TRANSPORTATION.
The Transportation Problem in Des Moines

The future growth of Des Moines is assured by its central location in probably the richest known farming lands, the abundance of its fuel and water supply, the number and importance of its railroads and the easy adaptability of its topography. Few cities are so well proportioned with regard to the extent and distribution of industrial, residential and commercial districts. There is sufficient vacant land available for industries in the southern and south-eastern portions of the city to support many times the present population and there is ample property of residential character close to these potential industrial districts to provide adequate housing.

In view of the active trend toward industrial development that Des Moines is taking, it is vitally important to see that railroad transportation facilities keep abreast of constantly growing requirements.

The present railroad situation in Des Moines is in its details far from satisfactory. Too much of the railroads' business is conducted in the congested downtown areas. Entire streets are devoted almost wholly to railroad purposes. Yards, freight, passenger stations, team tracks and other appurtenances incident to terminal operation are being so completely surrounded and hemmed in by business enterprises such as factories, warehouses, wholesale houses and even retail establishments that the future expansion of
railroad facilities in their present location is practically impossible.

The general location of the railroads with respect to the city is a fortunate one in that as a rule the greater part of railroad property is located on the least expensive land and in such a way as to cause a minimum of interference with the city's growth. This applies especially to main line traffic and some of the principal classification yards.

A union passenger station free from the hampering influence of local switching movements, street traffic and other alien business is desirable.

An unimpeded artery for through movement of trains and for cross town switching would be of great assistance in adding to the efficiency of this terminal district.

Practically all streets are crossed at grade, a circumstance which causes criticism of the railroads and acts as a source of irritation to the people, both on account of the delays to street traffic and the actual danger to human life involved. It should be noted, however, that grade crossing accidents are of comparatively infrequent occurrence.

In Des Moines the railroads exist in such close proximity to each other and their interests are so intertwined that no project of any magnitude can be undertaken without all being affected. It seems essential, therefore, that before any comprehensive scheme for betterment of conditions in Des Moines can be put into effect, some sort of an
organization must be formed among the railroads themselves so that their action will be concerted and harmonious.

**Purpose of Study.**

It is the purpose of this study and report to discuss the following subjects:

1. Present operating methods of the railroads in Des Moines, including freight and passenger terminals and service to industries.

2. A union passenger station for all steam roads entering Des Moines.

3. Grade Crossing elimination.

The recommendations made as a result of this study are necessarily tentative in nature and no doubt revision and changes will have to be effected in order to bring the railroads to an agreement not only among themselves but with the program of development that the city has undertaken as exemplified by the adopted City Plan. The railroads should study the City Plan carefully and take its provisions into account before formulating an extensive construction program for the future whether or not such program is in line with the recommendations contained herein.
Present Operating Methods

Railroads of Des Moines.

Des Moines is served by the following trunk line railroads:

Chicago, Rock Island and Pacific Railway.
Chicago and Northwestern Railway.
Chicago, Great Western Railroad.
Chicago, Milwaukee and St. Paul Railway.
Sabash Railway.
Minneapolis and St. Louis Railroad.
Chicago, Burlington and Quincy Railroad.

The following lines perform a terminal switching service within the city limits of Des Moines:

Des Moines Union Railway.
Des Moines Terminal Company.

Two electric traction companies not only give direct freight service to industries but do an important business in hauling line freight and interchange cars with the steam railroads. These are the Fort Dodge, Des Moines and Southern Railway and the Des Moines and Central Iowa Railroad.

The Chicago, Rock Island and Pacific Railway.

The lines of the C.R.I. & P. Railway radiate from Des Moines in six directions, reaching directly the important railroad termini Chicago, Minneapolis and St. Paul, Sioux Falls and Watertown, Omaha, Kansas City and Keokuk. Des Moines is on the main line from Chicago to Omaha, Denver and points west and also from Kansas City to Minneapolis, two heavily travelled trade routes, reaching good distributing points for the products of Des Moines and vicinity.
The principal freight classification yard of the Rock Island is located at Valley Junction which is five miles west of the business center of Des Moines. This yard has a capacity of some 2000 cars, and is equipped with shops for making heavy repairs. The yard is well located for handling trains arriving from or destined to Omaha and Sioux Falls. For example, it is a convenient breaking up and consolidation point for Omaha-Chicago trains, as a direct movement only is involved. But for Kansas City-Minneapolis trains this yard is not well placed as such trains in order to make the Valley Junction yard would have to pass through Des Moines twice and make 14 miles excess distance. Similarly for movements from Kansas City to Chicago and vice versa, the Valley Junction yard is accessible only at a sacrifice of considerable time.

