its public parks and

playfields is going to waste through lack of proper improvements and maintenance of the parks and playfields, it is of the utmost importance that a reasonable sum of money, at least as large as that expended by the average city of the size of Cincinnati, should be available immediately and continuously, to allow for the improvement and maintenance of these open spaces so that they can become fully useful and their present deterioration stopped.

#### Duck Creek Parkway

The development of Duck Creek as a parkway should be undertaken immediately, as within a few years it will be too late and its development can only be undertaken at prohibitive cost.

#### Richmond Street Park

As there is an outstanding need for a park and playfield near West Richmond Street of about three acres, it should be acquired immediately.

#### Twelfth District Grammar School Playground

The school that is most urgently in need of extra playground space is probably the Twelfth District Grammar School. At least one-half acre of playground should be added immediately.

#### Anderson Ferry School

The present two-room grammar school at Anderson Ferry should be abandoned right away and the pupils should go to the nearest other existing school.

#### Roadway Paving and Widening

A considerable sum of money should be set aside immediately for paving the roadways of those thoroughfares that are the most heavily traveled and needed most urgently. Wherever in Chapter V. or Chapter IV. of this City Plan Report it is proposed that the roadway should be widened on repaving, such widening should be undertaken without fail.

McMillan Street should be repaved 40 feet wide instead of 25 feet, from Vine Street to Auburn Avenue.

#### Kellogg Avenue Extension to Stanley Avenue

Kellogg Avenue should be immediately extended one block west to Stanley Avenue at its present width of 60 feet.

#### Fifth Street Building Lines

Building lines should be placed on Fifth Street from Main Street to Broadway so as to widen it eventually from 66 to 88 feet, or preferably 100 feet.

#### County Thoroughfares

No stopping of any sort should be allowed on any paved roadway of any county thoroughfare, and hard earth shoulders should be provided at least every 300 feet, to take care of parking and stopping demands. As fast as repaving is undertaken, each roadway should be repaved at least 20 feet wide, and all bridges should be rebuilt with at least a 22-foot roadway.

#### A GENERAL BOND ISSUE PROGRAM

In addition to the items listed above, there are a considerable number of improvements that are urgently needed in Cincinnati and the surrounding district. With the financial condition of the city as it is at present, and with the limitation on expenditures now imposed by law, little could normally be done to satisfy these urgent needs before 1930, but all of them should be undertaken by that date at latest.

However, if the citizens of Cincinnati should find it desirable, and should provide the means of floating a large bond issue to cover all immediate necessary improvements, the following items should be considered as an essential part of such a program: (It would be assumed in such a case that all of the improvements, local or otherwise, proposed in the above immediate program, had already been put into effect, otherwise they should be at the head of the bond issue list.)

#### Thoroughfares

Every thoroughfare that manifestly needs repaving before 1930 should be included in this list, together with such roadway widening as may be proposed

in the Thoroughfare Improvement Table which accompanies Chapter IV. of this City Plan Report.

All parking and traffic regulations proposed in the Thoroughfare Improvement Table and in Chapter IV. and Chapter V. of this City Plan Report, should be put into effect immediately or within the next few years at latest.

In addition to the above general improvements, the following specific thoroughfare improvements should be undertaken by 1930 at latest:

Blue Rock Street roadway widened from 22 to 28 feet.

Calhoun Street should be extended 60 feet wide, with a 40-foot roadway from Vine Street to Auburn Avenue.

Columbia Avenue from Kemper Lane to Stanley Avenue should be increased from 60 to 66 feet wide and the roadway increased to 48 feet.

Colerain Avenue roadway should be widened to 20 feet wherever narrower.

Cummins Street roadway should be widened from 21 to 28 feet.

A new street should be built from Columbia Avenue to Taft Road and to Torrence Road, 60 feet wide with a 40-foot roadway.

Eastern Avenue should be extended to Martin Street 60 feet wide with a 40-foot roadway.

Eighth Street Viaduct roadway should be increased from 36 feet to at least 56 feet on reconstruction. Eighth Street roadway should be widened to 60 feet on to State Avenue.

Erkenbrecker Avenue or Albany Avenue should be extended by a viaduct to Ludlow Avenue.

Florence Avenue roadway should be increased from 36 to 40 feet.

Gest Street should be widened and extended to at least 60 feet with a 40-foot roadway and a viaduct with a roadway of the same width should be constructed to Warsaw Avenue.

Julia Ann Avenue should be extended from McMicken Avenue to Ludlow Avenue 60 feet wide with a 40-foot roadway.

Kenton Street should be widened from 50 to 60 feet and its roadway from 30 to 36 feet.

Kemper Lane up to Columbia Avenue should be widened from 50 to 66 feet and its roadway from 24 to 48 feet.

Lebanon Pike roadway should be increased where narrower, to 20 feet.

Liberty Street roadway should be widened to 36 feet west of Broadway.

McMillan Street from Grandview Avenue to Taft Road should have its roadway increased to 40 feet where narrower.

Runnymede Avenue should have its roadway increased from 30 to 36 feet, and it should be extended to Beekman Street 60 feet wide with a 40-foot roadway.

Seventh Street should be extended from Carr Street to Harriet Street 60 feet wide with a 40-foot roadway.

Spring Grove Avenue from Colerain Avenue to Hamilton Pike, should be increased from 60 feet to 90 feet, and its roadway from 40 to 58 feet.

Torrence Road should be extended in a straight line from Columbia Avenue to Eastern Avenue 50 feet wide with a 30-foot roadway and the upper part of the street above the bend should be widened from 40 feet to 60 feet and the roadway from 30 feet to 40 feet.

Vine Street from Clifton Avenue to Corry Street should have building lines imposed, widening it from 60 to 84 feet.

Vine Street from McMicken Avenue to Clifton Avenue should be completely widened from 66 to 84 feet and the roadway from 40 to 58 feet.

Eighth Street from Elm Street to Central Avenue should have its roadway widened from 27 to 36 feet.

Gladstone Avenue should be widened from 50 to 66 feet, and its roadway from 18 to 48 feet, and it should be extended in the same way to Collard Street.

Martin Street should be increased from 50 to 60 feet in width and its roadway from 28 to 40 feet in the lower part and to 48 feet in the upper part. It should be extended to Eden Park Reservoir 50 feet wide with a 30-foot roadway.

Ninth Street should be widened from 33 to 66 feet from Broadway to Sycamore and its roadway increased from 18 to 46 feet.

Pike Street, and Fourth Street from Pike to Lawrence Street should have their roadways widened from 30 to 40 feet.

Third Street Viaduct should be built from Pike Street over Eggleston Avenue 60 feet wide, with a 40-foot roadway and Third Street continued south of its present location to Martin Street 60 feet wide with a 48-foot roadway and a sidewalk on one side. From Martin Street to Collard Street it should be extended from 50 to 66 feet in width and the roadway from 27 to 48 feet. From Collard Street to Eastern Avenue it should be increased from 50 to 60 feet and the roadway from 27 to 40 feet.

#### Parkways

Wherever any street designated as a parkway on the Thoroughfare, Park and Public Open Grounds Map and the City Plan Map is manifestly in need of paving by 1930 at latest, it should be repaved with a hard, smooth surface of the width specified in Chapter X of this City Plan Report, and as indicated on the City Plan Map, and every endeavor should be made to plant the borders of the street with good shade trees and grass strips.

#### Park Reservations

As described in detail in Chapter X of the City Plan Report, the following park reservations should be completed or acquired and developed as follows:

Mount Airy Forest should be completed by adding the several hundred acres necessary to round out its development to the north and east.

Caldwell Park should be completed by adding the proposed land to the north and west.

Waterworks Park at California should be completed by adding the proposed land along the waterfront.

Kroger Hills Park should be completed by adding the proposed land to the north, west and south.

The proposed Rapid Run Reservation should be acquired, at least in part.

The proposed Sycamore Reservation should be acquired, at least in part.

#### Scenic Parks

The lands which have outstanding scenic possibilities are rapidly being spoiled by private developments. If these are to be preserved for future generations, a start should be made immediately toward acquiring them. To that end the Board of Park Commissioners should be enabled to undertake the acquisition of the following:

The Promenade Park around Mount Adams.

The parks which serve as "Jewels in the Crown" of the northern hills.

The extension of Alms Park down the hill to the south and east.

The extension of Mount Echo Park down the hill to the south, west and north.

Lick Run Park and Parkway.

Turkey Ridge Park extension.

#### Neighborhood Parks and Playfields

Among the many needed neighborhood parks and playfields, the following stand out as those most urgently necessary on account of lack of available facilities in the neighborhood, even today. If they cannot be acquired entirely with the funds available, at least a nucleus should be obtained.

Dayton Street Park, opposite Bloom School.

Park of six acres, south of Eighth Street, near Fairbanks.

Bond Hill Park and playfield of nine acres.

Euclid Avenue Park, near the General Hospital.

Oakley Park of nine acres, near Madison Avenue.

#### Athletic Field

The House of Refuge property on Colerain Avenue should be developed, if necessary by popular subscription, as the public athletic field, especially for inter-scholastic games.

#### Camping

Reasonable provision for automobilists, for Boy Scouts, Girl Scouts and other campers, should be made in all of the proposed reservations.

