# Major Street Report

# Des Moines, Iowa

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### CITY PLAN AND ZONING COMMISSION

HARLAND BARTHOLOMEW AND ASSOCIATES CITY PLANNING CONSULTANTS SAINT LOUIS, MISSOURI

December, 1939

### HARLAND BARTHOLOMEW AND ASSOCIATES CITY PLANNERS - CIVIL ENGINEERS - LANDSCAPE ARCHITECTS

317 NORTH ELEVENTH STREET SAINT LOUIS, MISSOURI

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January 4, 1940

City Plan and Zoning Commission Des Moines, Iowa.

Ladies and Gentlemen:

We are pleased to submit herewith our final report upon the revised Major Street Plan for your city. This is a revision of the preliminary report presented in June, 1938, and contains all changes you have made in your eighteen months of study.

The citizens of Des Moines have obtained many advantages from the major street plan prepared in 1924. The majority of the proposals made in this early plan are retained in the accompanying report. Simplifications have been made to more closely adjust the street improvements to the probable future population. Certain variations of the early recommendations have been made because of changed conditions.

In the preparation of this report we have received valuable assistance from city, county, and state officials and also from corporations and individuals. The data regarding vehicular movements that was furnished by the Iowa State Planning Board and by Mr. Harry Stedman, City Traffic Engineer, was most useful. We especially wish to acknowledge the assistance given by Mr. Thorpe Goreham, the Acting City Planning Engineer.

Respectfully submitted,

HARLAND BARTHOLOMEW AND ASSOCIATES By Harland Bartholomew.

## INTRODUCTION

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### INTRODUCTION

There are 643 miles of streets in Des Moines. Some constitute a heritage from the days of the horse and buggy. Many were given to the city by subdividers interested in gaining access to their lots. Some were created by the public at great cost to provide for the flood of automobiles that has descended upon the city in recent decades.

Use of the automobile for local transportation can be expected to increase in the future. Although the number of cars will probably stabilize with the leveling off of the city's population, it will be necessary to develop wide and direct routes to accommodate these vehicles. These wide and direct routes will comprise the major street system and will provide for convenient and direct access from one section of the city to another.

The urban development of Des Moines is widely spread and there is an unusually large area within the corporate limits. Difficult problems result from this condition. A great mileage of streets, sewers, and other physical facilities are necessary to serve the people of the city.

The population studies indicate that residential development should be confined within a reasonably compact area. New growth should move progressively outward rather than to scatter thinly over a large area. There should be no vacant tracts through which the necessary improvements would have to be carried.

### Relation of Major Streets to Population

The major street system has an important influence upon the distribution of population. People desire to live in areas where they can conveniently reach the centers of employment and trade. If wide and direct major streets serve only the areas that should accommodate the future population, the citizens will tend to locate within these sections, whereas, if these wide and direct routes are extended throughout the entire city, and into the surrounding territory, the citizens will scatter indiscriminately over a large area without properly absorbing all portions thereof. The major street system must be adjusted to the future urban area.

The development of a balanced urban area is dependent upon equality of access to the various sections of the city. Des Moines has had an unbalanced growth because certain portions of the city, the southwest for example, have not been as accessible as other areas. The development of a major street system with certain railroad grade separations will aid in correcting this condition.

### Relation of Major Streets to the Central Business District

The business district is the major objective of traffic in the city and is subject to the greatest amount of congestion. Widenings and other similar street improvements are impossible because of intensive development.

The street system must be designed so that traffic can by-pass the central area and move around the periphery of the district. Parking lots and by-pass streets near the boundaries of the business district would relieve congestion.

#### Former Street Plans

Des Moines early realized the advantages of planning street improvements in advance of their construction. The first street planning was sponsored by the town planning committee of the Chamber of Commerce. This body was responsible for the widening of Grand Avenue through the business district, and the opening of Keosauqua Way. These plans were for individual projects. The first plan for a complete major street system was prepared in 1924 as a part of the comprehensive city plan. This plan, with some changes, was adopted by the planning commission and the city council in 1929 and became the official major street plan for Des Moines.

Many important street improvements have been made in accordance with the official plan. Widespread advantages have been derived from these improvements.

### Reasons for a New Street Plan

Cities are now growing at a much slower rate than was anticipated during the last three decades. Older estimates forecast a future population in Des Moines of approximately 500,000 persons. Present estimates indicate an ultimate population of less than one-half of this figure. A different type of urban growth should occur in the future. The older sections must be gradually rehabilitated and rebuilt and new development must be carefully controlled. Major streets must be closely adjusted to future population.

Several public and private improvements have not been made in accordance with the official plan, and make impossible the realization of certain earlier recommendations. For example, the early major street report proposed the extension of Beaver Avenue, and said, "It is imperative that Beaver Avenue be continued diagonally northwest. The opening of this new street would increase property values in the northwest section considerably more than would be necessary to pay for the improvement. The work can never be done at less cost than now." At that time there were only three houses in the bed of this proposed street. Now there are so many improvements in this section that the street could be extended only at prohibitive cost. Also, the new Armory was built at the foot of Des Moines Street directly in the path of a proposed bridge which was an important part of the official city plan. It is now necessary to provide other means of accomplishing the same results.

It is also desirable to review the accomplishments that have been made under the present city plan and to ascertain the extent to which the street improvements are keeping pace with population growth and needs.

### BASIC PRINCIPLES OF URBAN STREET PLANNING

Traffic requirements, public safety, and protection of property value compel development of two types of streets in a city, major and minor. The minor streets are only for access to abutting property and need carry but a small volume of vehicular traffic. They can be narrow and indirect and inexpensively paved. Major streets serve the city as a whole and should carry the majority of vehicular movement. They should be wide and direct.

In the complete major street system there will be three dominant types of routes to accommodate the major vehicular movements of the city. The function of each type of route is as follows:

**Radial Routes.** The first function of a major street system is to accommodate traffic movement between the business district and all other sections of the city. This is accomplished by means of radial streets. These streets are similar to the spokes in a wheel and lead from the business district to all geographic sections. Often they continue beyond the city limits as the main highways and carry through as well as local traffic.

By-Pass or Distributor Routes. Provision must be made for movement around the entire city and around the central business district. Some highway traffic has no desire to pass through or stop within the city. It should be possible for this traffic to skirt the edges of the urban development. Much traffic has no desire to go through or stop within the central business district. It should be possible for such traffic to go around this area.

By-pass streets serve another major function. They act as distributors for local traffic. Traffic can move along such streets easily and rapidly until it reaches the street on which it desires to enter the city or the central shopping district. Travel and turning movements within congested areas can thus be minimized.

**Cross-Town Routes.** The cross-town routes accommodate vehicular movement from one residential section to another or movement between residential and industrial areas. These routes should be continuous and direct throughout the entire urban area.

Experience has indicated that cross-town major streets should be about one-half mile apart in order to be readily accessible to the population and to avoid congestion. However, the population is so thinly spread in the more outlying sections of Des Moines that major streets can here be one mile apart without causing any serious inconvenience.

Superhighways. The development of superhighways, elevated highways, freeways, and the like, is now being discussed and planned in many cities, particularly the larger urban areas. Examples of this type of highway have been constructed. They are particularly successful in undeveloped areas where a wide right-of-way can be secured at reasonable cost. A system of such thoroughfares within a city is exorbitantly expensive. It could only be justified in a very large urban area. If built in Des Moines it would only facilitate the further scattering of the city population. No such system is proposed, although in certain instances, streets are proposed as limited ways or freeways.

### EXISTING STREET SYSTEM

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### EXISTING MAJOR STREETS

Plate Number 1 shows the existing major street system in Des Moines. Except in the northwest portion of the city, a rather good system of radials now is available. However, there are few cross-town streets extending throughout the developed sections. Douglas and Euclid Avenues, East 14th Street, and University Avenue are the only complete cross-town streets within the urban area.

The pavement should be widened eventually on many of the existing major streets, although on a few routes, such as Keosauqua Way, the width is now adequate.

The majority of the well-improved major streets lead to and from the business district. A large amount of cross-town traffic is forced to go through the central area to go from one part of the city to another. This condition, together with the absence of an adequate by-pass route around the retail center accounts for excessive vehicular congestion.

This plate shows the major street improvements that have been made since 1916. Much of the present major street system is the result of improvements made during the past twenty-three years. Outstanding street improvements have been made since 1932 with the assistance of the State Highway Commission and the work relief program of the Federal Government. The improvement of Second Avenue, Euclid Avenue, East 14th Street and University Avenue are among the recent major developments. If a similar amount of street improvements is carried out within the next twenty-one years, Des Moines should have an excellent street system by 1960.

### TRAFFIC FLOW

Plate Number 2 shows the latest traffic flow map for the city of Des Moines. This map was prepared before the University Avenue improvement was completed. Consequently, it does not give an exact picture of the present movement. It does, however, afford a general idea of the relative traffic volumes within the city.

This plan clearly reveals the concentration of traffic upon the radial routes such as Keosauqua Way, Sixth Avenue, and Grand Avenue. The volume of traffic upon Keosauqua Way is an excellent example of how vehicular movement concentrates upon a wide and direct major street. It is obvious that several wide and direct radials will be necessary to serve the city in the future. In contrast with the traffic carried by the radial streets, a relatively small volume is found upon the cross-town routes. The volume of traffic upon Forty-second Street indicates how cross-town routes would be used if available. Improvements in this type of streets are needed in Des Moines.

This plan also indicates the small amount of traffic using the minor streets. Traffic concentrates on wide, direct major streets. The great majority of the city's traffic is found upon a small portion of the total street mileage.