This condition is relieved somewhat by the Rock Island's East Yard which is located between East 5th and East 9th Streets. This yard is small having a capacity of only about 600 cars, and is badly broken up by intersecting streets. It is chiefly useful for assembling cars of local origin and destination and those for the Rock Island freight house and team tracks. It is also useful for holding cars for transfer to passing trains.
Through trains operating from Kansas City to Minneapolis do not enter Valley Junction Yard but stop at Short Line Junction where the engine, cabin car and crew detach and proceed to Valley Junction being replaced by another crew and engine from Valley Junction. Sometimes cars of local origin or destination are attached or set out at Short Line Junction. This method of handling the Kansas City, Minneapolis trains is productive of delays as sometimes they are of such length as to overlap the siding thus delaying other outbound trains. The stretch of track where the change is made is also crossed by the main lines of the Burlington and Wabash Railroads and by the Chicago branch of the Rock Island, the traffic on all of which is subject to occasional blockade by standing or slowly moving Kansas City-Minneapolis trains.

The Rock Island freight house is located between 9th and 11th Streets and between Vine and Market Streets. Both of the latter streets are completely occupied by railroad tracks at this point.

The buildings themselves while not of modern construction are for present business ample in size and there is some opportunity for increasing their capacity on the existing site.
The principal team tracks of the Rock Island are located between 5th and 7th Streets and are nine in number, lying southward from the main line tracks. This yard can be reached from the business district both by way of 5th Street and 7th Street although as in the case of the freight houses, main line traffic of the several railroads must be crossed. Aside from this disadvantage of difficult access the team yard is well laid out and is an extremely useful unit of terminal operations. The yard has a present capacity of 55 cars.

The Chicago and Northwestern Railway.

The C. & N.W. Railway enters Des Moines from the north by a branch line which leaves the main line between Chicago and Omaha at Ames, 34.5 miles from Des Moines.

Within the city of Des Moines the C. & N.W. Railway traverses a district largely residential in character and consists of a single track line of rather steep grades. Beginning at a point just south of University Avenue and extending as far as Des Moines this road serves an important industrial district which is rather compactly settled between the east bank of Des Moines River and the high land which follows the river at a varying distance from it.
Traffic over the Northwestern consists of six passenger trains each way daily and from 2 to 4 freight trains made up of freight house cars, cars from industries and interchange cars, which are taken to Ames and there consolidated with main line trains.

Such yard work as is necessary to be done the C. & N.W. performs on its tracks in 5th Street, but confines its operations as far as possible to that district north of Grand Avenue. Interchange cars are brought to and from Iowa Transfer, all traversing 5th Street. At the Des Moines crossing there are eleven railroad tracks, at Grand Avenue ten tracks and at Locust and Walnut Streets, three tracks.

The freight house of the C. & N.W. Railroad is located between Grand and Locust Street on Fourth Street. The platform space is 40 feet wide and 250 feet long and divided into two sections by a fire wall. The building is of brick construction two-stories high, the front portion of the second story being used for offices. There are four house tracks having a capacity of six cars each. The outside track is also occasionally used as a team track. All interchange L.C.I. freight with other railroads is transferred by teams and tracks.
The outbound house consists of a covered platform opened on all sides and located north of Grand Avenue. The platform is 10 feet wide and 280 feet long. It serves 8 lines of cars of 7 each, or a total of 28. The driveway on the west side extends the entire distance between Grand Avenue and Des Moines Street.

There is an automobile unloading platform located on the opposite side of the outbound house or just east of the main line track.

Team tracks of the C. & N. W. Railroad lie northward from Locust Street. The capacity of all team tracks extending from Locust Street to north of Des Moines Avenue is about 47 cars.

An average of four freight trains are made up daily, passing in each direction. The yard is well located for its purpose, and there is an exceptional opportunity for expanding it.

**Chicago Great Western Railway.**

The Chicago Great Western Railroad, although of comparatively small mileage, is compact and well placed for handling heavy tonnage as its termini are in Chicago, Kansas City, Omaha and Minneapolis and St. Paul, all good freight producing centers. Des Moines is on that branch of the C.G.W., extending to Kansas City. It enters Des Moines from the southwest and crosses the city diagonally to Short Line Junction, keeping well beyond the congested business and railroad centers. Of all the roads in Des Moines, the
C.G.W. is best situated for expeditious movement through the terminal.

The freight classification yard of the C.G.W. Railway is located just south of Valley Drive and between S.W. 14th and S.W. 21st Streets. The yard is composed of one set of eleven drill tracks about 1350 feet long and three receiving and departure tracks, paralleling the main line, each approximately one mile in length. The working capacity of the yard is about 600 cars. There are shops for light repairs, water treating plant, engine house, etc.

The freight house and team track yard of the C.G.W. is located along Southwest 5th Street at Tuttle Street.

The freight station consists of a one-story frame structure 45 feet wide and about 81.6 feet long. The freight house is of temporary nature and it is doubtless intended to replace it in the near future with a modern fireproof building. The freight station is switched over the Des Moines terminal companies and the Burlington tracks from the C.G.W. yards south of the river.

This freight station is exceptionally well located and the site occupied is sufficiently large for expansion from time to time as business demands.

Chicago, Milwaukee & St. Paul Railway.