#### Schools

The following public school improvements should be undertaken in the near future by the School Board:

A new grammar school in Silverton with eight rooms and two acres of land.

Reconstruction of the old Pleasant Ridge Grammar School with eight rooms.

To the Lincoln Grammar School add two acres of play-yard space.

To the Fulton Grammar School add .2 of an acre of play-yard space.

To the Cummins Grammar School add one acre of play-yard space.

To the Evanston Grammar School add eight rooms.

To the Columbian Grammar School add one acre of play-yard space.

To the Twenty-Third District School add three acres of play-yard space.

To the Fairview Grammar School add 1.6 acres of play-yard space.

To the Sands Grammar School add 1.5 acres of play-yard space.

To the Raschig School add one acre of play-yard space.

To the Sixth District Grammar School add .5 of an acre of play-yard space.

To the Morgan Grammar School add .75 of an acre play-yard space.

To the Oyler Grammar School add eight rooms, replacing four colony rooms.

To the Whittier Grammar School add four rooms and replace the present colony buildings by a play-yard.

#### Central Public Library

A new central public library should be erected, preferably between Washington Park and Central Parkway, and the present site abandoned and sold.

#### Public Markets

The East Court Street and the Pearl Street public markets should be abandoned and the other three public markets continued as they are today.

#### Open Air Theater

A popular open air theater should be laid out in a park or at the top of the hill near Fairview Avenue, for all sorts of popular gatherings that can be held out-of-doors.

#### Street Name Signs

A good modern type of street name sign should be installed on every street corner in the city.

#### Central Garbage Incinerating Plant

The land should be acquired in the Mill-creek Industrial "C" district or adjacent to it, to the extent of at least six acres, as a site for a central municipal garbage incinerating plant to be available when the need presents.

#### East Price Hill Subdivision

The property owners in the East Price Hill location should jointly subdivide the unimproved land between East Price Hill and Fairmount, as proposed in Chapter III of this City Plan Report.

#### Union Passenger Station Approaches

The city should co-operate in the extension and widening of Gest Street and in

the construction of the Gest Street Viaduct to Warsaw Avenue, and in the vacating and widening of such other streets as may be in the vicinity of the proposed union passenger station.

#### Relieving Freight Congestion

The city should co-operate in such changes in street locations and grades and street vacations as may be necessary in connection with the railroad approaches for by-passing through freight and for the creation of central freight terminals and new or enlarged local freight stations.

#### Trolley Rerouting

The traction company should undertake the following rerouting of street cars:

The Warsaw Avenue line should be extended to Cheviot over Bridgetown Pike and Glenmore Avenue.

The College Hill line should be rerouted over Hopple Street Viaduct via Beekman Street, Runnymede, Chase and Hamilton Avenues.

The Sixth Street line should be rerouted similarly to Cumminsville and the Colerain Avenue line should then be abandoned.

The Madisonville line should be rerouted via Delta Avenue and Eastern Avenue.

All left hand turns, and some right hand turns, should be eliminated at Pebbles Corner, as proposed in Chapter VI. of this City Plan Report.

At the north end of Gilbert Avenue Viaduct the car tracks should be moved eight or ten feet to the west.

#### Bus Routes

A bus route should be encouraged from North Fairmount to Westwood via Baltimore Avenue and Montana Avenue repaved.

An Oakley-Carthage bus route should be encouraged from Madison Avenue trolley line over Marburg, Ridge and Pleasant Ridge Avenues and Galloway Road and its extension to Carthage Pike.

A bus line should be encouraged from Westwood through Cheviot along the North Bend Road, Colerain Pike, West

Fork Road and Baltimore Avenue to Cumminsville and North Fairmount.

A Westwood-Cleves bus line should be encouraged over the Bridgetown-Cleves Pike.

#### CONCLUSION

While the above recommendations do not cover all the matters actually needed at the present time, they do cover the most urgent ones. Of course, in addition there is the current necessary work of

the Sewer Department, the Water Department, the Street Department and of various other departments and boards, which should be continued according to schedule.

Together these matters give a reasonably complete program of work which should be undertaken as a unit if the city would effectively round out its growth. It cannot be urged too strongly that the city should undertake this program immediately.



## APPENDIX A

## Program: A Citizen's City Planning Committee

With the official adoption of the Comprehensive City and Regional Plan and Program, a Citizens' City Planning Committee can be of great service. The actual making and adoption of the Plan can be done only by the official Planning Commission, but no plan on paper is fully effective until it becomes a Citizens' Plan. This means that back of it must be the active and enthusiastic support of the citizens generally. The Commission is by law a creative and not a propagandist body.

Most emphatically a Citizens' Planning Committee should undertake a program of education somewhat as follows:

1. Study the Emergency and Complete City Plan Reports.
2. Make constructive suggestions to the City Planning Commission for the modification of any of the proposed improvements, or for any further improvements.
3. Interest component societies and groups in the City Plan.
4. Induce the component groups to make constructive suggestions for the improvements of the Planning Program.
5. Follow up the Emergency Program to Meet Deficiencies with the City Planning Commission and the City Council.
6. Appoint delegates to bring active support to each public hearing or conference.
7. Organize a Regional, County or Metropolitan Plan Committee and Commission to co-ordinate planning endeavor throughout the whole area tributary to Cincinnati.
8. Support actively any bills presented at Columbus where they improve City Planning procedure.

In order to get the Plan and Program before the public, the following methods are suggested as possibilities that should be considered:

1. Articles constantly in the newspapers.
2. Publication of leaflets or dodgers to be widely distributed.
3. Publication of easily read pamphlet reports on various phases of the Plan.
4. Lectures and talks on the Plan before all groups that should be interested.
5. Profuse use of lantern slides illustrating the salient features of the Plan.
6. Motion pictures of city plans before and after.
7. Exhibition of photographic enlargements of the various features of the Plan.
8. Expose in shop windows downtown attractive pen and ink or colored perspectives of striking features of the Plan.
9. Employ cartoons with regard to the City Plan currently in the newspapers.
10. Distribute a large number of postcards, with views of the Plan.
11. Distribute widely striking posters calling attention to the salient features of the Plan.
12. Organize a permanent exhibit of the City Plan in one of the libraries or museums, or possibly the City Hall.
13. Organize a traveling exhibition of the City Plan that can be shown in every part of the city.
14. Organize pageants or floats, or both, to explain graphically the value of the Plan.

15. Prepare small scale models of the more striking features of the Plan, and exhibit them in downtown windows.

16. Prepare animated models of the City Plan's salient features, in order to attract the eye of the passerby.

17. Organize photographic competitions for the most strikingly good, or bad, City Planning result.

18. Organize a competition in the newspapers for the best articles on City Planning suggestions.

19. Organize competitions for original planning ideas with prizes.

20. Organize competitions for planning suggestions among school children.

21. Organize competitions among the various societies and groups.

22. Offer prizes for the best looking business fronts.

23. Offer prizes for the best looking streets.

24. Offer prizes for the best private yard layout.

25. Offer prizes for the best subdivision layout.

This program will probably mean the appointment of several committees, one of which would handle publicity and publications; another take care of lectures, with lantern slides or motion pictures; another take care of exhibitions of various drawings, photographs and maps on City Planning. Another committee might take care of offering prizes for photographic suggestions, while another might deal with the schools, and feature the City Plan in the school civic courses.

If, owing to the Smith One Per Cent and other abnormally restrictive Ohio laws, it should be found that it is impossible to bring Cincinnati's development to where it ought to be, without floating a large bond issue for improvements, then a Citizens' Planning Committee should take upon itself the responsibility of fostering and assuring such a bond issue.

The Plan must become active and a real force in the community. The keynote of this is co-operation—constant working together to a common end—in fact, it is the only means by which the citizens of Cincinnati can carry out their Plan and make the City grow in an orderly way.

## APPENDIX B

## ORDINANCE

## To Regulate and Restrict and Limit the Uses and Location of Buildings and Other Structures, etc.

AN ORDINANCE No. 71-1924. To regulate and restrict and limit, in the interest of the public health, safety, convenience, comfort, prosperity and general welfare, the uses and the location of buildings and other structures and of premises to be used for trade, industry, residence or other specified uses, the height, bulk and location of buildings and other structures hereafter erected or altered, including the percentage of lot occupancy, set-back building lines and the area of yards, courts and other open spaces; and for said purposes to divide the city into zones or districts of such number, shape and area as are deemed best suited to carry out the said purposes; and to provide a method of administration and to prescribe penalties for the violation of the within provisions, by ordaining supplementary Sections 452-5 to 452-96, inclusive, and by repealing Sections 452, 452-1, 452-2, 452-3, 452-4 and 530 of the Code of Ordinances of the City of Cincinnati.