### Vehicular Movement in Central Business District

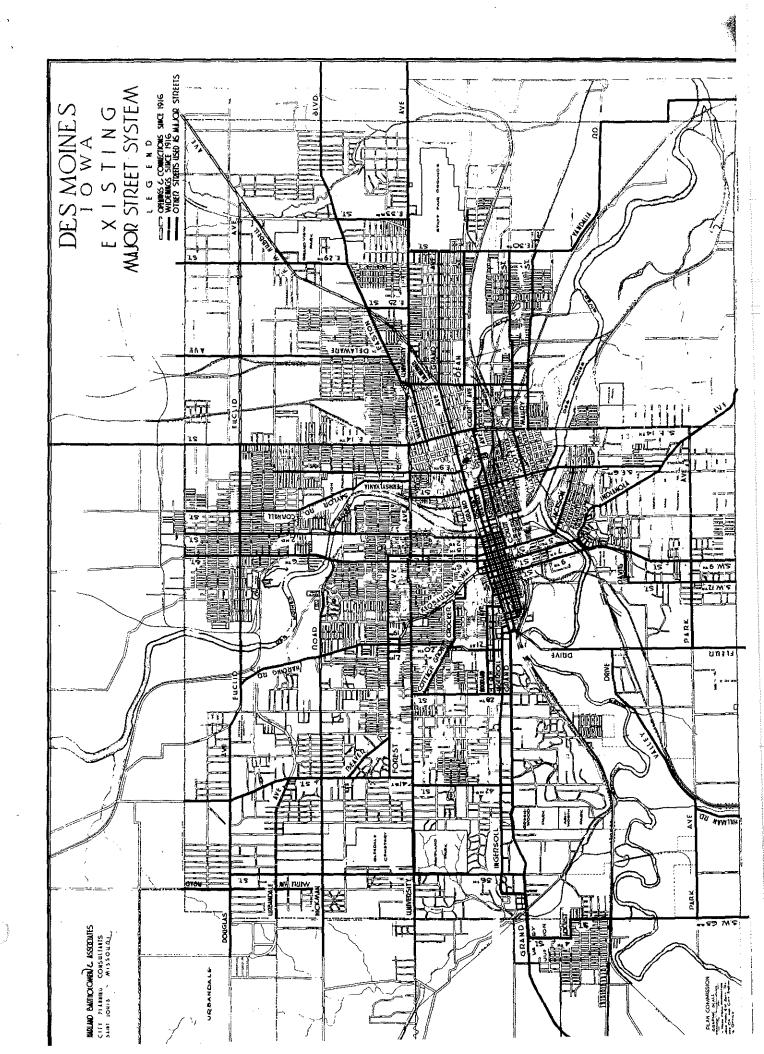
Traffic flow in the downtown area is also shown on Plate Number 2.

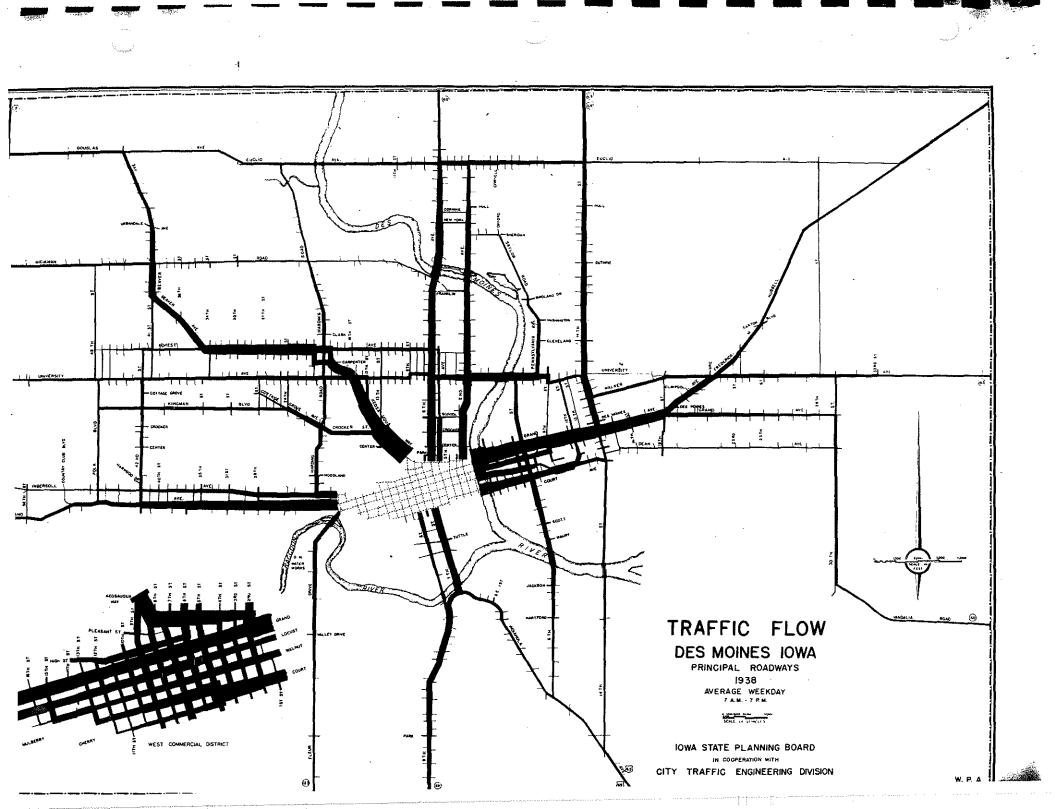
Traffic enters and leaves the business section from fourteen major points. The greatest concentration of traffic is on Keosauqua Way. The second greatest is at Grand Avenue from the east, and the third greatest is at Grand Avenue from the west.

Within the central area, the greatest concentration of traffic is found on Grand Avenue and on Court and Mulberry. The most congested intersection is at Fifth Avenue and Court Avenue.

The central business district of Des Moines is very congested. The majority of the streets within the area are narrow. With the exception of Grand Avenue, 80 feet wide, and Court Avenue, 99 feet wide, the streets have widths of only 66 feet. The blocks are short; the many intersections cause delay and congestion. Contributory causes of congestion are the loading and unloading of street cars with the consequential blocking of traffic movement—double parking, which is not properly controlled —and the use of too much of the narrow street space for parking purposes.

The street design has serious defects. Three of the five east and west streets dead-end in the western part of the business district. This discourages their proper use and concentrates traffic upon the two remaining streets. There are no by-pass streets on the north and west side of the district and traffic is thus congested near the main entry radials.





The Iowa State Planning Board and the City Traffic Department analyzed the amount of traffic that passes through rather than stops within the central business district. Counts were taken on all fourteen major points of entry and departure. Each car was given a carefully calculated time to go through the area and then was checked to see whether or not this car went out of the district, and if so, at what station. Traffic counted as through traffic was not given time to make a minor purchase within the area. The following are the more important findings of this study:

1. Of all the traffic entering the business district on West Grand Avenue between Sixteenth and Seventeenth, 26.15 per cent went directly through the area. Of this total amount of through traffic, 11.63 per cent went directly through and out on East Grand. Of all the traffic entering West Locust Street between Sixteenth and Seventeenth, 22 per cent went directly through the business district and 6 per cent went out on East Court Avenue.

2. Of the traffic entering the area from the east, 37 per cent of the cars on Grand Avenue went directly through the district with 10 per cent of the total leaving on Keosauqua Way. On Locust Street, 23 per cent of the traffic did not stop in the central area and on Walnut Street the through traffic amounted to 17 per cent of the total. One car out of every four that entered on Court Avenue went directly through the district.

3. Of the traffic entering the city from the south, one car out of every three entering on West Fifth Street, West Seventh Street and West Ninth Street did not stop within the central business district.

4. Of the traffic entering the business district from the north, the through traffic amounted to 33 per cent of the total on West Second Avenue; 28 per cent of the total on West Fifth Avenue; 23 per cent of the total on West Sixth Avenue; 25 per cent of the total on Keosauqua Way; and one car out of every four on West Ninth Street.

The occupants of approximately one out of every four moving vehicles within the Des Moines business district had no business to transact within that area. They were forced through the district by lack of adequate cross-town and by-pass routes. Much unnecessary delay and congestion result and the shopping district is made much less convenient for the persons who do desire to use it.

Large expenditures would be fully justified to improve these conditions. The central business district contains one-third of the taxable value of the city. A large portion of the total number of employed persons work within this area. The district attracts a large number of shoppers from the city and from the surrounding trade territory. Unless congestion is eliminated and the area made accessible and convenient, people will trade elsewhere. Stores will move to outlying sections, and property values will depreciate.

### Highway Traffic

Highways within the central portion of Iowa have an important relation to the welfare of the city of Des Moines. The city is the capital of the state and the state's dominant trade center. Additional trade should be encouraged from outlying areas by making it convenient for vehicular traffic to get in and out of the city.

Highways should not go through the central business district as that would only increase congestion. They should, however, go close enough to the district to permit out-of town shoppers to easily reach their destination.

Plate Number 3 shows the existing highways in the Des Moines area and the comparative traffic movement on each highway. The city is fortunate in having good highways leading in all directions to surrounding territory. The development of State Route Number 88 diagonally to Marshalltown is an excellent example of modern highway design. Two recent improvements—the routing of U. S. Number 6 over Euclid and Douglas and routing of U. S. 69 and 65 over East Fourteenth Street—are examples of how highway traffic can be routed through a city without causing excessive congestion, and yet enabling visitors to reach the central shopping district easily.

The highway traffic represents only a comparatively small percentage of the total volume of traffic within the city. For example, during an average day, only about 3,000 vehicles used U. S. Highway Number 6, one of the most heavily traveled routes, while approximately 20,000 vehicles used Keosauqua Way near the business district.

The greatest volume of highway traffic enters the city over State Routes 7, 89, and 132. Much of this traffic comes from the adjoining areas. There are also relatively large volumes on U. S. Number 6 and U. S. Number 65 and 69, the main north and south and east and west routes. Traffic on the other highways is about equal in volume except for State Route Number 90 which is very light due to the fact that it is paved for only a short distance. The most heavily traveled highway in the state is U. S. 65 and 69 between Des Moines and Ames.

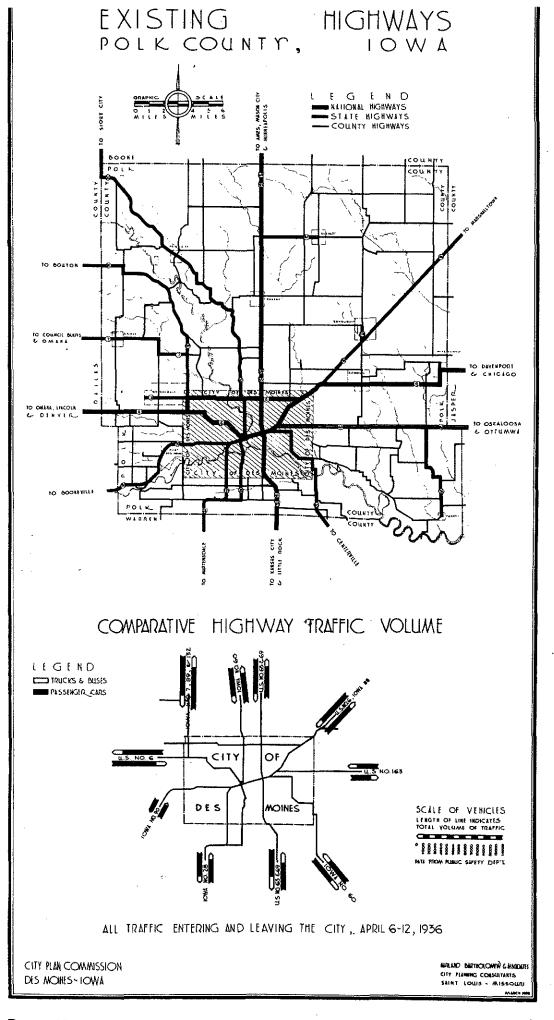


PLATE NUMBER 3

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## PROPOSED STREET SYSTEM

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### PROPOSED MAJOR STREET PLAN

The proposed major street plan is shown on Plate Number 4, and is generally similar to the major street plan prepared in 1924. Several proposed street widenings and extensions have been eliminated, however, and certain readjustments made due to changed conditions.