The Chicago, Milwaukee and St. Paul Railway enters Des Moines through the western section of the city, its freight service terminating at the Des Moines Union freight yard and its passenger service at Union Station.
Traffic over the C.M. & St.P. Ry. consists of seven passenger trains each way daily into Des Moines or a total of 14, 10 of which make the connection at Madrid with the main line, and four of which take the other route through Meridian, their final destination being Rockwell City, Spirit Lake and Storm Lake.

The freight trains of the C.M. & St.P. Ry. are brought into the Des Moines Union Yard which lies between 11th and 16th Streets. This yard contains about 14 tracks, 11 of which are used for classification purposes and vary in length from 600 to 2000 feet. The yard is crossed at grade by 16th Street, the west throat of the yard, and by 14th Street, the east throat of the yard. It is switched from both ends. Owing to the shortness of the tracks and the streets which cross it at grade, the yard is worked with some difficulty and is generally congested. In addition to being used for classification of freight it is also utilized for receiving and distributing freight cars to local destination and to other roads. A passenger coach yard is included which is used by both the Wabash and the C.M. & St.P. Railways. Just west of the Des Moines Union Yard is a small yard consisting of four tracks about 1100 feet long, which is primarily used for assembling cars to and from the Ford motor plant and is of little service as a general freight yard.
The Des Moines Union Yard is very well situated to act as a local freight yard for receiving and dispatching cars to Des Moines industries, working the freight station and assembling cars for interchange with other railroads. In addition to this service it can also conveniently handle the passenger equipment of the two railroads now using it. It is, however, entirely too small for those general purposes and for performing all terminal work of the C.M. & St. P. and Wabash and it cannot be enlarged.

The Des Moines Freight Station handles the freight of both the Wabash and the C.M. & St. P. Railways. It is located between First Street and Second Street along the Des Moines Union tracks. The freight station consists of two houses. There are two house tracks upon which 14 cars can be spotted. Passenger trains of the Wabash, C.C.W. and C.M. & St. P. inbound going to and from Union Station use the main line tracks between the two houses, in addition to which there are a number of switching movements over the same tracks. The approach to the freight house tracks begins immediately at the west end of the Des Moines Union bridge, crossing First Street at grade. First Street is a busy street, as is also Second Street, the automobile traffic being dense throughout the day. While the location of this freight station is a fairly convenient one so far as the shipper is concerned, it is exceedingly congested and difficult of operation.
Neither the C.M. & St.P. nor the Wabash have a well defined team yard, tracks for this purpose being scattered along the Des Moines Union right of way from 1st to 11th Streets.

Wabash Railway.

The Wabash Railway enters Des Moines from the southeast using the Des Moines Union tracks. This railroad is a feeder for eastern territory and through its connection at St. Louis, to southern territory. It forms a fairly direct route to St. Louis and reaches St. Paul and Minneapolis over the tracks of the A. & St. L. Ry. Traffic over the Wabash consists of three passenger and several freight trains each way daily.

Freight trains of the Wabash Railway are brought into the Des Moines Union east yard which is located at about S.E. 30th Street. At this yard the trains are broken up and cars distributed to the freight station team tracks and to Iowa Transfer for interchange with other railroads.

As described for the C.M. & St. P. Railway the Des Moines Union Freight Station handles the freight of the Wabash Railway in addition to that of the C.M & St P. Railway.

Minneapolis & St. Louis Railroad.

This railroad affords a route from Des Moines to St. Paul and Minneapolis and to Peoria, Illinois, all important railway centers. It enters Des Moines in the western section of the city, passing through Valley Junction paralleling
the C.R.I. & P. Railroad, with which it is jointly operated from Des Moines to Valley Junction as a double track line. Interchange with the C.R.I. & P. Railroad is effected at Valley Junction and with all railroads at Iowa Transfer.

Its terminal equipment is located at Ninth Street and between 7th Street and 11th Street, there are three or four tracks which this railroad uses for classifying freight. The arrangement is inadequate and its terminals badly congested.

The freight station of the M. & St.L. is between 3rd and 4th Streets in Market Street. There are two house tracks and in the vicinity one team track. This installation is ample for present business but there is little room for expansion. The station is reasonably accessible to the public, except at times when the approach streets are blocked by trains.

The Chicago, Burlington and Quincy Railroad.

Des Moines is reached by two branches of the Burlington Railroad, one of which taps the main line between Chicago and Omaha at Osceola, 57 miles southerly and the other at Albia 68 miles south-easterly of Des Moines. The Omaha or Osceola branch enters Des Moines in the southwest section of the city paralleling for a short distance the C.Q.W. Railroad. It crosses Raccoon River just east of S.W. 10th Street. Passenger trains enter the Union Station over Des Moines Union tracks which the Burlington reaches at about 11th
Street. Freight trains turn off at about Tuttle Street and proceed in a northeasterly direction to the freight yards of the Burlington.

The freight yards where trains are made up consist of several tracks occupying a part of Elm Street between 2nd Street and 9th Street. As the tracks are crossed at grade by all intersecting streets, except 7th Street, conditions are anything but favorable for efficient operation.