BE IT ORDAINED by the Council of the City of Cincinnati, State of Ohio:

Section 1. That the Code of Ordinances of the City of Cincinnati be supplemented by ordaining supplementary Sections 452-5, 452-6, 452-7, 452-8, 452-9, 452-10, 452-11, 452-12, 452-13, 452-14, 452-15, 452-16, 452-17, 452-18, 452-19, 452-20, 452-21, 452-22, 452-23, 452-24, 452-25, 452-26, 452-27, 452-28, 452-29, 452-30, 452-31, 452-32, 452-33, 452-34, 452-35, 452-36, 452-37, 452-38, 452-39, 452-40, 452-41, 452-42, 452-43, 452-44, 452-45, 452-46, 452-47, 452-48, 452-49, 452-50, 452-51, 452-52, 452-53, 452-54, 452-55, 452-56, 452-57, 452-58, 452-59, 452-60, 452-61, 452-62, 452-63, 452-64, 452-65, 452-66, 452-67, 452-68, 452-69, 452-70, 452-71, 452-72, 452-73, 452-74, 452-75, 452-76, 452-77, 452-78, 452-79, 452-80, 452-81, 452-82, 452-83, 452-84, 452-85, 452-86, 452-87, 452-88, 452-89, 452-90, 452-91, 452-92, 452-93, 452-94, 452-95 and 452-96; said supplementary Sections to constitute Title III-A, Building Zone Code, Chapter I, and to read as follows:

### Districts

Section 452-5. For the purposes of this ordinance the City of Cincinnati is hereby divided into eight classes of districts as follows:

Residence "A" Districts.  
Residence "B" Districts.  
Residence "C" Districts.  
Business "A" Districts.  
Business "B" Districts.  
Industrial "A" Districts.  
Industrial "B" Districts.  
Industrial "C" Districts.

The boundaries of these districts are hereby established as shown on the Building Zone Map which accompanies, and is hereby made a part of this ordinance. Except where references on said map to a street line or other designated line by dimensions shown on said map, the district boundary lines are intended to follow lot lines as they existed at the time of the enactment of this ordinance; but where a boundary line obviously does not coincide with lot lines, or where it is not designated by dimensions, it shall be deemed to be 120 feet from the nearest street line parallel to which it is drawn. All questions concerning the exact location of boundary lines shall be determined according to rules and regulations which may be adopted by the Board of Appeals as hereinafter provided.

Section 452-6. Except as hereinafter specified in Sections 452-25 to 452-28, both inclusive, no building, structure or premises shall be used and no building or part thereof or other structure shall be erected, reconstructed, enlarged or altered contrary to the regulations herein specified for the district in which such premises, building or structure is located; provided that nothing in this ordinance shall require the change of the use made of a building or premises at the time of the enactment of this ordinance or of the then existing height, set-back building line, yards or courts.

### Lots

Section 452-7. No lot of an area of 3,500 square feet or less shall be occupied by more than one principal building or establishment and the accessory buildings customarily incident to it.

Section 452-8. An alley, for the purposes of this ordinance, is any public or private street, square, lane or way less than 20 feet wide.

Section 452-9. A street, for the purposes of this ordinance, is any public or private street, square, lane or way set aside as a permanent right of way for street purposes, and 20 feet or more in width.

Section 452-10. No lot shall contain any building used as a residence unless such lot abuts on at least one street, or unless there is an unobstructed easement of access at least 15 feet wide to such street.

Section 452-11. A street lot line, for the purposes of this ordinance, is a line dividing the lot from a street.

Section 452-12. The rear line of any irregular, triangular or gore lot shall, for the purposes of this ordinance, be a line entirely within the lot,

ten feet long and parallel to and at the maximum distance from the street line.

Section 452-13. A corner lot, for the purposes of this ordinance, is any lot abutting upon intersecting streets at their intersection or upon two parts of the same street at their intersection and where such intersection forms an interior angle of less than 135 degrees.

Section 452-14. The depth of a lot, for the purposes of this ordinance, except as hereinafter specified, is the average length of all lines within the lot parallel with a line drawn from the mid-point of the street lot line through the center of area of the lot to the opposite rear line of the lot.

Section 452-15. The width of a lot, for the purposes of this ordinance, is the average length of all lines within the lot perpendicular to the line from the mid-length of the street lot line through the center of area.

Section 452-16. Lots or portions of lots, for the purposes of this ordinance, shall be deemed back to back where they have a common lot line or part thereof opposite on both lots to street lines which make an angle with each other of 45 degrees or less.

Section 452-17. Where at the time of enactment of this ordinance three-quarters of the lots on both sides of the street within a block front are less than 50 feet wide, the provisions of this ordinance shall be applied to the remaining property within said territory as though, at the time of the enactment of this ordinance, such remaining property had been divided into lots of the average width of the said three-quarters, except that no lot shall be deemed to be less than 25 feet in width.

### Residence "A" District Uses

Section 452-18. In any Residence "A" District no building, structure or premises shall be used or arranged or designed to be used in any part except for one or more of the following specified uses:

(1) A detached dwelling for only one family or for one housekeeping unit, living and entering independently of any other family or unit.

(2) The taking of boarders or the leasing of rooms by a resident family, provided, however, that space for one roomer be allowed in any case and space for one additional roomer for each 150 square feet of floor area by which the total floor area of the building exceeds 600 square feet.

(3) The office of a resident professional person.

(4) Public libraries, public art galleries and public museums.

(5) Churches and other places of worship.

(6) Schools, parks and municipal playgrounds, only as hereinafter provided in Section 452-18 (12).

(7) Clubs, lodges, social, recreational and community center buildings; parish houses and grounds for games or sports, except those a chief activity of which is carried on or is one customarily carried on primarily for gain, only as hereinafter provided in Section 452-18 (12).

(8) The growing of vegetables, fruits, flowers, shrubs and trees; and the keeping of chickens and small live stock, not primarily for gain, and only within an enclosure distant at least ten feet from all lot lines.

(9) A private garage on the same lot with or in the building to which it is accessory and in which garage no business or industry is conducted. Space for one non-commercial motor vehicle may be rented to persons not resident on the same lot. Garage space may be provided for two motor vehicles on any such lot. Garage space for one additional motor vehicle may be provided for each 2,000 square feet of area by which such lot area exceeds 4,000 square feet; provided that a garage for more than five vehicles shall be at least 50 feet from every lot line. Only one commercial motor vehicle not exceeding one and one-half tons weight or capacity may be stored on such lot; this does not apply to farms. The above provision shall apply to private stables, one horse being considered as the equivalent of one motor vehicle. No part of any such garage or stable shall be used for residence purposes, except that domestic employees of the owner, lessee or occupant of the principal building and the family of any such employee may have quarters in such garage or stable.

A neighborhood or community garage is permitted subject to the following restrictions: No part of such garage shall be within 100 feet of any street or within 30 feet of any other lot line, and the front of such garage shall not be within 60 feet of any lot line not a street line; no commercial repair service shall be done; all services and selling facilities for supplies shall be within the building and shall be only for the use of owners and tenants of such garage; no entrance or exit for vehicles shall be within 200 feet of any entrance or exit of any church, public library, school, playground or institution for the care of the sick or dependents located on either side of the same street; such garage is permitted only by resolution of the Board of Appeals, according to rules and regulation adopted by it after written consents have been filed with the Board of Appeals signed by all the owners of all lots adjoining the lot in question and also by the owners of 75 per cent of the frontage of all other lots, any part of any one of which is within 300 feet of the proposed structure within the same square, and of the lots within 300 feet directly across any street on which the garage has an entrance or exit. Owners of such lots as are put to a similar or non-conforming use shall be considered as having consented.

(10) Real estate signs advertising the sale, rental or lease of only the premises on which they are maintained and not over 10 square feet in area on a lot 50 feet or less in width. For each 10 feet by which the width of the lot exceeds 50 feet, one square foot may be added to the above 10 square feet. Such signs shall set back from the street line at least a distance in feet equal to the number of square-foot area of the sign, but in no case less than 20 feet. No sign shall be required to set back

from the street line more than 100 feet. No sign shall exceed an area of 250 square feet.

(11) Accessory uses, customarily incident to the above permitted uses, and located only on the same lot with them, including small announcement or professional signs not over one square foot in area, except that public, charitable or religious institutions may have an announcement sign or bulletin board not over six square feet in area for their own use. Such accessory buildings may be erected on the lot before a principal building, but where accessory buildings or structures are erected ahead of the principal building, on the same lot, they shall be so placed on the lot as not to prevent the eventual practicable and conforming location of such principal building. Except as permitted above, "accessory uses" shall not include any use customarily carried on as a business or industry, any driveway or walk giving access thereto, any display visible from the street of goods such as are made or sold, any billboard, or advertising signboard or sign.

(12) Any school, playground, club, lodge, social, recreational or community center building or parish house or grounds for sport shall be located only adjoining another such use previously existing or adjoining premises in a Residence "C" District not used for residence purposes, or adjoining a Business or Industrial District, or on a lot bounded on all sides by streets or alleys or other public open spaces or on three sides by streets, or adjacent to a use existing at the time of the enactment of this ordinance, permitted only in Residence "C" or Business or Industrial Districts. The provisions of this sub-section (12) shall not apply to such buildings or playgrounds located more than 100 feet from any lot line or to farming or undeveloped territory. The character of such territory shall be determined according to rules and regulations adopted by the Board of Appeals.

#### Residence "B" District Uses

**Section 452-19.** Within any Residence "B" District, no building, structure or premises shall be used or arranged or designed to be used in any part except for one or more of the following specified uses:

(1) Any use permitted and as regulated by Section 452-18 in Residence "A" Districts, except that one roomer shall be permitted for each 150 square feet of floor area by which the total floor area per family exceeds 600 square feet.