The broader differences between the two plans are as follows:

(1) The original plan was designed to serve a much larger area of urbanization than now appears necessary or desirable. It is to the city's best interests to discourage rather than foster an unlimited expansion, and the revised plan has been developed with that idea in mind. From studies made in the population report, a desirable area of urbanization was determined, based on proper standards of population density and distribution and on an eventual population of 225,000.

(2) The original plan contemplated a major street system composed of many more streets than now appear necessary or desirable. By concentrating public funds for street improvements on a relatively few thoroughfares, the use of these streets by traffic now using residential streets will be enouraged and substantial economies can be effected. Because of the definitely limited increase in population and the low densities of population in outlying sections, thoroughfares in those areas may be spaced at somewhat greater distances than in the thickly populated sections.

The proposed plan will be discussed in the following order: streets around the central business district; proposed radial streets; cross-town and other major streets; and the outlying highways.

#### Streets Surrounding the Central Business District

It is proposed that a distributor street be developed along the northern portion of the business district by connecting Ingersoll Avenue with the intersection of Keosauqua Way and Eighth Street; Keosauqua Way would be used to Fifth Street where a new connection would be made by means of a bridge and viaduct to Des Moines Street at East Fifth Street. Preliminary plans for this improvement are discussed in a later section of this report.

It is further proposed that a distributor street be developed on the west side of the business district by extending Seventeenth Street to the south and connecting it with Walnut and Mulberry Streets. For the south side of the business district the distributor street would comprise Cherry Street and Court Avenue. For the east side of the business district, East First Street is well located to serve as a by-pass or distributor route.

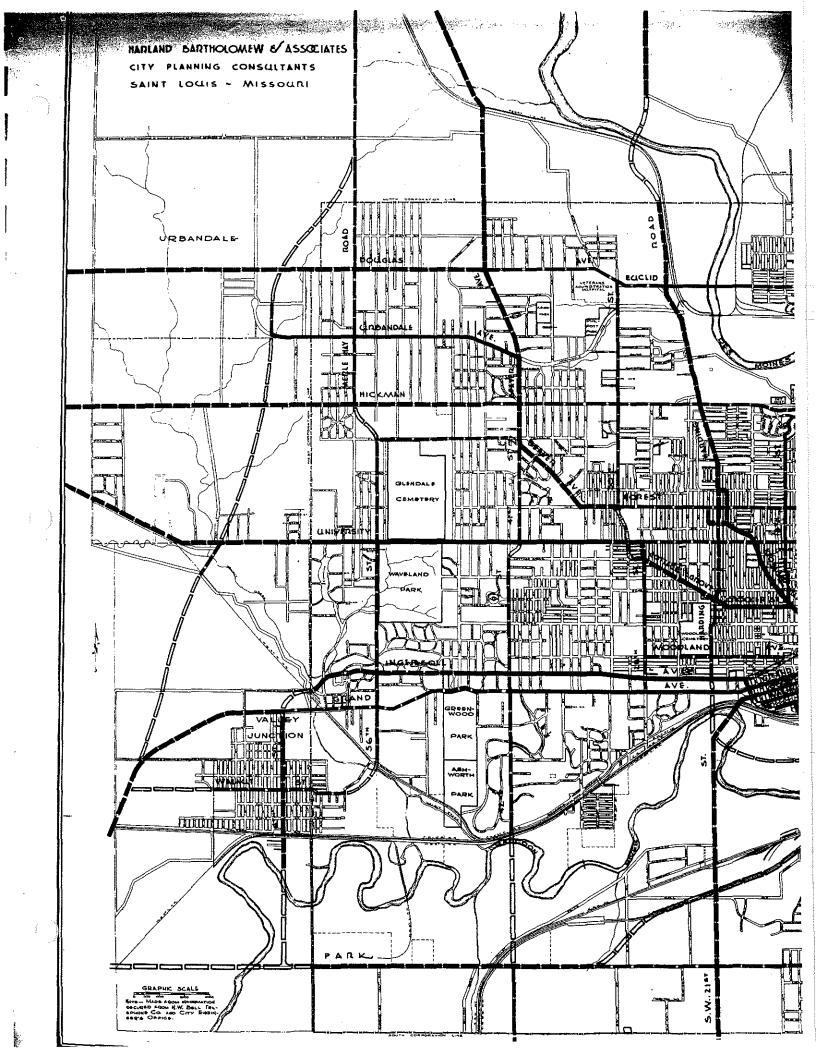
These proposed improvements should make the central area much more accessible and convenient, would eliminate congestion, and tend to stabilize property values.

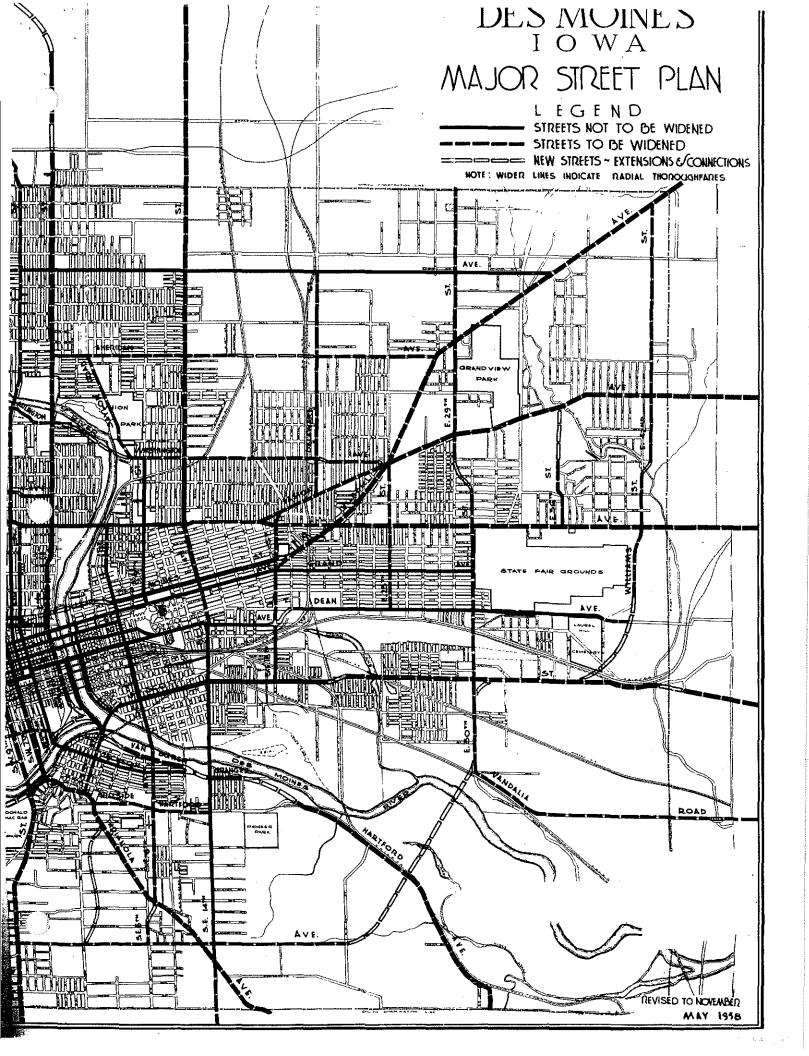
#### Proposed Radial Streets

The following proposed improvements would provide a system of radial thorough fares extending directly from all geographic sections of the city to the distributor streets around the business district:

A. The large population in the northwest part of the city has no adequate radial at present. The majority of the traffic from this section moves over several streets until it reaches Forest Avenue, and then continues to the downtown area over Keosauqua Way. This results in considerable congestion over portions of both Forest Avenue and Keosauqua Way.

It is therefore recommended that the proposal of the early major street plan in a modified form be carried out; namely, that Crocker Street, from Keosauqua Way to Cottage Grove Avenue, Cottage Grove to Twenty-Ninth Street, and Twenty-Ninth Street to University, be improved and widened to 80 feet. This 80-foot street should be extended northwesterly by making a new connection to Thirtieth Street between University and Forest Avenue, and by improving and widening Forest to Beaver and widening Beaver. One portion of the route can then extend out Beaver Avenue, while another portion would use Franklin and Hickman. Thus, there would be two radials serving the entire northwestern portion of the city that would converge into a single wide route leading directly to the business district. Some of this traffic might continue to use Keosauqua Way, but the proper improvement of Cottage Grove and Crocker should encourage much traffic to use this route and insure a better distribution of traffic in this section of the city.





B. Keosauqua Way is an excellent radial. When connected with Harding Road and the latter street is improved, this route will serve a large residential section. As previously indicated, too much traffic from the northwest sections now concentrates upon this important entry to the business district.

Considerable study has been given to the intersection of Keosauqua Way, Harding Road, and Forest Avenue. It is recommended that traffic interchange between these streets as follows: North Jound traffic to move on Nineteenth Street to Forest, or to Clark Street and then into Harding Road; south bound traffic on Harding Road to continue on Harding to Carpenter and then into Keosauqua; traffic from Forest Avenue to move south on Twenty-First Street and then to Keosauqua Way via Carpenter. The rounding of several corners, and widening of Clark, Twenty-First Street, Nineteenth Street, and Carpenter, as indicated on the plan, will facilitate this movement.

C. Second Avenue is well located and improved to provide radial service in the northern portion of the city.

D. Paralleling Second Avenue on the east side of the river, East Fourteenth Street connected with Des Moines Street will provide convenient access to the business district.

E. To serve the northeast portion of the city, it is proposed that Des Moines Street rather than Grand Avenue be made the main entry into the business district. This street should be connected with Hubbell Boulevard, and the Boulevard widened to 100 feet between that point and the intersection with Easton Avenue. University Avenue, Easton Avenue, and the remaining portion of Hubbell Boulevard will serve as the radial feeders for this important route.

F. Scott Street, Southeast Sixth Street, and Court Avenue should comprise the radial for the east central section of the city.

G. To serve the southeast portion of the city, a radial is proposed connecting Hartford Avenue with Granger Avenue, utilizing Van Buren Avenue on top of the levee and connecting with the new bridge over the Raccoon River at its junction with the Des Moines River. From the north end of this bridge, three connections are proposed: one paralleling the Des Moines River, going under all four railroad bridges and coming to grade at Court Avenue; another connecting with Southwest Second Street; and the third connecting with Murphy Street.