The Burlington Freight house is a one-story brick structure 40 feet wide and 400 feet long, extending west from 6th Street between Elm and Market Streets. There are three house tracks having a total capacity of 33 cars. Just north of the freight house is a transfer deck of open construction, 30 feet wide and 235 feet long.

The freight house is well arranged and is of ample size for the present, and can be expanded to meet increasing demands.

The Des Moines Union Railway.

The Des Moines Union Railway occupies and uses 40 miles of the most valuable trackage within the city limits of Des Moines. In connection with the Des Moines Terminal Company this property is splendidly equipped to perform a general switching business for the industries and all of the railroads in Des Moines. Its principal function for some time has been to perform terminal service of the C.M. & St. P. and
the Wabash Railroads, which roads at present own the Des Moines Union. As neither the St. Paul nor Wabash have terminals within the city, it is readily understood how vitally important the Des Moines Union is to these railroads.

The Des Moines Terminal Company owns about 12 miles of track serving that exceedingly important industrial district bounded by Raccoon River, Elm Street, Second Street and Eleventh Street.

Over the tracks of the Des Moines Terminal Co., the C.G.W. reaches its freight house at 5th and Tuttle Streets. The Des Moines Union also has direct access to some of the plants in this district in its northwest section.

Fort Dodge, Des Moines and Southern R.R.

The Fort Dodge, Des Moines and Southern Railroad (Electric) operates freight and passenger trains between Fort Dodge and Des Moines, 35.78 miles; Fort Dodge and Ames, 63.62 miles; Fort Dodge and Rockwell City 49.30 miles; Des Moines and Ames 36.06 miles; Des Moines and Rockwell City 90.64 miles; Fort Dodge and Webster City 21.51 miles, and Fort Dodge and Lehigh 15.01 miles.

The road handles through merchandise cars from Chicago to Fort Dodge in connection with the C. & N.W. Railroad.

Interchange of freight is effected in Des Moines through the Iowa Transfer with every railroad entering here.
Within Des Moines the Fort Dodge, Des Moines and Southern practically parallels the Rock Island from the north central city limits to Short Line Junction. From this point it follows along the base of capitol hill terminating at its freight station at Court Avenue and East 7th Street. Within the city limits it occupies the right of way of the Des Moines and Western Railway, a non-operating company. From its terminus at 7th and Court, passenger cars operate over city streets over tracks to the interurban station of the Des Moines and Central Iowa Railroad, at 2nd and Grand Avenue.

The freight station is a two story brick structure, the first story being used for freight handling and the second story for offices. The house tracks are two in number, having space where 10 cars can be placed. The trains are made up in a small yard at S. 12th Street. There are two freight trains daily out and into Des Moines.

The service of this road is very valuable not only to Des Moines but to the surrounding country. It acts not only as distributor to and developer of a considerable territory but also as a feeder to the steam railroads.

Des Moines and Central Iowa Railway (Electric)

The Des Moines and Central Iowa R.R. (Electric) operates a freight and passenger service between Des Moines and Perry, 34.7 miles and Des Moines and Colfax 23.6 miles and a branch to Woodward.
The freight station and passenger terminal of this road is located at 2nd Street and Grand Avenue.

The freight station was built in 1917, and is of exceptionally good construction.

Both freight and passenger stations are easily accessible to the public.

As in the case of the Fort Dodge, Des Moines and Southern, the service performed by this road is of great importance both as a distributing agent and in maintaining direct contact with industries.

**Iowa Transfer.**

The Iowa Transfer is a freight yard located on the east side just east of East 10th Street. It is owned by the Iowa Transfer Railway Company, the entire capital stock of which is with the Chicago, Rock Island and Pacific Railway, the Chicago, Burlington and Quincy Railroad, the Chicago and Great Western Railroad, the Des Moines Union Railway and the Des Moines Western Railway.

The Iowa Transfer yard is a device for facilitating the interchange of cars of all railroads in Des Moines terminal district. To it are brought the cars of each of the railroads which are to be transferred or interchanged among themselves.

Much of this work previous to the construction of the yard was carried on in the congested district west of the river. The service performed by the Iowa Transfer is an exceedingly valuable one and its use should be extended if possible. It is suggested that it be thoroughly electrified in order to facilitate electrical switching in all parts
of the yard and that additional tracks be added.

A slight handicap of dead heading of certain cars of local origin is of small moment compared to the great usefulness of the Iowa Transfer. Its location on the East side is a particularly good one as it is the focusing point, so to speak, of so many of the railroads.

The following recommendations are submitted without detailed knowledge of what the various railroads may have in mind in the way of improvements to their lines in Des Moines. There is no question but that all of the railroads in the city are planning future development along lines best suited to their own interests but it is extremely doubtful if they are working in conjunction with one another or are bearing fully in mind the future growth of Des Moines. It is for this reason that this study has been prepared both from the viewpoint of the railroads and of the city.

**Chicago, Rock Island & Pacific Railway.**

1. A main classification yard should be developed East of Short Line Junction.

2. A passing siding for Kansas City-Minneapolis freight trains should be built in such a way as to eliminate interference with east and west bound trains.