(2) A detached dwelling for not more than two families or two housekeeping units, or a double dwelling for not more than two families or units on each side of a party wall common to both halves of such building. A group of row houses of not more than eight units, for one or two housekeeping units each, provided that all rooms of such structure shall be adequately lighted by openings directly either on the front yard or the rear yard. The height of such row houses shall not exceed three stories and there shall be a permanent easement of access at least three feet wide to the rear of each interior house.

(3) Customary home occupations carried on in the residence of the occupant and not in any accessory building, provided that not more than one-half of the floor area of one story is devoted to such uses.

(4) The keeping of live stock in farming or undeveloped territory and the growing of produce; provided that no mechanical or heating equipment shall be within 50 feet of any lot line.

(5) Hospitals, dispensaries, sanitariums and other welfare or charitable institutions other than penal or correctional institutions and those primarily for the care or treatment of epileptics or drug or drink addicts or the insane, provided no part of any such building is located within 50 feet of any lot line.

(6) Boarding schools and dormitories, not primarily for transient guests.

(7) Municipal buildings or properties. Telephone exchanges and transformer stations without moving machinery, provided there no service yard or garage except as permitted below in sub-section (11).

(8) Cemeteries, including any crematory therein.

(9) Railroad or public service passenger stations, including accessory services therein, and right of way, not including switching, storage or freight yards or sidings.

(10) A detached apartment house or tenement house, or a hotel or lodging house for any number of guests, but not primarily for transient guests, including accessory services therein, provided that no building, regardless of height, can have an aggregate gross area of all floors, greater than 115 per cent of the total area of the lot in question, not including basements and unenclosed porches which are not intended for residence purposes. Restaurants and such facilities as are required for the operation of a hotel or apartment house, or for the use or entertainment of guests or tenants of the hotel or apartment house, when conducted and entered only from within the building; provided no window or other display or sign is used to advertise such use.

(11) A private garage on the same lot with or in the building to which it is accessory and in which no business or industry is conducted. Garage space may be provided for two motor vehicles on any such lot; garage space for one additional motor vehicle may be provided for each 1,500 square feet of area by which such lot area exceeds 2,500 square feet, provided that a garage for more than five motor vehicles shall be at least 20 feet from the side and 10 feet from the rear lot lines. Only one commercial motor vehicle, not exceeding one and one-half tons in weight, or capacity, may be stored on such lot; this does not apply to farms. The above provision shall apply to private stables, one horse being considered as the equivalent of one motor vehicle. The above provisions in this sub-section shall not prevent the erection of a garage to provide one space for each apartment in any building as such existed at the time of enactment of this ordinance.

A neighborhood or community garage is permitted subject to the following restrictions: No part of such garage shall be within 50 feet of any street or within 20 feet of any other lot line, and the front of such garage shall not be within 40 feet of any lot line not a street line; no commercial repair service shall be done; all services and selling facilities for supplies shall be within the building and shall be only for the use of owners and tenants of such garage; no entrance or exit for vehicles shall be within 200 feet of any entrance or exit of any church, school, public library, playground or institution for the care of the sick or dependents, located on either side of the same street; such garage is permitted only by resolution of the Board of Appeals, according to rules and regulations adopted by it after written consents have been filed with the Board of Appeals signed by all the owners of all lots adjoining the lot in question and also by the owners of 75 per cent of said frontage of all other lots, any part of any one of which is within 150 feet of the proposed structure within the same square and of the lots within 150 feet directly across any street on which the garage has an entrance or exit. Owners of such lots as are put to a similar or a non-conforming use shall be considered as having consented.

(12) Accessory uses, customarily incident to the above permitted uses, and located only on the same lot with them, including small announcement or professional signs not over one square foot in area, except that public, charitable or religious institutions may have an announcement sign or bulletin board not over six square feet in area for their own use. Such accessory buildings may be erected on the lot before a principal building, but where accessory buildings or structures are erected ahead of the principal buildings, on the same lot, they shall be so placed on the lot as not to prevent the eventual practicable and conforming location of such principal building. Except as permitted above, "accessory uses" shall not include any use customarily carried on as a business or industry, any driveway or walk giving access thereto, any display visible from the street of goods such as are made or sold, any billboard, or advertising signboard or sign.

(13) The Board of Appeals shall have the power to reduce the lot line distance requirements of Section 452-19 (5) as to such lot lines which separate properties occupied by the uses listed in that sub-section from each other or from a Residence "C," a Business or Industrial District, but may not reduce the dimensions below those required for open spaces in Residence "B" Districts.

#### Residence "C" District Uses

**Section 452-20.** Within any Residence "C" District, no building, structure or premises shall be used or arranged or designed to be used in any part except for one or more of the following specified uses:

(1) Any use permitted and as regulated by Section 452-19 in Residence "B" Districts.

(2) Hotels, dormitories, boarding houses and lodging houses, including accessory services therein and for each such building an exterior announcement sign not over six square feet in area.

(3) A private garage on the same lot with or in the building to which it is accessory, and in which no business or industry is conducted. Garage space may be provided for two motor vehicles on any such lot; garage space for one additional motor vehicle may be provided for each 1,200 square feet of area by which such lot area exceeds 2,000 square feet, provided that a garage for more than five motor vehicles shall be at least ten feet from the side and five feet from the rear lot lines. Not over two commercial motor vehicles, not exceeding one and one-half tons in weight, or capacity, may be stored on such lot; this does not apply to farms. The above provision shall apply to private stables, one horse being considered as the equivalent of one motor vehicle. The above provisions in this sub-section shall not prevent the erection of a garage to provide one space for each apartment in any building as such existed at the time of enactment of this ordinance.

A neighborhood or community garage is permitted subject to the following restrictions: No part of such garage shall be within 30 feet of any street or within ten feet of any other lot line, and the front of such garage shall not be within 20 feet of any lot line not a street line; no commercial repair service shall be done; all services and selling facilities for supplies shall be within the building and shall be only for the use of owners and tenants of such garage; no entrance or exit for vehicles shall be within 200 feet of any entrance or exit of any church, school, public library, playground or institution for the care of the sick or dependents, located on either side of the same street; such garage is permitted only by resolution of the Board of Appeals, according to rules and regulations adopted by it.

(4) No building in any Residence "C" District shall have an aggregate gross area of all floors greater than 275 per cent of the total area of the lot in question, not including basements and unenclosed porches which are not intended for residence purposes.

(5) Accessory uses, customarily incident to the above permitted uses, and located only on the same lot with them, including small announcement or professional signs not over one square foot in area, except that public, charitable or religious institutions, may have an announcement sign or bulletin board not over six square feet in area for their own use. Such accessory buildings may be erected on the lot before a principal building, but where accessory buildings or structures are erected ahead of the principal building, on the same lot, they shall be so placed on the lot as not to prevent the eventual practicable and conforming location of such principal building. Except as permitted above, "accessory uses" shall not include any use customarily carried on as a business or industry, any driveway or walk giving access thereto, any display visible from the street of goods such as are made or sold, any billboard, or advertising signboard or sign.

**Business "A" District Uses**

**Section 452-21.** Within any Business "A" District no building, structure or premises shall be used or arranged or designed to be used in any part for any of the following specified uses:

(a) Any use specified in Section 452-23 (a) and 452-23 (b) as prohibited in Industrial "A" and "B" Districts and any of the following specified uses:

Acetylene gas manufacture in excess of 15 pounds pressure per square inch.

Ammonia manufacture except for use on premises.

Asbestos manufacture.

Babbitt metal manufacture.

Blast furnace.

Boiler shops, structural steel fabricating shops, steel car or locomotive shops, railway repair shops, metal-working shops operating reciprocating hammers or chisels or other noise-producing electric or pneumatic tools.

Brewing or distilling of liquors.

Brick, tile or terra cotta manufacture.

Bronze powder manufacture.

Coke ovens or distillation of coal.

Crematory except in a cemetery.

Cupola or metal melting furnace.

Disinfectant or insecticide manufacture, or preparation or compounding on a commercial scale.

Enameling, japanning or lacquering, except where incidental to minor repair operations in a retail store or garage or where used in jewelry manufacture.

Electroplating, except incidental to a retail store and under conditions approved by the Board of Appeals.

Excelsior and fiber manufacture.

Felt manufacture, except where dust is not allowed to escape from the building.

Flour milling.

Foundry or forge shop, except where a necessary incident to a permitted principal use.

Gas manufacture of more than 5,000 cubic feet per day.

Gasoline or oil storage above the ground in quantities exceeding 150 gallons.

Lime or lime products manufacture.

Match manufacture.

Ore reduction or the smelting or corrosion of lead.

Paint, oil, shellac or enamel manufacture or the grinding of colors by machinery.

Potash refining.

Printing ink manufacture.

Pulp or paper manufacture.

Radium extraction.

Raw or green salted hides or skins, their curing, dressing or tanning.

Rolling mill.

Salt works.

Soap, soda ash, caustic soda, or washing compound manufacture.

Smelting of copper, tin, zinc or aluminum ores.

Starch, glucose or dextrine manufacture.

Stone or monument works, using power tools, or rock crusher.

Storage, baling or treatment of junk, iron, rags, bottles or scrap paper.

Storage of any sort to a height of over three feet above the ground, except where surrounded by a tight fence at least five feet high.