H. Indianola Road and Southwest Ninth Street should provide radial service to the south portion of the city.

I. To serve the southwest portion of the city, Park Avenue should be widened to 100 feet from the western city limits to a point just west of Southwest Thirtieth Street. From there a new connection hould be made to the abandoned C. B. & Q. Railroad right-of-way, and the right-of-way improved as street and connected with Southwest Ninth at Clifton. Much of this radial route would be practically a freeway in that it would cross very few streets at grade and there would be a minimum of interference with the vehicles moving thereon.

J. Southwest Twenty-First Street would form another radial to the southwest portion of the city.

K. It is proposed that Ingersoll Avenue be developed as the major radial to the west. This street has a greater width and better grade than Grand Avenue and, when the street car is eventually eliminated, will serve as an ideal radial. Certain widenings and connections are needed on this street west of Forty-Ninth Street. It is proposed that a new connection be made to Fourth Street and Grand Avenue in the city of West Des Moines.

### Cross-Town and Other Major Streets

The improvement of cross-town routes is seriously needed in the City of Des Moines. The following streets should be gradually developed for this purpose. It will be noted that portions of certain routes will also provide radial service.

The north and south cross-town streets from west to east are:

1. It is proposed that an outlying distributor street be developed west of the western city limits to connect the various highways entering the city in this general area. This street should be a freeway with a limited amount of access to abutting property, and should have a width of not less than 200 feet.

2. As a north and south cross-town street, Merle Hay Road should be widened and connected with Fifty-sixth Street south of Hickman Road. Fifty-sixth Street should then be connected with Walnut Street in West Des Moines, so as to provide a continuous route through the extreme western portion of the city.

3. Beaver Avenue, Forty-first Street, and Forty-second Street should be widened and connected as shown to form an important cross-town street in the west part of the city. The extension of 42nd Street south to Park Avenue through the development of a bridge and viaduct over the railroads and the Raccoon River and a viaduct over the C. G. W. R. R. will make a much needed connection between the western and southern portions of the city and will do much to encourage development of the south part of the city. Through the Water Works property this street should be a high level road and pass over the park drive. It could be landscaped and would not detract from the use or enjoyment of the Water Works property. Forty-second Street now carries a large volume of traffic and should be completely improved at an early date.

4. Twenty-eighth Street and Thirtieth Street can be connected through use of the connection proposed in the Beaver Avenue-Cottage Grove radial. The pavement upon both streets should be widened in the future.

5. A cross-town route is needed which will permit traffic to go from the western and northwestern portions of the city to the area south of the business district without going through the congested areas. In order to provide for this important interchange of traffic, it is proposed that Southwest Twenty-first Street be widened and connected with Harding Road by building a bridge over the Raccoon River and the railroad tracks and a tunnel under Grand Avenue. Harding Road should then be widened to 80 feet throughout its entire length.

6. There is a comparatively dense population in the north central part of the city. To adequately serve these persons and to stop filtering of traffic through a great number of residential streets, it is proposed that Thirteenth Street be improved from Keosauqua Way to Hickman Road as shown.

7. Sixth Avenue will always be an important major street serving the north part of the city.

8. Fifth Street should be developed to University to form a supplementary outlet for the business district. This will involve widening and repaying from School to University.

9. The central portion of the area south of the rivers has never developed properly because of poor platting and lack of access. A new street should be developed following Crawford Creek and connecting the intersection of Park Avenue and Union Street with the intersection of Indianola and Olinda. Through use of the new Racoon River bridge this proposed street will offer this area easy access to the business district.

10. The improvement of Southeast First Street from the Scott Street bridge to Indianola Road will form a valuable connection between the east side and the south side of the city.

11. East Sixth Street should be improved and connected from Park Avenue to University. It will form a valuable connection between the south side residential area and the east side industrial and commercial districts.

12. A valuable connection between the State Capitol and the Highland Park Area will be formed by East Ninth Street and Saylor Road.

13. East Fourteenth will always be a useful cross-town street and highway route.

14. Southeast Eighteenth Street, Easton Avenue and Delaware Avenue will serve as a north and south cross-town route east of East Fourteenth.

15. East Twenty-fifth Street between Easton Avenue and Dean Avenue would provide needed cross-town service in an area which is now rather intensively developed.

16. North and south cross-town streets to serve the extreme eastern portion of the city would be East Thirtieth Street connected with East Twenty-ninth Street, East Thirty-sixth Street extended to Easton Avenue, and Williams Street connected with East Forty-second Street.

The proposed east and west cross-town streets from north to south are:

1. Douglas and Euclid Avenue will serve not only as a highway route, but also as an important cross-town street.

2. Between Douglas and Hickman, Urbandale Avenue will serve the western portion of the city, and between Euclid and Washington, Sheridan Avenue will serve the eastern portion of the city as cross-town thoroughfares.

3. An east and west cross-town thoroughfare will be needed between Euclid and University. One can be developed by connecting Hickman and Washington, which will require the construction of a new bridge over the Des Moines River.

4. Forest Avenue should be developed as a cross-town thoroughfare to serve the densely populated section of the city between Thirtieth Street and Second Street. A portion of this route will also serve as an important radial. 5. The improvement of University Avenue has given the city its most important cross-town thoroughfare, strategically located to serve the population on both the east and west sides of the city. This street now carries much through traffic formerly required to pass through the business district.

6. Woodland Avenue would serve as a supplementary entry into the business district from the west.

7. Grand Avenue, while not classed as a radial in this plan, will always function as an important entry to the business district, and will also carry a certain amount of traffic moving between the east side and the west side of the city.

8. Court Avenue and Dean Avenue should be developed to form an important connection between the East Central Section of the city, the State Capitol, and the business district.

9. To form a supplementary distributor street, Murphy Street should be extended to Southwest Twenty-first Street on the west and to the new Raccoon River Bridge on the east. It will also serve existing and future industrial development in the area south of the central business district.

10. Jackson Street and Southwest Fifth Street form a supplementary connection between the business district and the south side.

11. Hillside and Hartford form a valuable cross-town street in the south part of the city.

12. Park Avenue will form an important cross-town street on the south edge of the city in exactly the same manner that Douglas and Euclid and University Avenue serve the north part of the city. It is proposed that Park Avenue be connected with East Thirtieth Street at its intersection with Vandalia Road.

### Proposed Regional Highway Improvements

The following highway improvements within the Des Moines area will have an important influence upon the street system of the city.

1. It is proposed that Southeast Fourteenth Street be improved with a four-lane pavement south of Indianola Road to meet U. S. Number 65 and 69 and State Route 60 at about the county line. This improvement should be made at an early date but should not form the permanent connection for Highway Number 60 which should eventually come into the city on Hartford Avenue.

2. State Route 117, located east of Polk County, should be paved and Highway 65 should be routed over it between Colo and Highway 88. This latter route could then be used for the entrance into the city of Highway 65 from the north. For the immediate future, this highway should follow Hubbell to University, University to East Eighteenth, East Eighteenth to Court, Court to East Fourteenth, and then south over Southeast Fourteenth Street. It is recommended, however, that the eventual routing of this highway be as follows: Hubbell Avenue to East Twenty-ninth Street, East Twenty-ninth connected with East Thirtieth to Vandalia Road, and from that point follow the proposed connection to Park Avenue. Park Avenue would then be followed to Southeast Fourteenth Street.

3. U. S. 69 from the south is proposed to be rerouted upon a new highway between Osceola and Martensdale and enter the city on Southwest Twenty-first Street. This involves a new road between the above towns and will give a shorter and better alignment.

4. It has been proposed that U. S. 69 be widened to four lanes between Des Moines and Ames. Another solution to this problem is recommended as being a more economical solution to the problem and better related to the traffic problems of Des Moines. Highway 69 should be widened to four lanes only as far north as Ankeny and a parallel road should be constructed connecting Ames and Des Moines. This road would be an extension of Harding Road and would involve the paving of County Road F. This would necessitate developing Harding Road and Southwest Twenty-first Street in the same manner that East Fourteenth Street is now improved. Both of these streets would then form good cross-town routes and would carry highways through the city in proximity to, but not within, the central business district.

5. State Route 90 should be developed to connect with U. S. Number 6 at Stuart. It is proposed that this road enter the city, not on Grand Avenue, but on Park Avenue. This will enable interchange movements to be made with the highways on the south side of the city without making it necessary for traffic to enter congested parts of the urban area. It will also make it possible for the highway traffic to enter the business district over the proposed freeway radial that will use the old C. B. & Q. Railroad right-of-way. Traffic to and from the southwest portion of the city will then have a direct and fast entrance to the business district.

6. It is now contemplated that a new highway will be developed to Sioux City by improving State Routes 89 and 46 to connect with 141 at Denison. This will give added importance to highway Number 89 which enters the city at the northwestern corner. 7. It is recommended that highway 60 enter Des Moines from the north on a new connection between Sixth Avenue and Second Avenue as shown. This highway would then follow Second Avenue to Walnut Street where a viaduct is proposed going over Court Avenue and the railroad tracks. The highway would then cross the new Raccoon River bridge and leave the city on Hartford Avenue. To accommodate this traffic, Second Avenue should be widened to 80 feet throughout its length.

8. It will be noted that certain outlying major streets will connect all of the above routes and provide for interchange between them without forcing such interchange to occur in the more congested parts of the city. These outlying routes would include the proposed freeway on the west (outside of the western city limits), Douglas and Euclid on the north, East Twenty-ninth Street and East Thirtieth on the east, and Park Avenue on the south.

The highway improvement programs that have been carried out in the last several years by the city and the state warrant much praise. Many needed improvements have been completed and vehicular movement within Des Moines has been greatly facilitated. It is recommended that a similar long term program be prepared which would enable the above proposals to be gradually developed in the future.

### EXISTING AND PROPOSED CAPACITIES OF MAJOR STREETS

Major streets afford the necessary service and convenience only when they are sufficiently wide to accommodate parked vehicles, slow moving traffic such as trucks, and the faster moving passenger traffic. An adequate major street should provide two lanes for the fast traffic (one in each direction), each lane being ten feet wide; two lanes of the same width for the slow moving traffic; and two lanes of parallel parking, each eight feet wide—a total pavement width of 56 feet. Also within the street must be two sidewalks at least five feet wide and, in residential sections, two planting strips for street trees which should be at least seven feet wide. Thus a major street should have a minimum right-ofway of 80 feet.