**Chicago and Northwestern Railway.**

1. It is recommended that the C. & N.W. Railway abandon operations in East 4th Street and that electrical operation to a limited extent by the Fort Dodge, Des Moines and Southern Railroad be substituted.
2. It is recommended that the C. & N.W.'s freight station be relocated on the west side of the river and preferably combined in a joint station with the C.G.W. Railroad at 5th and Tuttole Streets.

3. The passenger trains of this railroad should be brought into a Union Station with the other lines.

4. It is recommended that the Chicago and Northwestern Railway use the track and right of way now occupied by the Ft. Dodge, Des Moines and Southern in entering the city.

5. It is recommended that a joint interchange and classification yard be constructed between Hall and Washington Avenue in North Des Moines for the C. & N.W. and the Ft. Dodge, Des Moines and Southern Railroads.

Chicago and Great Western Railway.

1. It is recommended that main line traffic of this railroad, in order to avoid the congested switching district on the east side, follow the tracks of the Burlington Railroad to its intersection with the Kansas City line of the Rock Island, then through northward paralleling the Rock Island through Short Line Junction.

2. The freight station of the C.G.W. should be reconstructed on a much larger scale and its service combined with that of the C. & N.W. Railway.

Chicago, Milwaukee and St. Paul.

1. It is recommended that this railroad construct a new classification yard at its terminal in the western part of the city in order to relieve the Des Moines' Union Yard.

2. It is recommended that the freight station used by the C.M. & St.P. and the Wabash Railways together, now located on the Des Moines Union tracks between West 1st Street and West 2nd Street, be abandoned and that a union freight station be constructed in the vicinity of the Burlington freight station and with sufficient capacity to take care of the traffic of the C.M. & St.P., the Wabash and the Burlington.
It is recommended that all terminal operations of this railroad now carried on in the warehouse and wholesale district be transferred to some other locality, preferably Valley Junction. It is probable that the entire business of this railroad in Des Moines could be more satisfactorily handled by the Rock Island Railroad.

Chicago, Burlington and Quincy Railroad.

(1) It is recommended that an outlying yard be built by this railroad, preferably on the north side of Racoon River and parallel to the yard of the Chicago Great Western Railroad. This will eliminate considerable activity from a district wholly unsuited to it.

(2) It is recommended that a few of the Burlington's tracks in 11th Street be retained for assembling cars of local origin.

(3) It is recommended that the Burlington freight station be remodeled and operated as a union freight station for the Burlington, Wahnek, and C.J. & St.P. railroads. This will result in removing a number of switching movements through the present passenger station layout along Cherry Street.

(4) It is recommended that the Burlington freight trains, instead of passing through the business district, follow the C.J. & P. Railroad to east of Des Moines.

Des Moines Union Railway.

(1) It is believed to the best interests of both the city and the various railroads entering Des Moines that the Des Moines Union Railway together with the Des Moines Terminal Company be operated as a single terminal company, performing a uniform switching service for all railroads in the city. Such a Terminal Company should have for its purpose the development of additional areas in the city for industrial uses and the provision of unlimited service to all industries regardless of what railroad they are located upon.
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(2) The present freight yard of the Des Moines Union Railroad should be used only for the service outlined above and as an adjunct to a union passenger station.

**Fort Dodge, Des Moines and Southern Railroad (Electric)**

(1) As recommended in connection with the Chicago and Northwestern Railway, it is believed that electrical operation of the latter's track from about Hall Avenue to Des Moines Avenue on the east side will not only solve the principal grade crossing problems of the Des Moines but will extend to the benefit of both the C. & N.W. Railway and the Fort Dodge, Des Moines and Southern.

(2) It is recommended that the Fort Dodge, Des Moines and Southern Railway construct a combined passenger and freight station just north of Des Moines Street and that its present freight station at East 7th and Court Avenue be abandoned.

(3) It is recommended that connecting tracks be built in North Des Moines and a joint classification and interchange yard be constructed for the use of the Chicago and Northwestern Railway and Fort Dodge, Des Moines and Southern.

**Iowa Transfer**

(1) It is recommended that the Iowa Transfer be increased in capacity and completely electrified.

(2) It is also recommended that consideration be given to the installation of a similar transfer in the western section of Des Moines in order to eliminate unnecessary movements through the business district.

**Elevated Line in Tuttle Street**

It is recommended that a three track elevated line be constructed in Tuttle Street for the purpose of routing crosstown trains and switch engines off all roads so as to avoid the congested area on the west side between 1st and 11th Streets. This elevated line would permit the full use of the street roadway underneath.
The Necessity for a Union Passenger Station.

There are at present three passenger stations in use in Des Moines; the Des Moines Union Station and those of the Chicago, Rock Island and Pacific and the Chicago and Northwestern Railroads. A fourth passenger station is located on the Des Moines Union tracks at East 5th Street on the east side, which is used by the C.B. & Q., Wabash and C.C.W. Railroads, and is in the nature of a suburban station. It has small excuse for existence as its patronage is extremely light.