Sugar refining.

Tar or asphalt roofing or water-proofing manufacture.

Vinegar manufacture.

Wire or rod drawing, nut, screw or bolt manufacture, blooming or rolling mill.

Wool pulling, or scouring or shoddy manufacture.

Yeast manufacture.

(b) Any other industry or use, which creates corrosive, toxic or noisome fumes, gas, smoke or odors or obnoxious dust or vapor or offensive noise or vibration, except that such may be permitted by the Board of Appeals, as provided in Section 452-83, in accordance with rules and regulations adopted by it, provided it is a necessary accessory of a conforming use.

(c) Any other fabricating, manufacturing, treating, converting, altering, finishing or assembling. But such uses may be carried on provided that not more than 25 per cent of the total floor space of the building is actually occupied by mechanical equipment, including the adjacent space used primarily by the machine operator; and in the aggregate does not exceed the equivalent of the entire ground floor area.

(d) Any structure not against a wall of a building, used as a billboard or an advertising signboard, that has less than two feet of clear space under it, between it and the ground, or is at any point higher than 12 feet above the ground level, or that is longer than 25 feet, or that is distant less than six feet from any other structure, or from any lot line, or less than two feet from any billboard, or that is not well lighted both front and rear all night. Any skysign that sets back less than five feet from the wall on a street front, or that projects more than 25 feet above the roof of a building, or that has a space of less than six and one-half feet in height between the bottom of the sign and the roof.

(e) Any public garage using more than seven and one-half horsepower for driving machine tools.

Any public garage having in the side or rear walls or roof any opening, except fixed wire glass sashes in non-combustible frames within 15 feet of any lot line not a street or alley line and any part of which is located within 50 feet of any Residence District.

Any stable stabling any horses or storing or handling manure or bedding within 25 feet of any street.

Any garage or stable for more than five vehicles or horses having any entrance or exit for vehicles or horses on the same side of the street within 50 feet of any Residence District or within 200 feet of any school, public playground, church, hospital, public library or institution for dependents or for children, except where such property is on or across an intersecting street on which the lot in question does not abut.

Any gasoline filling, oil or greasing station where any appliance for such purpose is located within twelve feet of any street or within 50 feet of any Residence District, except within a building and distant at least twelve feet from any entrance or exit.

**Business "B" District Uses**

**Section 452-22.** Within any Business "B" District no building, structure or premises shall be used or arranged or designed to be used in any part for any use specified in Section 452-21 (a), (b) and (d) as prohibited in Business "A" Districts, except that:

(a) Any fabricating, manufacturing, converting, altering, finishing or assembling, not included within the prohibitions of Section 452-21 (a) and (b), may be carried on, provided that not more than 50 per cent of the total floor space of the building is actually occupied by mechanical equipment, including the adjacent space used primarily by the machine operator; and in the aggregate does not exceed the equivalent of the entire ground floor area.

(b) Any garage or stable for more than five vehicles or horses shall be permitted where not having any entrance or exit for vehicles or horses on the same side of the street within 50 feet of any Residence District, or within 200 feet of any school, public playground, church, hospital, public library or institution for dependents or for children, except where such property is on or across an intersecting street on which the lot in question does not abut.

**Industrial "A" Industrial "B" District Uses**

**Section 452-23.** Within any Industrial "A" and any Industrial "B" District no building, structure or premises shall be used or arranged or designed to be used in any part, for any of the following specified uses:

(a) Abattoir or slaughter house (except for poultry incidental to a retail store) or stockyards except which are under the control, supervision or inspection of the Bureau of Animal Industry of the Department of Agriculture of the United States of America, or which comply with the standards of such bureau.

Carbon, lampblack or graphite manufacture.

Celluloid or pyroxylyene manufacture or explosive or inflammable cellulose or pyroxylyene products manufacture.

Coal tar manufacture or tar distillation or mineral dye manufacture, except as an accessory to a permitted principal industry and conforming in

their treatment to the best modern practice for the prevention of fumes, smoke, odors and vapors.

Creosote manufacture or treatment.

Emery cloth or sandpaper manufacture.

Explosive or fireworks manufacture or the storage or loading of explosives in bulk.

Fat rendering, or tallow, grease or lard refining or manufacture of candles from fats, except when accessory to a principal use which is under the control, supervision or inspection of the Bureau of Animal Industry of the Department of Agriculture of the United States of America, or which comply with the standards of such bureau.

Fertilizer manufacture from organic material or bone distillation or compounding on a commercial scale, except when accessory to a principal use which is under the control, supervision or inspection of the Bureau of Animal Industry of the Department of Agriculture of the United States of America, or which comply with the standards of such Bureau.

Glucose manufacture.

Glue or size manufacture or processes involving recovery from fish or animal offal or fish smoking or curing.

Gypsum, cement, plaster or plaster of paris manufacture, or manufacture of products therefrom.

Incineration, reduction or dumping of offal, dead animals, garbage, or refuse on a commercial basis, including loading and transfer platforms, except where controlled by the municipality and except for the purification of factory wastes.

Linoleum manufacture.

Nitrating processes.

Oiled cloth or clothing, or the impregnation of any fabric by oxidizing oils.

Petroleum refining.

Poison manufacture.

Rubber, caoutchouc or gutta percha manufacture from crude or scrap material, or the manufacture of articles therefrom or from balata.

Sewage disposal plant, except where controlled by the municipality.

Sulphurous, sulphuric, nitric, picric or hydrochloric or other corrosive acid manufacture, or their use or storage, except as accessory to a permitted industry and under conditions prescribed by the Board of Appeals.

Turpentine, varnish or size manufacture or refining.

Wood distillation.

(b) Any other industry or use, which creates corrosive, toxic or noisome fumes, gas, smoke or odors or obnoxious dust or vapor or offensive noise or vibration, except that such may be permitted by the Board of Appeals, as provided in Section 452-83 in accordance with rules and regulations adopted by it, provided it is a necessary accessory to a conforming use.

(c) Any garage or stable for more than five vehicles or horses having any entrance or exit for vehicles or horses on the same side of the street

within 50 feet of any Residence District or within 200 feet of any school, public playground, church, hospital, public library or institution for dependents or for children, except where such property is across an intersecting street on which the lot in question does not abut.

**Industrial "C" District Uses**

**Section 452-24.** Within any industrial "C" District nothing in this ordinance shall prevent any use of any building, structure or premises.

**Existing Non-Conforming Uses**

**Section 452-25.** Any building, structure or use existing at the time of the enactment of this ordinance may be continued, even though such building, structure or use does not conform with the provisions of this ordinance for the district in which it is located. Such existing non-conforming use may be hereafter extended throughout any parts of a building which were manifestly arranged or designed for such use at the time of enactment of this ordinance. No building or premises containing a non-conforming use shall hereafter be extended unless such extension shall conform with the provisions of this ordinance for the district in which it is located, except as hereinafter provided. No building, structure or premises with regard to which a non-conforming use is abandoned or is superseded by a use permitted in the district in which it is located shall again be devoted to any use prohibited in such district.

**Section 452-26.** In specific cases, after due notice and public hearing, the Board of Appeals, in accordance with rules and regulations adopted by it, may permit, as prescribed in Sections 452-78, 452-79, 452-80, 452-81, 452-82, 452-83, 452-84, 452-85, 452-86, 452-87 and 452-88, a substitution for or an extension to non-conforming uses existing at the time of enactment of this ordinance, but not both a substitution and extension, except that in any Residence District no change shall be permitted to any use prohibited in any Business District, and in any Business District no change shall be permitted to any use prohibited in any Industrial "A" or "B" District.

**Section 452-27.** Any non-conforming building or structure damaged by fire, flood, earthquake or act of God, unless substantially destroyed, may be reconstructed and used as before such calamity. Nothing in this ordinance shall prevent the strengthening or restoring to a safe condition of any part of any building declared unsafe by the Commissioner of Buildings, or compliance with the lawful requirements of the Commissioner of Buildings.

**Section 452-28.** Any lot abutting any public street in any Residence "B" or "C" District may be used for any purpose permitted in Business "A" Districts, whenever such lot, not more than 50 feet wide, is located immediately between lots which, at the time of enactment of this Ordinance, are occupied by buildings used primarily and principally for purposes not permitted herein in any Residence District and which uses cover at least 25 per cent of the respective lot areas.

**Heights**

**Section 452-29.** In any Residence "A" District no building or structure shall exceed three stories in height. The average distance of all parts of such building over 40 feet in height shall be distant from any lot line at least one foot for each three feet of total height.

**Section 452-30.** No building or structure in any Residence "B" District shall exceed eight stories or 100 feet in height, and in any Residence "C" District ten stories or 120 feet.

**Section 452-31.** In any Business "A" or in any Industrial "B" or "C" District, no part of any building or structure shall be higher than ten stories or 141 feet.

**Section 452-32.** In any Business "A" District no part of any building or structure shall be erected on the street lot line to a height in excess of one and one-half times its horizontal distance from the opposite side of each street on which the lot abuts, provided that no street shall for this purpose be considered to be less than 50 or more than 94 feet wide; in Industrial "B" and "C" Districts such ratio shall be increased to two times the street width, provided that no street shall for this purpose be considered to be less than 50 nor more than 70.5 feet wide; in Business "B" and Industrial "A" Districts, to four times the street width, provided that no street for this purpose shall be considered to be less than 50 nor more than 66 feet wide.