It has often been suggested that two parallel streets be used rather than to widen one street. In some instances, this may be the most feasible solution, but it is generally unsatisfactory. Two narrow pavements will not accommodate the same volume of traffic that will move over a single wide pavement. If only one-way traffic is permitted on each street, much inconvenience and confusion results. Maintenance and construction costs would be higher for two streets than for a single thoroughfare, and the use of any street as a major thoroughfare affects the character of adjoining property.

The use of building lines, discussed later in this report, will enable streets to be widened at a minimum cost. A more adequate street system will result if all streets are developed to their proper width.

### Capacity of Existing Major Streets

The traffic capacity of existing streets designated as major streets is graphically shown on Plate Number 5. For the purposes of this report, the capacity of a street is construed to be the number of traffic lanes permitted by the right-of-way after adequate planting strips and two lanes of parked vehicles have been provided for. A width of ten feet is necessary for each moving lane and a width of eight feet for each parked lane. Thus, after providing for adequate sidewalks and planting space, two moving and two parked lanes need a width of sixty feet. Four moving and two parked lanes require an eighty foot street, and six moving and two parked lanes require a one-hundred foot street.

The city contains only a few 80 or 100 foot streets which are properly located to serve as major streets. One of the major problems in the development of the proposed major streets system is the widening of existing streets. There are approximately 96 miles of streets that will have to be widened eventually to conform to the recommendations of the plan.

Except for unusual conditions, no new street should ever be developed or improved without acquiring the full right-of-way width. Values rise along a street after it has been improved and, if the entire right-of-way is not acquired in the initial stages, future acquisition becomes difficult and expensive.

### Proposed Traffic Capacity

Plate Number 5 also shows graphically the proposed capacity of the major streets. The widths suggested on this plate should be considered the minimum necessary. A comparison of the two plans indicates the ease with which traffic could move in all sections of the city under the proposed system. Each area is served by a street connecting directly with all other areas.

In certain instances, such as on Hartford Avenue, wider rights-of-way are suggested than will ever be fully needed by the traffic flow. These routes will also serve as parkways and the extra width

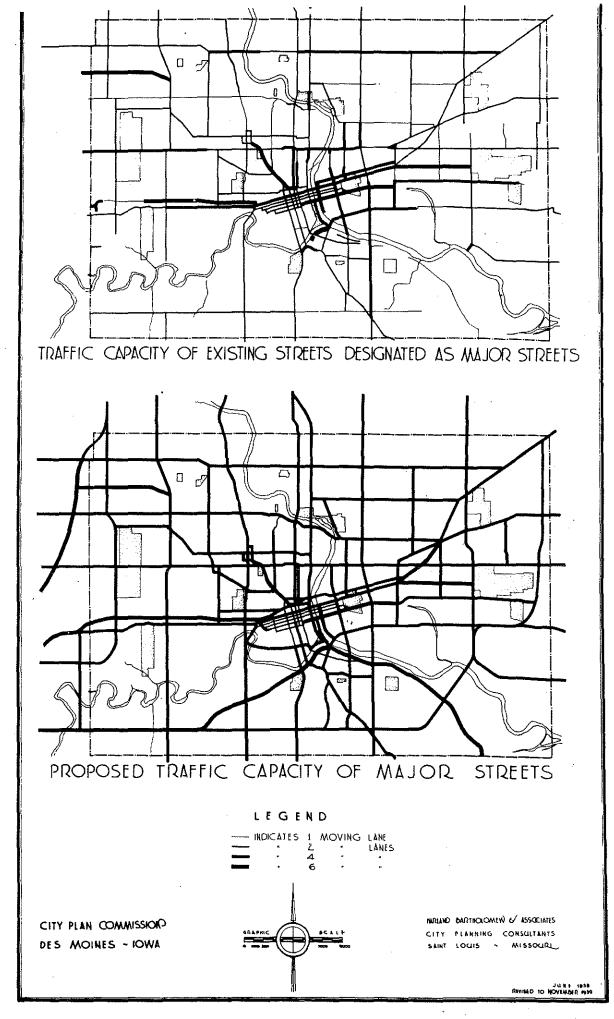


PLATE NUMBER 5

will provide for adequate planting and a spacious effect. Frontage on major streets will probably comprise between 20 and 25 per cent of the total developed street frontage of the future city. Not more than one-tenth of this frontage can ever be used for commercial purposes. Much of it will, therefore, have to be used for some type of residence and the wide right-of-way and considerable planting will tend to protect this residential property.

The number of streets proposed to be widened may seem to be disproportionately large, but there are several factors that will facilitate widening. Many of the proposed streets run through unimproved territory and a wide right-of way can easily be secured. Much of the widening on the existing streets can be done over a long period of years and can be facilitated by legislative measures. Many steps can be taken to increase the traffic capacity of existing streets before any actual widening is carried out and the pavements on several streets can be widened without widening the right-of-way. The following are some of the other methods that can be used to increase the capacities of streets:

1. Elimination of parking during rush hours.

2. Installing "stop" signs on all minor streets entering or crossing major streets.

3. Painting or otherwise marking longitudinal lines on pavements, especially at busy intersections, where many vehicles come to a stop. Painted lines will do much to channelize traffic and increase street capacity.

### DETAILS OF PROPOSED CONNECTIONS

The major street plan proposes several connections between existing streets. All of these would greatly improve vehicular movement. Some should be considered immediately, while others may wait until a favorable opportunity arises for the purchase of the necessary property. The present requirements of circulation are such as to warrant early initiation of the following projects:

1. Connection between Seventeenth Street and Mulberry Street. The preliminary plan for this connection is shown on Plate Number 6. This connection can now be made without demolition of any existing structures and a large amount of city owned property can be utilized for the right-of-way. This improvement is essential to provide for vehicular movement in the central business district. It will eliminate much of the present congestion on Locust Street and on Grand Avenue. The proposed plan contemplates a 66-foot right-of-way developed with a 42-foot pavement. The new connection would go under Locust Street and no parking should be permitted throughout its length. Provision is made for expansion of the Meredith Publishing Company to the east. Between 16th and 13th Streets the new connection is proposed on right-of-way immediately north of Mulberry Street. Mulberry Street cannot be used in this area because of the presence of repair tracks of the Des Moines Union Railroad, in the street through perpetual easement. Parking areas will develop along this street. Care should be taken to see that the entrances to parking areas are removed some distance from intersections.

2. Connection between Ingersoll and Keosauqua Way. Plate Number 6 also shows the portion of the proposed northern distributor street that connects Ingersoll Avenue with Keosauqua Way. An 80-foot street is proposed throughout the length of this connection. In only two instances are any extensive buildings found within the limits of this proposed street. Those are the new film exchange at Twelfth and Woodland and the Central Church of Christ at Ninth and Pleasant. The film exchange is a one-story building. The church is relatively old. This connection is of such vital importance to the city that these two buildings should not prevent a good alignment.

As is inevitable in the opening of any diagonal through platted and developed territory, considerable property is cut into small triangular parcels. The plan shows several suggestions for resubdivision of property and abandonment of existing streets along the line of the proposed connection so as to provide for maximum use.

A traffic circle is proposed at the intersection of this proposed connection and Keosauqua Way. This is one of the most feasible methods of handling the large volume of traffic that will pass through this intersection. No traffic lights will be needed and vehicles can move continuously around the large island in the center, which should have a diameter of 100 feet. It could be developed with a large fountain and made an attractive focal point within the central area of the city. This connection will not only aid in solving problems of downtown congestion, but will do much to rehabilitate the area through which it passes.

3. Connection between Keosauqua Way and Des Moines Street. Plate Number 7 shows the eastern half of the proposed northern by-pass street. From the proposed traffic circle at Eighth and Keosauqua Way, Keosauqua would be used to its intersection with Fifth Avenue. A diagonal connection is then proposed going behind the Brown Hotel and meeting an extension of Park Street at Fourth Street. Immediately south of the Board of Education offices on Third Street a viaduct and bridge is proposed going over Second Avenue, the Des Moines and Central Iowa Railroad tracks, the Des Moines River, East First Street, East Second Street, East Third Street, and the Chicago & North Western tracks in East Fourth Street, coming to grade at East Fifth Street. This combined bridge and viaduct is 1985 feet long. Traffic could flow freely along this structure for a distance of almost two-fifths of a mile. Existing natural conditions lend themselves well to the construction of this viaduct. Present congestion at Second and Grand would be eliminated. Turning movements between the proposed by-pass and Second Avenue could be made over Third Street, Center Street, and Keosauqua Way and these streets would form one-half a "clover leaf." Traffic going from the east to the northwest part of the city could use the bridge and viaduct and then proceed along Park Street to Keosau-qua Way.

The construction of this bridge and viaduct, together with the proposed Ingersoll-Keosauqua connection, will make it possible for vehicles to move from the east central to the west central parts of the city without going through the business district. The early development of this connection will do much to reduce congestion within the shopping center.

4. Connection between Cottage Grove and Beaver Avenue. This proposed connection which is a part of the proposed Beaver-Cottage Grove radial, is shown on Plate Number 8. This plan has been developed with the cooperation of Drake University and is coordinated with the proposed expansion of the campus. Beaver Avenue and Cottage Grove were at one time connected as a continuous diagonal. Through short-sighted land subdivision, an essential link was lost and now other means must be found to accomplish the same results.

Cottage Grove should be widened to 80 feet to 29th Street where a rounded corner would enable traffic to move easily into 29th. 29th should be widened to University Avenue by acquiring property to the east as shown. North of University a new connection should be made diagonally to the intersection of Thirtieth Street and Forest Avenue. This new diagonal street would be on the western edge of the Home for the Aged property and would probably ultimately form the western boundary of the Drake University campus. The row of ten small houses to the west of the Home for the Aged would have to be acquired. These homes are on small lots and their acquisition should not be unduly expensive. In all, nineteen homes would have to be acquired. However, this connection is such an important link in the plan that a considerable expenditure would be justified.

5. Connection between West Forty-first Street and West Forty-second Street. Plate Number 8 shows that this connection would disturb only four existing buildings. The intersection of University and West Forty-second Street is now badly congested and this proposed improvement should be made in the very near future. The triangular island created by the connection could be used for commercial purposes and an attractive shopping center would result.

### BUILDING LINES ON MAJOR STREETS

Previous sections of this report have indicated that one of the major problems in improving the major street system in Des Moines is the widening of a large number of existing narrow streets. Fortunately, many of these streets are located in outlying residential sections where the front yard regulations of the zoning ordinance will prevent new buildings from being erected within the proposed street lines. Also a portion of the streets are in undeveloped area and the necessary width can be secured through subdivision control at no expense to the city.