The Des Moines Union Station (Present Facilities)

The Des Moines Union Station was built about twenty-four years ago and is located between Fifth and Sixth Streets on Cherry Street. It is a two-story brick structure of good design and well placed for convenient access to the business district of the city. There are five station tracks which are, however, used both for standing trains and main line freight and switching movements. Express matter is taken care of on the opposite side of the station tracks, an unusual and inconvenient arrangement. Parcel Post is handled at the extreme west end of the building on an open platform. Trains of the Wabash, C.B. & Q., Chicago Great Western and the Chicago, Milwaukee and St. Paul Railroads use this station.
There are from 30 to 40 passenger train movements into and out of the station daily.

The Union Station is far from satisfactory in its operation and as the city continues to grow its inconvenience will become more pronounced. One of its most serious defects is the blocking of Fifth Street by long trains. The manner of handling express and baggage causes considerable interference with the loading and unloading of passengers. The station tracks are too few, too short and are easily blocked, especially when passenger trains are slightly off schedule.

The Rock Island Passenger Station.

The Rock Island passenger station is located between Fourth and Fifth Street and the Rock Island tracks. The building is a two-story brick structure of good design and in excellent condition. It was built about the year 1900. Along the north side of the building is a roadway between Fourth Street and Fifth Street, 20 feet wide, used by passengers as well as by teams and trucks. Express matter is handled in an old building formerly used as a depot just east of Fourth Street. There are only two station tracks which are also used for main line freight movements.

The entire passenger station layout is badly cramped and inadequate for its purpose. The approach to the station for taxicabs, pedestrians and the method of handling express matter are especially inefficient. The necessity of running main line freight and passenger trains over the station tracks together with numerous switching
movements to industries and to the Rock Island team yard just west of Fifth Street combine to make the successful operation of this station a difficult matter.

A serious obstacle to the working of the Rock Island station is the fact that the trains of the Wabash, Chicago Great Western, Des Moines Union and the Burlington operate back and forth just north of the Rock Island Station, at times entirely blocking all approaches to it. The station is used jointly by the C.R.I. & P. and the M. & St.L. Railroads. The total number of trains operating into and out of the station amount to from 30 to 34 daily.

By quick and timely handling and close observation of schedules there is at present little interference or loss of time in the passenger train operation itself, but the time is not distant when both freight and passenger movements will become so dense and the interference of traffic over the Des Moines Union tracks just north of the station so great that the use of this station will become decidedly difficult.

The Chicago Northwestern Passenger Station.

The C. & N.W. passenger station is located on the west side of East Fourth Street between Locust and Walnut Streets. It was constructed over twenty years ago. The building is a brick structure two stories high. In addition to the station tracks there are at this point in Fourth Street three additional tracks which are used for freight transfer movements and for storing freight cars.
The passenger station layout of the C. & N.W. Railroad is very unsatisfactory from an operating standpoint as the waiting trains frequently block Locust Street, the latter being only 350 feet from Walnut Street. The station tracks are stub ended at Walnut Street and on this account engine and crew are obliged to remain with the train until the latter is unloaded. They then back down to the coach yard which is north of Des Moines Street. As passenger trains are made up and backed into the station, every train is compelled to cross all intersecting streets north of Walnut Street at least twice for every movement into the city. There are twelve train movements daily.

The construction of two passenger stations within a stone's throw of each other, such as the present Union Station and that of the Rock Island Railroad, is apparently an example of that lack of cooperative spirit which formerly more than now characterized railroad operations. Both stations are architecturally agreeable and conveniently arranged for the comfort of the public, yet neither is efficient from an operating standpoint. It would have been practicable to have designed a Union Station for all roads, including the Northwestern, located on the existing site.

The railroads fully realize the necessity of studying thoroughly the economic side of the question of terminals,
and it is important that the public should be well informed of the initial cost and the cost of upkeep of passenger stations especially. It is understood that although such structures are primarily utilitarian in nature the public can of right demand that a certain degree of architectural effort be expended in producing buildings and grounds of harmonious design and of an appearance commensurate with the other public and semi-public buildings in the city. For it is a fact that a dilapidated and disorderly passenger station is usually considered by the casual visitor to be a discredit to the city rather than to the railroad owning it.

It will generally be conceded that the present passenger stations are inadequate, that a Union Station is a necessity, and that the present is a fitting time to consider its construction.

**Items that Influence the Selection of a Site.**

The ideal location for a Union Passenger Station is that which combines satisfactory operating conditions with accessibility to the public. If it can by its general usefulness, aside from railroad activities and by reason of its ornamental appearance, add to the material resources of the city, so much the better, but such considerations are usually subordinated to that service for which it is designed.

Briefly, the principal factors considered in this report in recommending a location for a station are as follows:
1. The station and all of its appurtenances must be north of that broad belt of railroad tracks and industries which bisects the city.

2. It must have independent station yard tracks free from alien traffic.

3. There should be ample room for future expansion.

4. It should be as close as possible to the business center without obstructing with its accompanying auto traffic, streets already congested or interfering with the normal expansion of the city.