**Section 452-33.** The parts of any building or structure which exceed the height allowable on the street line shall set back or step back from the street line at the ratio of one foot for each three feet of such excess height in Business "A" Districts. This ratio shall be one foot for each four feet in Industrial "B" and "C" Districts, and one foot for each five feet in Business "B" and Industrial "A" Districts.

**Section 452-34.** The provisions of Sections 452-29, 452-30, 452-31, 452-32 and 452-33 shall not apply to church spires, belfries, cupolas, domes, water towers, observation towers, windmills, chimneys, smokestacks, derricks, conveyors, flag poles or aerials.

**Section 452-35.** The provisions of Sections 452-29, 452-30, 452-31, 452-32 and 452-33 shall not apply to a parapet wall extending not more than four feet above the limiting height of the building on which it rests. No cornice shall project in front of any street lot line more than five feet in any case.

**Section 452-36.** In Residence "C" and in Business and Industrial Districts, the provisions of Sections 452-29, 452-30, 452-31, 452-32 and 452-33 shall not apply to bulkheads, elevator pent houses, water tanks, monitors and scenery lofts occupying in the aggregate not more than 25 per cent of the area of the lot, or in lineal dimensions not more than 50 per cent of the street lot line frontage of the lot most nearly parallel thereto. On a corner lot such 50 per cent shall apply to both street lot lines.

**Section 452-37.** In Business and Industrial Districts the provisions of Sections 452-29, 452-30, 452-31, 452-32, 452-33, 452-34, 452-35 and 452-36 shall

not apply to towers, including monuments, fire towers, hose towers, cooling towers, grain elevators or gas holders occupying not more than 25 per cent of the area of the lot and distant not less than 25 feet in all parts from any lot line not a street lot line; and distant at least as far from the center line of any street as the width of the tower measured parallel to the street lot line.

**Section 452-38.** The height limitations of a wider street shall govern for a distance of 120 feet along a narrower intersecting street measured at right angles to such wider street, provided that such 120 feet be within the same district.

**Section 452-39.** Where the street frontage of buildings existing at the time of enactment of this ordinance within 50 feet on either side of or directly across the street from a proposed building exceed the height regulations of this ordinance, the proposed building or structure may be erected to the average height, weighted by such frontage, of such existing building.

**Section 452-40.** For the purposes of Section 452-29 to 452-39, inclusive, the "height" of a wall or structure or of a part of a building is the mean vertical distance from the average established grade in front of the lot, or from the average natural grade at the building line, if higher, to the average height of the top of the cornice of flat roofs, or roof line, or to the deck line of a mansard roof, or to the mid-height of the highest gable or dormer in a pitched or hipped roof, or, if there are no gables or dormers, to the mid-height of a pitched or hipped roof. Where a lot faces on two or more streets or alleys of different average established grades in front of the lot, the higher of such grades shall control only for a depth of 120 feet perpendicularly back from the street lot line of the higher street or alley. On a corner lot the height is the mean vertical distance from the average established grade or from the average natural grade at the building line if higher, on the street of greatest width, or if two or more such streets are of the same width, from the highest of such grades. The lowest story or the ground story or first story of any building is the lowest story, whose floor is not more than three feet six inches below the average contact ground level at the exterior walls of the building, such ground level to be at the top of any areas, except that any basement used for residence other than for a janitor or caretaker or his family, shall be deemed the ground or first story. A mezzanine story shall be deemed a full story where it covers more than 50 per cent of the ground story area.

**Set-Back Building Lines**

**Section 452-41.** In any Residence District, no part of any story of any building shall be nearer to the street lot line of any street on which it faces than the average set-back alignment of the corresponding parts of stories of existing buildings within the same district, within 200 feet on each side of it on the same side of the street and within the same square; but if there are less than two houses within such distance, the average alignments of corresponding stories of two or more

existing buildings within 200 feet on each side of a frontage directly across the street from the lot in question shall govern; but, except as hereinbefore provided, no story of any building shall, under the above provisions, be required to set back more than 30 feet from any street lot line. On a corner lot, the street frontages which are not opposite to the rear lot line, as prescribed in Sections 452-7 to 452-17, inclusive, shall be exempt from the provisions of this Section 452-41.

**Section 452-42.** Except as hereinafter provided, where a building in any Residence "A" District is not controlled by Section 452-41, it shall set back within a building line 30 feet from the street lot line, except that ground story parts of the building may project ten feet in front of such building line.

**Section 452-43.** Except as hereinafter provided, where a building in any Residence "B" or "C" District is not controlled by Section 452-41, it shall set back from the street lot line at any given story level within the following set-back building lines:

Stories	Setback in Residence "B" Districts	Setback in Residence "C" Districts
1	12 ft.	10 ft.
2	20 "	10 "
3	20 "	10 "
4	26 "	14 "
5	32 "	17½ "
6	38 "	21 "
7	44 "	24½ "
8	50 "	28 "
9		31½ "
10		35 "

**Section 452-44.** No fence or planting shall be maintained within 20 feet of any corner street lot line intersection so as to interfere with traffic visibility around the corner. No part of any accessory building, within 25 feet of a side lot line of an adjoining lot in a residential district shall project in front of the set-back building line required for any building on such adjoining lot, except that in the case of a narrower corner lot where such regulation would give an impracticable depth to a private garage or stable, such garage or stable shall be erected entirely within 25 feet of the interior side lot line of the corner lot which is approximately parallel to the street on which the above adjoining lot abuts; but in no case shall any part of such garage or stable be within less than five feet of any street lot line.

**Section 452-45.** The above provision shall not apply to front fences or walls not over six feet high above the average natural grade, and terraces, steps, uncovered porches, or other similar features not over three feet high above the level of the floor of the ground story and distant five feet from each lot line.

**Section 452-46.** No part of any building used for residence purposes, except for a caretaker, in any Business or Industrial District, shall be within less than 15 feet of the center line of any street or alley, or any right of way or easement of access used by more than one family.

**Section 452-47.** Where a lot runs through the block from street to street, a set-back building line, as specified in Sections 452-41 to 452-50, inclusive, shall be required on each street.

**Section 452-48.** No building shall be required in any case to set back from the street lot line a distance any greater than the set-back of that one of two existing buildings on the immediately adjoining lots on either side which is farthest from the street line, except for such parts of the building as may be higher than either of such adjoining buildings.

**Section 452-49.** Private garages, as regulated above in Section 452-18 (9), other accessory buildings and signs shall set back within the above set-back building lines, except that where the natural level of the ground at such set-back building line is over eight feet above the average established or natural grade of the abutting street, such garages, other accessory buildings and signs may be within not less than five feet of the street lot line, provided that no floor level of any such garage or accessory building be more than one foot above such street grade.

**Section 452-50.** In the case of a narrow corner lot or of any shallow or irregular lot existing as such at the time of enactment of this ordinance, or of any steeply sloping lot, where conformity with the provisions of Sections 452-42 to 452-45, inclusive, in addition to the other requirements of this ordinance, would make it difficult to erect a practicable building, in accordance with the rules and regulations adopted by the Board of Appeals, as provided in Sections 452-78 to 452-88, inclusive, it may allow such building to project nearer to any street lot line than is specified in Sections 452-41 to 452-49, inclusive, provided that the amount of such projection shall be added to the required depth of the rear yard.

**Rear Yards**

**Section 452-51.** In every Residence District there shall be a rear yard the full width of every lot.

**Section 452-52.** In Residence "A" Districts the least depth of any rear yard shall be at least 25 feet behind a one-story building or a one-story rear projection, and at least 30 feet behind a two or three-story building or a two or three-story rear projection.

In Residence "B" and "C" Districts the least depths of any rear yard at the levels of the lowest window sills of the various stories shall be as follows:

Stories	Residence "B"	Residence "C"
	Districts rear yard, least depth	Districts rear yard, least depth
1.....	20 ft.	15 ft.
2.....	25 "	20 "
3.....	25 "	20 "
4.....	30 "	24 "
5.....	35 "	28 "
6.....	40 "	32 "
7.....	45 "	36 "
8.....	50 "	40 "
9.....	44 "	44 "
10.....	48 "	48 "

**Section 452-53.** In Business "A" and Industrial "B" Districts there shall be a rear yard the full width of every lot. A non-residence building on a corner lot or on such parts of any other lot as may be back to back with such corner lot or such parts of any lot as may be within 50 feet of any street lot line, and a ground story on any lot not used for residence purposes may cover the whole lot up to a height of 25 feet above the established or the natural grade which controls the height of the building. The least depths of rear yards at the levels of the lowest window sills of the various stories shall be as follows:

Stories	Residence buildings, solely, rear yard least depth	Non-residence solely, rear yard least depth
	1.....	15 ft.
2.....	20 "	10 "
3.....	20 "	15 "
4.....	24 "	18 "
5.....	28 "	21 "
6.....	32 "	24 "
7.....	36 "	27 "
8.....	40 "	30 "
9.....	44 "	33 "
10.....	48 "	36 "

The depth of the rear yard behind any upper story used for residence purposes in a non-residence building shall be at least five feet deeper than above prescribed for a non-residence building.