Within the older developed portions of the city, however, many buildings adjoin the present street line and widening of the right-of-way is a very expensive process. All of the streets within this area do not need to be widened immediately, however, and the most logical method of providing for their ultimate development is to establish building line regulations which require that all new structures be set back of the future street line. The existing structures gradually become obsolete and new buildings are kept back of the street. Thus when the street is actually widened, the city compensates the owner only for the land and any old buildings that have not been replaced, rather than for expensive new structures. Large financial savings can result from this practice.

The major street plan shows all streets to be widened and their proposed width. A detailed study of existing development, lot depths, topographical and other considerations, can be made along each of these routes. From this analysis, plans can be prepared showing the most desirable locations of the future street lines. These plans can then become a part of an ordinance adopted by the City Council which will prevent the erection of any new buildings within the future street lines. Such regulations should be enforced by the building department.

This type of control results in widespread benefits. Its legality has been established in several states. The improvement of the major street system is greatly expedited and no owner is denied a reasonable use of his property. Studies and plans for the location of building lines along 96 miles of major streets that should eventually be widened in Des Moines are now being prepared. There are building line regulations now in force on Sixth Avenue and parts of University Avenue.



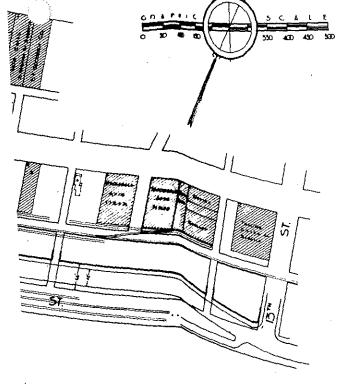
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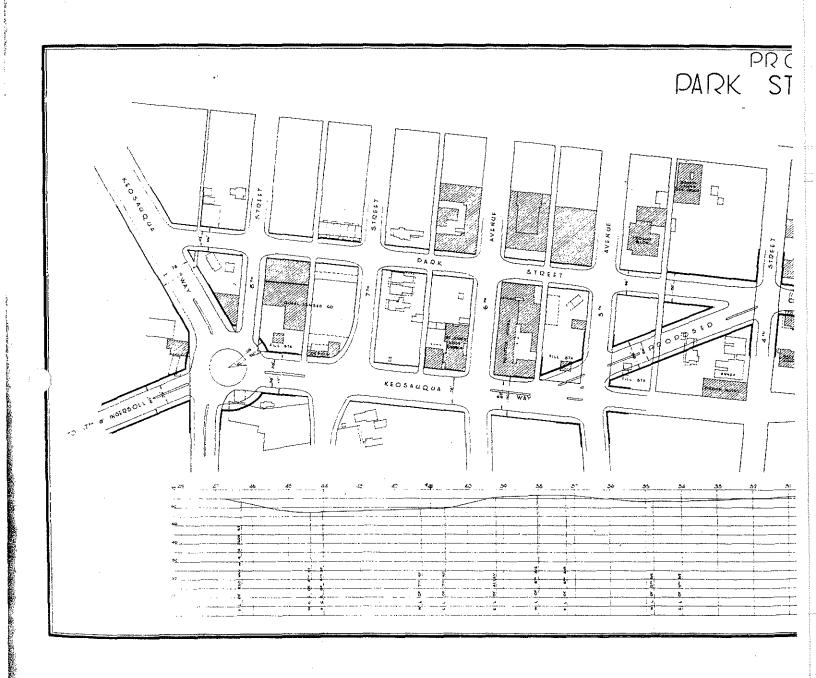
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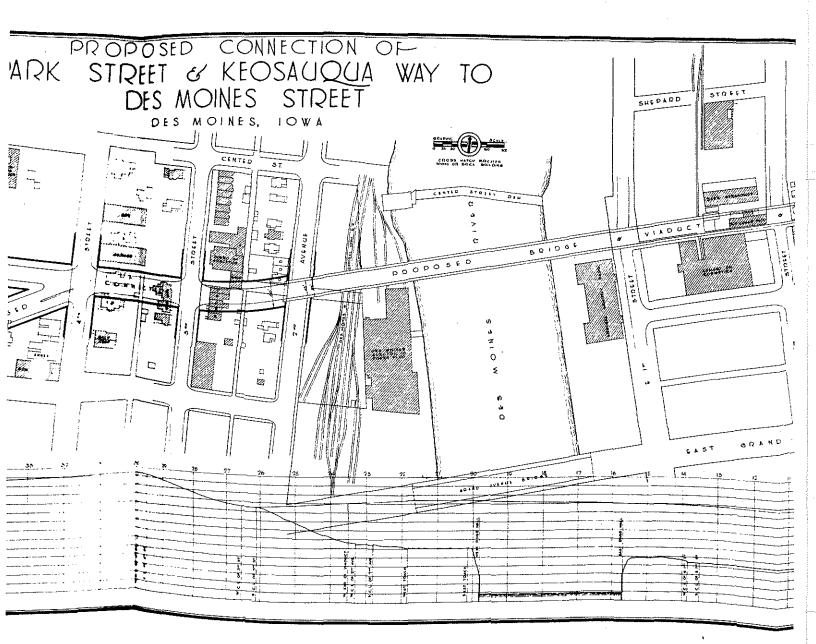
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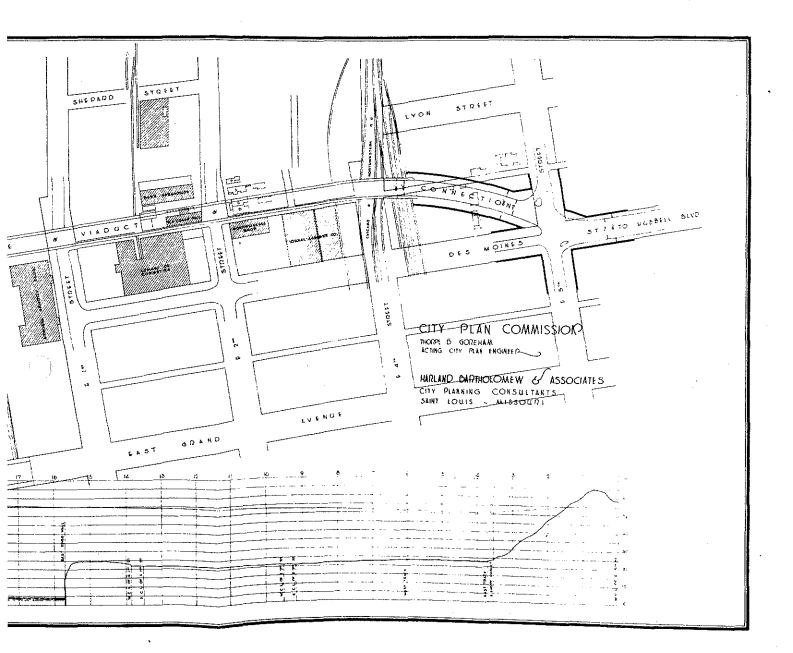
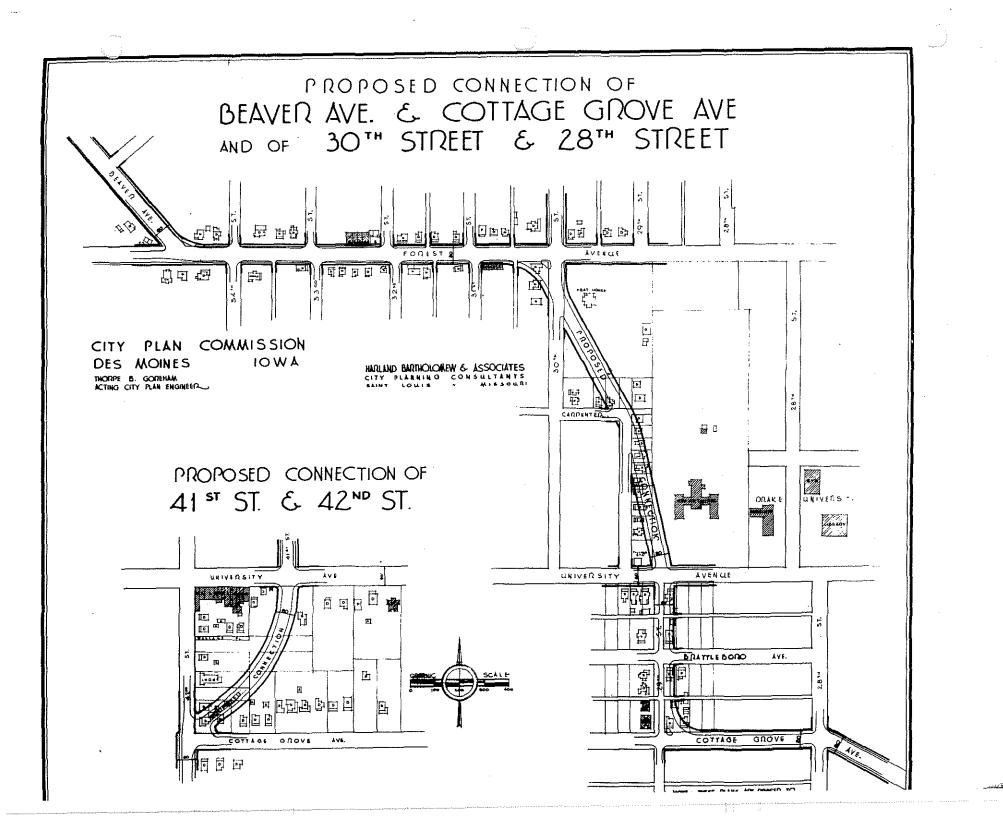


PLATE NUMBER 7

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# SUBDIVISION CONTROL

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### SUBDIVISION CONTROL

The city plan commission has had jurisdiction over subdivision platting in Des Moines for several years. Many costly mistakes have been avoided through the exercise of this control and a more satisfactory development has been obtained in the newer areas. It is desirable to review the essential principles of subdivision control and to indicate additional regulations that may be needed in Des Moines.

The platting and improving of new subdivisions will largely control the character of the future urban development. The plan for each subdivision should conform to the provisions of the comprehensive city plan. It is because the planning commission is the only body fully conversant with the future plans and requirements of the urban area that they are given the authority, under the law, to pass upon the subdivision plats and to see that each new development will become an integral part of the future city.

In considering new subdivision plans, the commission is primarily concerned with the following factors:

1. Dedication of the proper width and alignment of proposed major streets. Many miles of adequate major streets can thus be secured without public expenditures. There are hardly any instances where the subdivider should not be required to dedicate the entire ultimate width of the major street. If the subdivided property adjoins only one side of the major street, then one-half of the ultimate width should be dedicated.

2. The arrangement of minor streets. These should serve local needs and conform to topography, yet discourage through and fast moving traffic.