5. It should be accessible to all sections of the city by street car or auto.

6. There must be the least possible interference with existing industries or present railroad freight operations.

7. The cost must be kept low, especially if the railroads are to bear the entire expense of the project.

Four sites were considered for the proposed Union Passenger Station, and two selected as best complying with most of the desired conditions. These are Plan "A" and Plan "B," described as follows:

Alternate Proposals.

Plan "A". Union Station Approximately in Present Location.

Under Plan "A" the present station track layout of Union Station would be expanded to a minimum of ten tracks, arranged in five pairs with platforms between each pair. This along will require a space about 130 feet wide and will necessitate the removal of all buildings between the Des Moines Union and the Rock Island tracks from 4th Street to 7th Street, and two buildings adjacent to and south of the Des Moines Union tracks between 7th and 8th Streets.
In order to obtain the required station area, it is proposed to remove the buildings on the south side of Cherry Street between 6th and 7th Streets, to make room for baggage and express and parcel post sections of the station.

The new station should preferably be built out over a portion of the tracks, or at least the concourse, in order to obtain sufficient ground floor area upon which to construct a combination, multiple story office building and station.

From a waiting room at street level it is suggested that cross ramps lead to ramps that rise between tracks, as so many modern stations are built. An ample recess should be provided in the front or sides of the building to serve autos and taxicabs without obstructing the streets.

A portion of the present Des Moines Union freight yard would serve as coach yard and engine terminal for the station.

In operation, trains entering from the west would come in over the Des Moines Union tracks, much as at present. Trains entering from the east or departing eastward would pass over the Rock Island tracks in Vine Street.

Detour Line - Service to Industries.

An essential feature of this plan and in fact any other plan that has for its purpose the simplification of terminal operations in Des Moines, is a detour line to bypass through freight trains and other crosstown movements.
that now traverse the industrial and warehouse district between 11th and Cherry Streets. For this purpose it is proposed to construct a three track elevated line in Tuttle Street from West Eleventh Street to East Fifth Street, crossing the Des Moines River and occupying a portion of Raccoon Street on the east side. It would come to grade at about East 5th Street, swing slightly northward and connect to the east yards of the Rock Island, the Iowa Transfer and tracks of the other roads. From West 11th Street there would be an approach extending westwardly to connect with the tracks of the Rock Island, C.M. & St.P., and K. & St. L. Railroads. To the south, similar connection would afford access to the C.C.W. and the Burlington Railroads. In Tuttle Street the elevated line would be only about 15 feet above street level and the supports so arranged as to leave the roadway underneath unobstructed and usable.

It is contemplated under this plan that those industries served by the Des Moines Union Railway, between 1st and 5th Streets, would have contact with the railroad as at present, but that the tracks would end at 5th Street and be operated entirely from the east side.

The elimination of the K. & St.L. freight station and yard tracks from Market Street will permit its development as an efficient route for both through movements and service to the industries and freight stations.
Advantages and Disadvantages of Plan.

This plan provides a compact station layout accessible to all railroads. The station is retained in its present location which is little short of ideal for public service. Having the court house opposite, it is permanently protected from the undesirable type of buildings that usually cluster about railway stations. It is easily reached by car lines and is in walking distance of the heart of the city. It is sufficiently unobtrusive that it will not congest the streets. While the cost of this plan has not been estimated, it should be reasonably low as most of the property utilized now belongs to the railroads. An office building in this district would find a ready demand.

The disadvantages of Plan "A" are that there is not sufficient area available for elaborate architectural treatment and landscaping. It requires that the railroads enter into extremely close agreement and freely exchange uses of their tracks and property. The plan entails the purchase of condemnation of some valuable property and removal of several industries. It does not eliminate the sometimes conflicting movements of the Burlington and C.G.W. trains across the house tracks of the Rock Island and east throat of the Des Moines Union Yard in the vicinity of West 11th Street. There is little additional room for future expansion. Long trains block traffic passing between the business district and the industrial district south of the railways.
Plan "B" - Capitol Hill Site.

Under this plan it is proposed to locate the Union Passenger Station along the south side of Court Avenue between East 6th and East 8th Street. The number of tracks and general arrangement of the station may be similar to that in Plan "A", although with Plan "B" it will be possible and advisable to install a few stub ended tracks. It would, however, be a through station in operation. The channel of approach for trains arriving from and departing westward would be the Des Moines Union tracks, although the station can be made accessible to the Burlington, Rock Island and C.C.W. Railroads via their own tracks or the proposed elevated detour line in Tuttle Street. Trains arriving from and departing eastward would take the same route as they do now.

Advantages and Disadvantages of Plan -

The site offers the opportunity for building a station of any degree of excellence with no restrictions as to track layout, architectural treatment or landscaping effects. The proximity of Capitol Hill grounds would give it a setting practically unparalleled in other cities. This location is accessible to all railroads and can be reached by taxicab or street car. The plan practically isolates passenger station operation from industrial freight service. Court Avenue is 100 feet wide which insures favorable surroundings and freedom from traffic congestion.
Little additional land is required and it is comparatively cheap, and there are no expensive buildings to remove.