**Section 452-54.** The rear yard depths specified in Sections 452-51, 452-52 and 452-53 are measured perpendicularly to the rear lot lines or to the center of an alley or a railroad right of way, bordering the rear of the lot. For each foot by which a lot at the time of enactment of this ordinance is less than 120 feet deep two inches may be deducted from the required depth of the rear yard, provided that no rear yard shall be less than ten feet in depth in any case. In any district no lot shall be so reduced in area after the enactment of this ordinance as to make the rear yard less in depth than is prescribed in Sections 452-51, 452-52, 452-53 and 452-54 for a lot 120 feet in depth.

**Section 452-55.** Chimneys or flues or elevator shafts and connecting hallways may project into a rear yard, provided that they do not obstruct free ventilation. A fire escape, fire balcony or fireproof outside stairway may project not over five feet into a required rear yard. Bays or balconies occupying in the aggregate not over one-half of the width of the rear wall of the building may project not over three feet into a required rear yard, provided that these projections come entirely within planes drawn from either main corner of the rear wall, making an interior angle of 22½ degrees in the horizontal plane with the rear wall. Cornices may project not over five feet into a required rear yard.

**Section 452-56.** In Residence "A" and "B" Districts accessory buildings permitted above shall not occupy in the aggregate more than 25 per cent of the required rear yard area; in Residence "C" Districts not more than 40 per cent, and in Business or Industrial Districts, where a rear yard is required at the ground story level, not more than

50 per cent. In Residence Districts such accessory buildings shall not occupy, in addition, more than 50 per cent of any extra space in the rear of the principal building not in the required rear yard. Such accessory buildings in any Residence District shall not be over 25 feet high, and shall not be within three feet of any lot line except as hereinafter provided. If any part of a garage not in a dwelling is within 60 feet of any street lot line it shall be distant at least ten feet from every lot line intersecting such street that serves as a side lot line to an adjoining property in any Residence District, except that on a corner lot such garage may be erected within not less than five feet of the shorter lot line not a street line.

**Section 452-57.** Except as hereinbefore provided, no building in the rear of a principal building on the same lot shall be used for residence purposes except only for domestic employees of the owners or tenants of the principal building, unless such rear building shall conform to the open space requirements in this ordinance for a principal building, and shall have on the same lot an easement of access at least 15 feet wide unoccupied to a street, in addition to any other open space requirements of this ordinance. Such building shall be not over two stories high and shall not be within 30 feet of any other building not an accessory building.

**Side Yards**

**Section 452-58.** In any Residence "A" District a side yard extending through from the set-back building line to the rear yard is required along each side lot line of each lot. The least width of any side yard shall be five feet for a one-story building or projection and eight feet for a two-story-and-attic building, and ten feet for a three-story building. The average width of any side yard shall be at least one and one-half inches for each foot of the length of the side wall, and if there are two or more such walls which make an angle of less than 45 degrees with the side lot line, the lengths of all such walls shall be added together.

**Section 452-59.** In any Residence "B" District a side yard, extending through from the set-back building line to the rear yard, is required along each side lot line of each lot, except as hereinafter specified. The least width of any side yard at the levels of the lowest window sills of the various stories shall be as follows:

Stories	Side yard, least width
1	3 ft.
2	6 "
3	10 "
4	16 "
5	23 "
6	31 "
7	40 "
8	50 "

The average width of any side yard shall be at least one and one-half inches for each foot of the length of the side wall, and if there are two or more such walls which make an angle of less

than 45 degrees with the side lot line, the lengths of all such walls shall be added together. For each foot by which a lot at the time of enactment of this ordinance is narrower than 50 feet, one and one-half inches may be deducted from the required width of any side yard for a building three stories or less in height, provided that no side yard shall be narrower than two and one-half feet in any case.

**Section 452-60.** In Residence "B" and "C" Districts the Board of Appeals may permit the side yards to be varied so as to permit a driveway, provided that no living, working or sleeping room depends solely for its light and ventilation on an opening only on the narrower side yard. In no case shall the narrower side yard be less than two and one-half feet or less than 10 per cent the width of the lot. The wider side yard shall be twice the required width less the width of the narrower side yard.

**Section 452-61.** In any Residence "C" District a side yard extending through from the set-back building line to the rear yard is required along each side lot line of each lot, except as hereinafter specified. The least width of any side yard at the levels of the lowest window sills of the various stories shall be as follows:

Stories	Side yard, least width
1	3 ft.
2	5 "
3	7 "
4	10 "
5	13 "
6	16 "
7	19 "
8	22 "
9	25 "
10	28 "

The average width of any side yard shall be at least one inch for each foot of the length of the side wall, and if there are two or more such walls which make an angle of less than 45 degrees with the side lot line, the lengths of all such walls shall be added together.

For each foot by which a lot, at the time of enactment of this ordinance, is narrower than 50 feet, one and one-half inches shall be deducted from the required width of any side yard, provided that no side yard shall be narrower than two and one-half feet in any case.

**Section 452-62.** In Residence "B" and "C" Districts one side yard may be omitted entirely where two buildings for not over three families, or house-keeping units each, are erected at the same time on one or more lots with a common wall, or where one such building is erected against an existing wall, and provided that the exterior side of each building shall have a required side yard.

**Section 452-63.** The side yards of the two end units of a row house shall conform to those specified in this ordinance for the District involved for a semi-detached type of dwelling.

**Section 452-64.** In Business and Industrial Districts no side yards are required, but if a side yard is substituted for a required court it shall conform to the provisions of this ordinance for side yards

in Residence "C" Districts and for the purpose of determining its width and the lowest story it is required to serve shall be considered the ground story.

**Section 452-65.** No lot shall be so reduced in area after the enactment of this ordinance as to make the minimum width of any side yard less than that required by this ordinance for lots 50 feet wide.

**Section 452-66.** In any Residence District, a garage may be built across a common lot line by mutual agreement between adjoining property owners.

**Section 452-67.** Within the limits of a side yard, no fence or wall, other than a retaining wall, shall be more than six feet high, unless any part above such height be not more than one-quarter solid and otherwise unobstructed.

**Section 452-68.** Bays, balconies, chimneys, flues and fire escapes may project over a required side yard not more than one-third of the width of the latter, nor more than three feet in any case, provided that these projections come entirely within planes drawn from either main corner of the side wall, making an interior angle of  $22\frac{1}{2}$  degrees in the horizontal plane with the side wall. Cornices, belt courses, leaders, sills, pilasters, lintels and ornamental features may project not more than one foot over a required side yard.

**Section 452-69.** The required width of a side yard may be measured to the center line of any alley which it abuts.

#### Courts

**Section 452-70.** In any district, wherever any room in which persons live, sleep or work, except stores or storage rooms, can not be adequately lighted and ventilated from a street or from a side yard or rear yard as required in Sections 452-51 to 452-69, inclusive, a court conforming with the provisions of Sections 452-70 to 452-75, inclusive, shall be provided, on which such room shall open. All bathrooms and water closets shall open directly on such a court, on a yard or other open space of the size required herein, except in hotels (not a tenement house as defined in the Building Code) and in non-residence buildings. Supplementary bathrooms and water closets in fireproof apartment buildings equipped with power passenger elevators, not including at least one principal bathroom and water closet in each apartment, and all of those for servants, need not open on such required court or open space, provided that each such interior bathroom or water closet shall be ventilated by a method approved by the Commissioner of Buildings. Such court need not extend below the lowest story it is required to serve. An outer court is one which extends to and opens for its full required width on a street, a set-back front yard, or a rear yard. An inner court is any other court. A court or court offset, shallower than the length of its open side, shall be deemed a part of the open space on which it abuts.

**Section 452-71.** In Residence Districts and wherever needed to serve rooms used for residence purposes in any district, no outer court shall be less

than four feet wide, and at any given level every outer court shall be at least three inches wide for each foot of height of such level above the sill of the lowest window served by it. No inner court shall be less than six feet wide and every inner court at any given level shall be at least three inches in size for each foot of height of such level above the sill of the lowest window served by it.

In Business "A" and Industrial "B" and "C" Districts every outer court which serves no rooms used for residence purposes, shall be at least two and one-half inches wide at any given level for each foot of height above the level of the sill of the lowest window served by it, but not less than four feet wide in any case. Every inner court similarly used shall be at least three inches wide for each foot of height, but not less than five feet in any case.

In Business "B" and Industrial "A" Districts there shall be no outer court except opening on a street or other public open space. Such outer court if it serves no rooms used for residence purposes, shall be at least two inches wide at any given level for each foot of height above the level of the sill of the lowest window served by it, but not less than four feet wide in any case. All inner courts which serve no rooms used for residence purposes shall be at least three inches wide for each foot of height, above the level of the lowest sill of the window served by it, but not less than five feet wide in any case, and above the level of the sill of the lowest seventh story window served by it such width shall increase at the rate of two inches for each foot of height.

The width of a court is its least horizontal dimension, including the width of any public open space or alley on which its long side abuts.

No outer court shall be longer than four times its width.

No inner court shall be shorter than two times its width except that such court may be shorter and wider provided that its area is at least the same as that of the required court. In a Business "B" or Industrial "A" District an inner court whose long side borders an alley need be only one and one-half times as long as its required width, or of an equivalent area.