3. The width, depth, and size of lots. Narrow lots result in population congestion and invite early depreciation of property values. There is no scarcity of residential area in Des Moines and the average residential lot should not be less than 50 feet wide and 125 feet deep. In the higher priced districts, a minimum width of 70 feet is desirable.

4. Provision of easements and set-back lines. Easements should be provided along the rear of lots for the location of public utilities, such as water, lights, and sewers. Any private restrictions regarding yards and open spaces about structures should be as restrictive as the zoning ordinance.

5. Provision of physical improvements. Too often property is subdivided when there is already an over-supply of vacant lots. In other instances, the land is too low or too rugged to be suited for residential purposes. Sometimes the area is so far removed from existing development that excessive expenditures are required for the necessary improvements such as streets, water, sewers, and the like. If the subdivider is required to install adequate improvements at his own expense before any lot can be sold, much bad and speculative subdivision will be prevented.

A study of approved subdivisions indicates that the city plan commission has not always observed the above principles or strictly enforced the subdivision regulations which were adopted in 1931. It is just as detrimental to vary the zoning regulations as it is to permit streets that are too narrow or lots that are of unsatisfactory size and shape. Subdivision regulations should be observed conscientiously Thorough study should be given to each plat before it is finally approved, for, once platted, a subdivision becomes a permanent part of the city.

Many problems and questions have arisen under the present rules and under the state law. Certain modifications, clarifications, and additions should be made in the present land subdivision rules; the rules reorganized to be more in accord with modern practice; and subdivision control exercised by the city to the full extent permitted by the state law.

Land subdivision is a great problem in Des Moines. There are 21,994 vacant lots in the city, enough to accommodate 88,000 persons, or 16,000 more than the estimated future population of the city. 7,530 are served with water mains, 6,419 with sewer mains, and 6,236 are on paved streets. 5,652 of these lots are not only on paved streets but have sewer and water facilities as well. Some 6,100 vacant lots are now owned by the county. It seems only reasonable that additional subdivision be carefully controlled, not only so that existing development and future neighborhoods be protected, but that this tremendous tax problem not be increased by the production of more useless vacant lots.

The key to land subdivision control is in the requirement that the subdivider install sewer, water, and street surfacing before the plat is recorded. If it is the intention of the subdivider to provide a livable neighborhood, this will be done. If the intention is merely to promote speculation in land, this will not be done. If the subdivision is of benefit to the city by virtue of location or character of development, the subdivider will be able to afford to install these utilities. Placed side by side, the existing vacant lots provided with paved street, sewer and water would front upon both sides of a street 34 miles long (further than the distance from Des Moines to Ames). These facilities have been provided at great expense. An estimated one-third to one-half of their cost has been borne by the city as a whole. Almost 20 per cent of the bonded debt of the city has gone to make up deficiencies in special assessments for these purposes, accounting for five cents in every tax dollar. It seems only reasonable, therefore, that these vacant lots already served by facilities be used before more vacant lots are created without sewer, water, or paving.

In the State Law relating to Platting, under Section 6278b-1 in the fourth paragraph, the following statement occurs: "Said plats shall be examined by such city council, and city plan commission where such exists, with a view to ascertaining whether the same conform to the statutes relating to plats within the city and within the limits prescribed by this section, and whether streets, alleys, boulevards, parks and public places shall conform to the general plan and be conducive to an orderly development thereof, and not conflict or interfere with rights-of-way or extensions of streets or alleys already established, or otherwise interfere with the carrying out of the comprehensive city plan, in case such has been adopted by such city...."

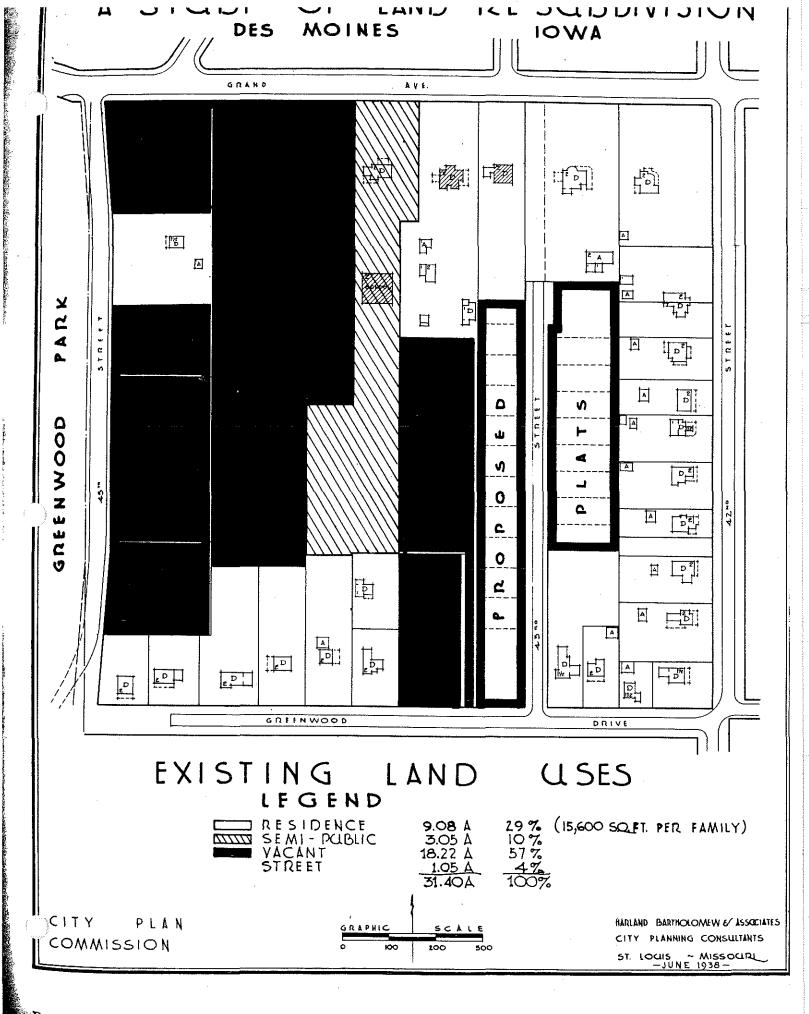
The Population Report shows areas that should be developed, and areas that should not be developed for residence purposes, and has been adopted by the city plan commission and the city council.

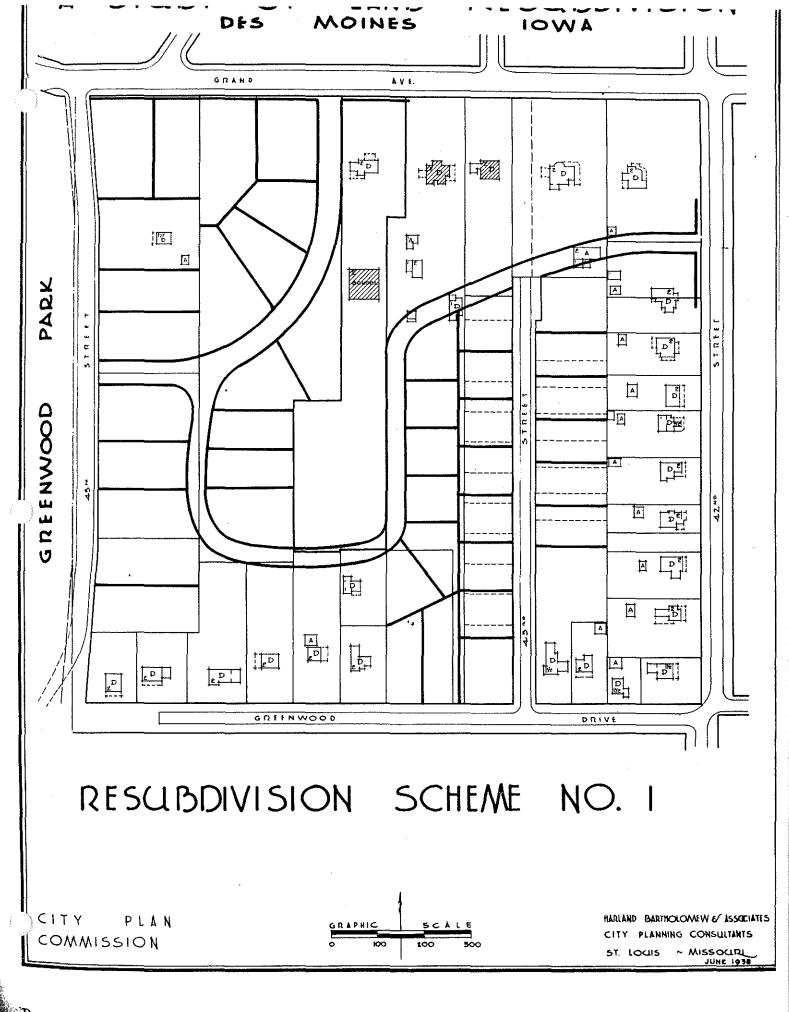
The plan commission and the city council should refuse to approve any proposed plat that does not lie within an area proposed to be used for residence purposes as shown by the officially adopted Population Report. Any plat that does not lie within the proper areas obviously interferes with the carrying out of the Comprehensive Plan.

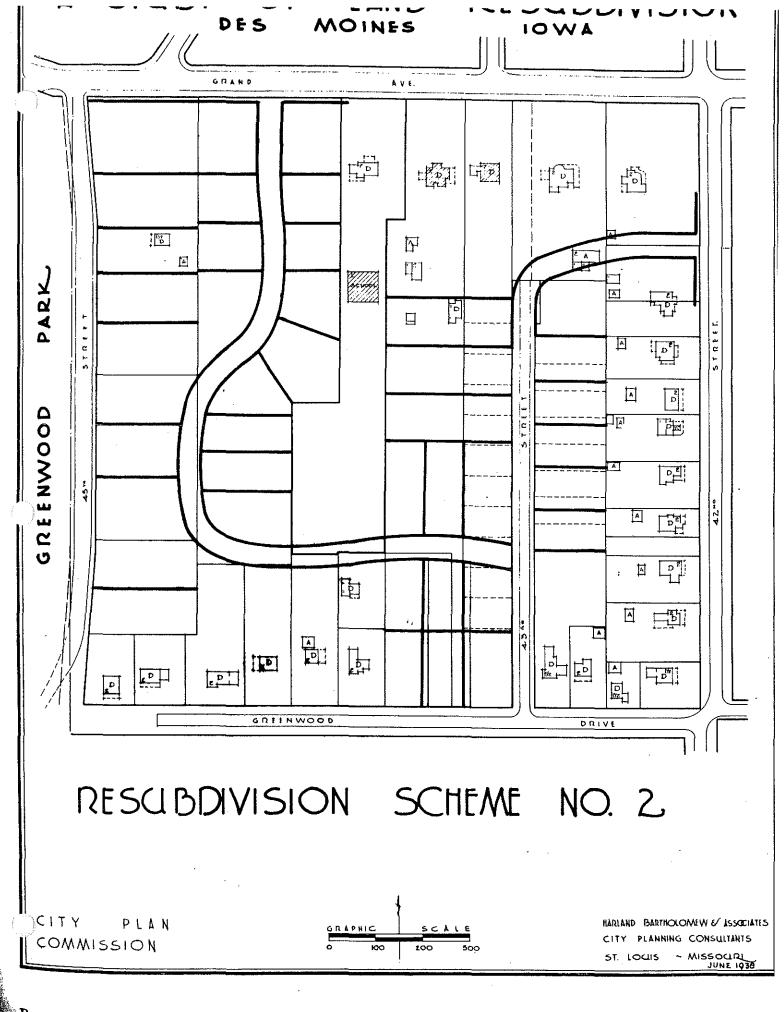
### Method of Study

Most subdivision plats that come before the planning commission are of small acreages—from 5 to 20 acres in area. It is difficult to properly pass upon these small areas without consideration of the surrounding property. Furthermore, it is almost impossible to produce any kind of a residential environment by the individualistic platting of these small acreages. When one of these small plats comes before the commission, the future subdivision and development of all the property in the general area should be considered before any approval is given to the immediate plat.

The accompanying plates, Numbers 9 to 11, are examples of this method of studying subdivision plats. Plate Number 9 shows the existing land use within the area and the lot area per family of the existing development. The commission should first decide what the area should be used for and the intensity of the use, that is, the lot area per family that should be provided in the proposed development. Plates Numbered 10A, 10B and 10C show possible subdivisions of the entire area under consideration. The plan commission should decide which one of these is the most desirable treatment of the area. The proposed plats should be discussed with the owners and an attempt made to secure their comments, approval and cooperation. Once a plan is decided upon, it should be adopted as the official plan for the area and no subdivision plat should be approved that does not conform to the plan. Plate Number 11 shows how this area will probably develop if each property owner plats his land without consideration of the surrounding owners. The many advantages of the former system are obvious.







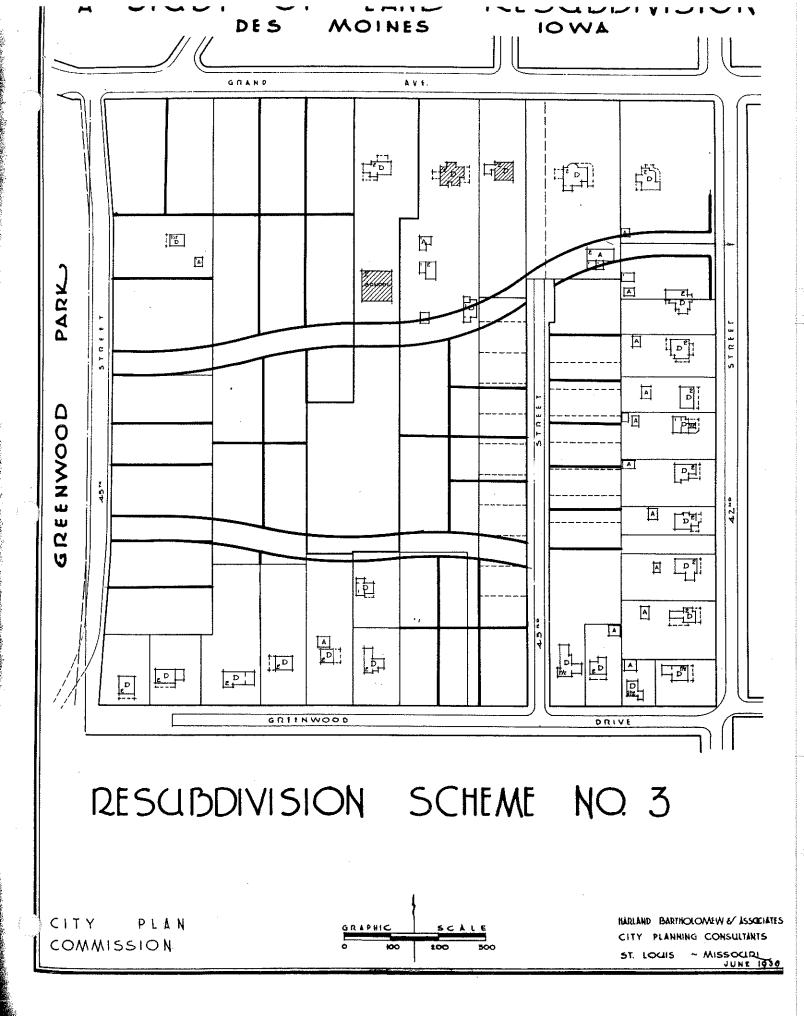
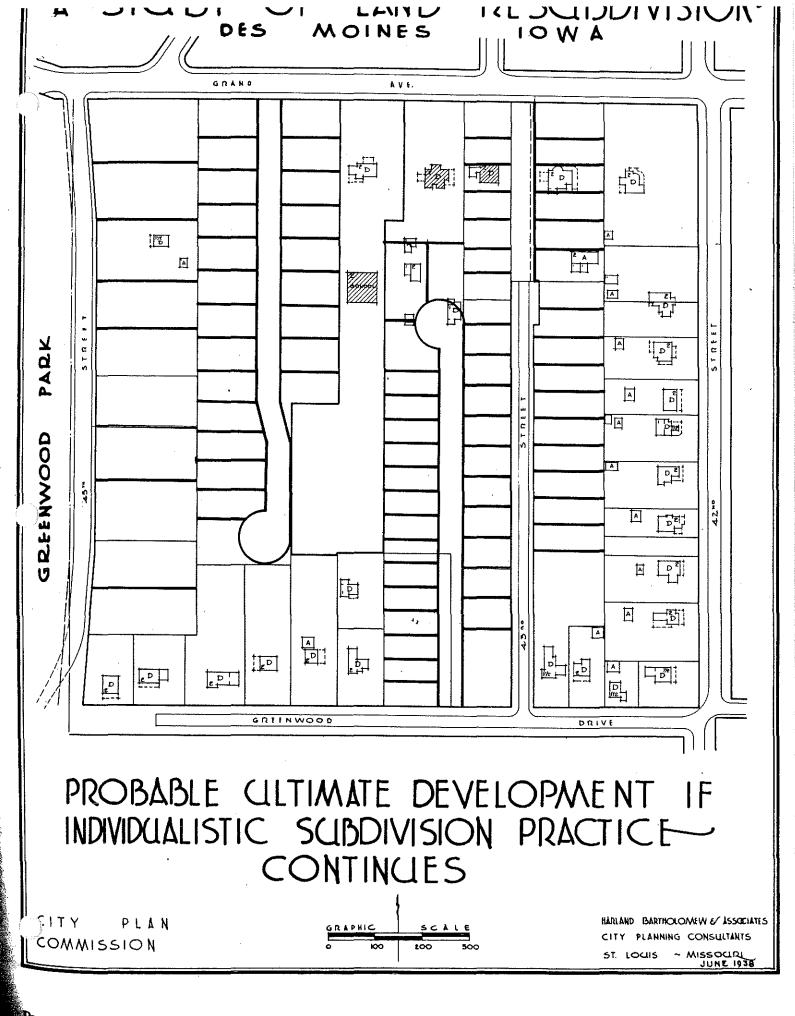


PLATE NUMBER 10C



LATE NUMBER 11

### VEHICULAR PARKING

### VEHICULAR PARKING

One of the major problems allied with the street system is vehicular parking, especially parking in and near the central business district. Merchants feel that the lack of parking space is hurting their business. Citizens going into the business district wish to park within a short distance of their destination. The loading and unloading of commercial vehicles within the area is difficult.

At present, there is no unanimous agreement as to the responsibility of providing adequate parking facilities within the business district. The city officials are responsible for providing access to all buildings for fire, police, and health protection, and for many other similar services, but it does not seem reasonable that they should be entirely responsible for the parking problem. In a suburban retail district, the city would not be required to provide more than a reasonable use of the streets for parking. In certain cities, the public officials are providing parking space (exclusive of street space), but such facilities are usually provided in connection with other major improvements such as large public buildings, river or lake front development, and other similar projects.

In the larger cities, private enterprise is providing much parking space on vacant lots. The owners of vehicles apparently have no serious objection to paying a nominal price for the use of these parking areas. There is no reason why it is not a legitimate business that will yield a fair return on the land, and certainly it will assist in solving the problem. Some cities also have ordinances requiring the provision of off-street parking facilities in the development of certain new commercial and industrial buildings. In such regulations, new buildings must be provided with parking space in relation to the size and use of the building. For instance, a theatre might be required to provide a parking space for every four seats.

The merchants have the greatest interest in the parking problem. In one city of the middle west the merchants have asked the city to condemn land for several centrally located parking lots and assess the cost of acquiring the land against the business property within the central area. The city will improve and maintain the lots. This cooperative procedure warrants much consideration. In other cities, many commercial concerns, especially department stores and theatres, are providing private parking areas for patrons. Whenever new buildings are erected, parking provisions should be considered as part of the plan. It is good business to do so. There thus appears to be a rather widespread and definite trend toward the provision of adequate parking facilities through the cooperative efforts of the citizens and officials.

A considerable amount of space near the Des Moines business district is now used for parking lots. Many of these parking spaces lie in the general area through which the northern distributor street, connecting Ingersoll and Keosauqua Way, will run. This location is quite satisfactory for parking lot purposes, since it is a commonly accepted principle that parking lots should surround the business district rather than be located within the central portion thereof. If the business district is properly surrounded by a by-pass and distributor street, the parking lots should adjoin this street. In this location, they can be reached by persons coming from the residential sections and cars can be parked outside of the district rather than create congestion therein. If the central district is surrounded by such lots, no person would have far to walk to reach the stores or office buildings to which he is destined.

It is recommended that the business men and officials develop a program for acquisition and improvement of parking areas and that the location of same be within the vicinity of the proposed system of by-pass routes around the central area. The studies recently completed by the Iowa State Planning Board and the City Traffic Engineering Department should be of considerable value in determining the amount of parking spaces that will be necessary in the future.

Other steps that can be taken to improve the parking conditions within the central area are (1) reserving a reasonable amount of space along the business streets for the temporary stopping of commercial vehicles; (2) strict enforcement of a maximum parking period on streets within the central area. This could best be accomplished by the installation of parking meters.

PLASTIC BINDING U. S. PAT. NO. 1970288 LICENSE NO. 10 J. H. WELCH PRTG. CO. DES MOINES