**Section 452-72.** Required courts shall be open to the sky unobstructed, except that cornices, belt courses, sills, leaders, pilasters and ornamental features may project not more than eight inches into such courts, and in a court opening for its full required width or length on a street, and within five feet of the open end thereof, a cornice may project over such court not more than one-quarter of its width and not more than two and one-half feet in any case.

**Section 452-73.** Except a retaining wall, no fence or wall more than one-quarter solid above a height of six feet shall be permitted within the limits of any required outer court.

**Section 452-74.** In any district no accessory building shall be located within any required court.

**Section 452-75.** An inner corner of a court of the minimum required dimensions may be cut off be-

tween walls of the same building, provided that the length of such cut-off wall does not exceed six feet.

#### Enforcements

**Section 452-76.** This ordinance shall be enforced in accordance with the administrative provisions of Title III., Sub-titles I. and VII., of the Code of Ordinances.

**Section 452-77.** All applications for building permits as required by Section 340 of the Code of Ordinances shall be accompanied by plans in triplicate, drawn to scale, showing the actual shape and dimensions of the lot to be built upon, the exact size and location on the lot of the buildings and accessory buildings existing, and the lines within which the proposed building shall be erected or altered, the existing and intended use of each building or part of a building, the number of families or housekeeping units the building is designed to accommodate and such other information with regard to the lot and neighboring lots as may be necessary to determine and provide for the enforcement of this ordinance. One copy of such plans shall be returned to the owner when such plans shall have been approved by the Commissioner of Buildings. All dimensions shown on these plans relating to the location and size of the lot to be built upon shall be based on an actual survey and the lot shall be staked out on the ground before construction is started.

#### Board of Appeals

**Section 452-78.** A Board of Appeals is hereby created. Such Board shall consist of five members, to be appointed by the Mayor. One of these members shall be a member of the City Planning Commission, one a person engaged in the real estate business, one an architect and one a structural engineer. One shall be appointed for one year; one for two years; one for three years; one for four years; and one for five years; and their successors for five years each. The term of the member of the City Planning Commission shall expire at the same time as his term on such commission. A member appointed to fill a vacancy shall serve for the unexpired term.

**Section 452-79.** All meetings of the Board of Appeals shall be public. The Board shall organize annually and elect a President and Vice-President. The Board of Appeals shall act by resolution in which three members must concur. The Zoning Engineer shall act as secretary and shall keep minutes of its proceedings.

**Section 452-80.** The Board of Appeals shall adopt from time to time such rules and regulations as it may deem necessary to carry into effect the provisions of this ordinance and all its resolutions and orders shall be in accordance therewith.

**Section 452-81.** The Board of Appeals shall, in accordance with the provisions hereinafter contained in this section, within ten days hear and determine appeals from any refusal of a building permit by the Commissioner of Buildings where such refusal is for non-compliance with the provisions of this ordinance, or review any order or

decision of such Commissioner, where such order or decision is based upon the requirements of this ordinance.

**Section 452-82.** Where the street or lot layout actually on the ground or as recorded differs from the street and lot lines as shown on the Building Zone Map, the Board of Appeals, after due notice by registered mail to the owners of the property, and public hearing, shall interpret the map in such a way as to carry out the intent and purpose of the ordinance and map for the particular section or district in question.

**Section 452-83.** The Board of Appeals shall have the power, after public notice and hearing, to adopt resolutions permitting any industry or use prohibited in Sections 452-21, 452-22 or 452-23, above, only as an incidental accessory to a conforming principal use on the same lot, subject to such conditions as will safeguard the public health, safety, convenience and welfare, provided also that the entire product of such use is utilized in the principal use to which it is accessory.

**Section 452-84.** The Board of Appeals shall have the power to adopt resolutions granting in undeveloped sections of the municipality, conditional and temporary permits for a reasonable period of time for structures and uses not permitted by this ordinance in the districts in which they are to be located, but which are promotive of the development of sections in such districts.

**Section 452-85.** Where the strict application of any provision of this ordinance would result in undue hardship upon the owner of specific property, or where there is reasonable doubt as to any provision of this ordinance or the maps as applied to such property, the Board of Appeals shall have the power upon application by such owner, and after public hearing, notice of which has been given by publication one time in a newspaper of general circulation seven days in advance thereof, to modify such strict application, or to interpret the meaning of this ordinance so as to relieve such hardship; provided that such modification and interpretation shall remain in harmony with the general purpose and intent of this ordinance, so that the public health, safety, convenience, comfort, prosperity and general welfare will be conserved and substantial justice done; and accordingly within the above limitations the Board of Appeals may permit among others the modifications and interpretations set out in Sections 452-86, 452-87 and 452-88.

**Section 452-86.** The extension of a non-conforming use or buildings upon the lot occupied by such use or buildings at the time of enactment of this ordinance or on a lot adjoining or directly across an alley, provided that such lot was under the same ownership as the lot in question at the time of enactment of this ordinance, and where such extension is a necessary incident to the existing use, and provided that such extension or extensions shall not exceed in all 50 per cent of the reproduction value of the existing buildings and shall in any case be undertaken within five years of the enactment of this ordinance.

**Section 452-87.** The extension of a use or building within the same lot as such lot existed at the time of enactment of this ordinance into a contiguous, more restricted district, but not more than 25 feet beyond the dividing line of the two districts.

**Section 452-88.** The projection of a building in front of the set-back building line only to an extent necessary to secure a building or structure practicable in its construction and arrangement for an exceptionally shallow or irregular lot so existing at the time of enactment of this ordinance, or a steeply sloping lot.

#### Amendments

**Section 452-89.** Any owner of property desiring an amendment of this ordinance changing the shape or area of any district herein created shall proceed by filing with the City Council his petition for such change. Upon receipt of any such petition the Clerk of this Council shall immediately transmit the same to the City Planning Commission with the request for a report to this Council by the Commission upon the proposed change, and for a statement by the Commission as to whether it approves or disapproves of the proposed change and its recommendations.

#### Pending Applications for Building Permits

**Section 452-90.** Nothing herein contained shall require any change in the plan, construction, size or designated use of a building, for which a building permit has been issued before the passage of this ordinance, provided construction, under such permit, shall be started within six months and the ground story frame work including the second tier of beams shall have been completed within one year and the entire building completed within two years after the date of such permit. In cases where foundations, columns and walls existing at the time of the passage of this ordinance were designed to carry extra stories, such extra stories may be erected according to the original plans.

#### Certificate of Occupancy

**Section 452-91.** It shall be unlawful for any person to use or permit the use of any building or premises or part thereof, hereafter created, erected, changed, converted or enlarged, wholly or partly, in its use or structure, contrary to the provisions of this ordinance.

**Section 452-92.** No permit for construction, alteration or addition, shall be issued by the Commissioner of Buildings until he is satisfied that the plans and specifications and intended use conform to the provisions of this ordinance. Any person may apply to the Commissioner of Buildings for a Certificate of Occupancy. The Commissioner of Buildings shall prescribe the form of such applica-

tion and certificate. Each applicant shall pay the sum of \$2.00 to the City Treasurer for such certificate. Such certificate shall only be issued by the Commissioner of Buildings, when the intended use or occupancy conforms to the provisions of this ordinance.

**Section 452-93.** Upon written request from the owner, the Commissioner of Buildings shall likewise issue Certificate of Occupancy for any buildings or premises existing at the time of enactment of this ordinance, after inspection, certifying the extent and kind of use made of the building or premises, and whether such use conforms to the provisions of this ordinance.

**Section 452-94.** A temporary Certificate of Occupancy for a part of a building or premises may be issued by the Commissioner of Buildings, under such rules and regulations as may be established by the Board of Appeals.

#### Violations and Penalties

**Section 452-95.** Whoever violates any of the provisions of Sections 452-5 to 452-94, inclusive, of the Code of Ordinances, or fails to conform to the provisions thereof, or fails to obey any lawful order of the Commissioner of Buildings, issued in pursuance thereof, shall be guilty of a misdemeanor and shall be fined not to exceed \$500.00. Each day's continuance of a violation shall be considered a separate offense.

#### Validity

**Section 452-96.** Should any provision of Sections 452-5 to 452-95, inclusive, be decided by the courts to be unconstitutional or invalid, such decision shall not affect the validity of Sections 452-5 to 452-95, inclusive, as a whole or any part thereof other than the part so decided to be unconstitutional or invalid.

**Section 2.** That original Sections 452-1, 452-4; Sections 452 and 452-2 as amended by Ordinance 227-1923, passed November 27, 1923; Section 452-3 as amended by Ordinance 314-1920, passed August 20, 1920, be and they are hereby repealed.

**Section 3.** This ordinance shall take effect and be in force from and after the earliest period allowed by law.

Passed April 1, A. D. 1924.

FROOME MORRIS, Vice-Mayor.

Attest: FRED SCHNELLER, Clerk.

Approved: GEO. P. CARREL, Mayor,

April 3, 1924.

Approved and adopted as amended and revised, by the City Planning Commission on April 3, 1924.

Attest: C. H. MEEDS,

Executive Secretary and Engineer.

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Large colored maps of the Official City Plan and Regional Plan Map of Cincinnati enclosed in pocket