This site provides adequate space for future expansion and also affords means of combining with the railroad station, the passenger terminals of both the electric interurban lines. Plan "B" is especially desirable if the recommendations made with reference to the exchange of track of the C. & N.W. and the Fort Dodge, Des Moines and Southern Railroad are adopted.

The disadvantage of Plan "B" are that it places the station 0.6 miles farther from the business center and also the center of population than does Plan "A". The immediate surroundings are not at present as attractive-to-look upon although sometimes this objection can be removed without undue expense. There is no convenient yard at hand for storing for passenger coaches and equipment. To provide for this some readjustment of the freight yards on the east side may be made.

Other Plans Considered.

A location in the vicinity of West 1st Street and the Des Moines Union tracks, or a river front site, was given study but it involved the destruction of too much valuable improved property and offered no particular advantages aside from affording a view of the Des Moines River and the very fine group of public buildings on either
side of... The avenues of approach to this location are also deficient. The most objectionable feature would be the difficulty of placing the station building near the river, at First Street, and at the same time midway of the length of the station tracks, with the limited room available.

A site was also studied in the western section of the city in that general district extended-from 11th Street to 15th Street and lying north of the Des Moines Union Yard. It is not practicable to get a station on the north side of this yard without practically destroying both the Des Moines Union Yard and the smaller yard west of it which serves the Ford Plant. These yards are important and vitally necessary to terminal operations. A station closer than the present Union Station to the Des Moines Union Yard is not advisable as it would curtail the latter's usefulness and also interfere with passenger station operation.

In the foregoing comparisons of plans for a Union Station, the outstanding features of Plan "A" and Plan "B" are as follows:

Plan "A" - (location approximately as at present) is almost ideal as far as public service is concerned and does not disturb the existing relationship between the principal business district and city's passenger terminals.
Plan "B" - [Capitol Hill Site] offers much the better opportunity for architectural setting, and most important, provides ample room for future expansion. It also permits of the separation of freight and passenger movements through the station layout, while Plan "A" does not entirely eliminate confusion from this source.

The preponderance of advantages are undoubtedly in favor of Plan "B", the Capitol Hill site, as far as future Des Moines is concerned.
Grade Crossing Elimination.

There are in Des Moines some 30 locations where one or more railroads cross the public streets at grade. In many cases several parallel railroads, close together, are involved so that a single project will cover them all; as, for example, the 7th Street viaduct constructed in 1918. (This viaduct cost $200,000 and is 1000 feet long, having a roadway 36 feet wide and 2 sidewalks 6 feet wide).

It will not be economically possible or at all necessary to eliminate every railroad crossing within the city in order to assure the requisite degree of safety and to afford a sufficient number of unobstructed approaches to the industrial and residential districts.

Where the intersecting streets occur at very frequent intervals, it is recommended that some of lesser importance be closed; especially is this advisable in the outskirts districts.

Viaducts carrying streets over railroad tracks are obnoxious and destructive to property values when built through those sections of the city thickly settled with independently owned factories, warehouses and other concerns to whom direct rail service is necessary. Yet in such cases, the elimination of grade crossings by track elevation or depression is virtually out of the question and viaducts must be resorted to. They should be used sparingly however at
alternate streets if possible, leaving some streets at
grade to provide accessibility by train and track.

The most objectionable grade crossing is that
subject to both heavy vehicular travel and to frequent
high speed train movements, especially if there are several
railroads making the same crossing. The use of switch
engines on the same or adjacent tracks increase materially
the danger of such crossings. The degree of protection
afforded by the railroad modifies of course, the seriousness
of this situation, but does not eliminate delays to street
traffic.

Another form of grade crossing less objectionable
but more common than the proceeding is that where owing
to a multiplicity of tracks and slow switching movements,
important street traffic is subjected to annoying delays.
In this class are those north and south streets on both
sides of the river, crossed by the tracks and yard of the
Des Moines Union, the Rock Island and Burlington. In
this category also fall the intersections of those streets
from Des Moines Street to Court Avenue on the east side of
the river, with the Chicago and Northwestern Railway in
East 4th Street.

There are quite a number of railroad grade crossings
of considerable less moment than the foregoing which if prop-
early protected should not require a separation of grades for
many years, such as, for example, those made by the Burlington,
Chicago Great Western, Wabash and other roads in the Southern
and southwestern sections of the city that are thinly populated and traversed by few important streets.

**Methods of Elimination Proposed.**

On account of the flat topography of the land occupied by the railroads, high ground water level and difficulty of obtaining drainage, the separation of street and railroad grades can be obtained generally only either by elevating the railroad track above the streets and using subways, or by raising the streets over the tracks by means of viaducts. Both methods must be resorted to in Des Moines.

If the routing and concentration plan of terminal operation proposed in this report, or some similar scheme can be adopted by the railroads, much of the necessity for grade separation will be eliminated. Such an undertaking requires study by each of the railroads and a whole-hearted cooperation by all, but it is believed that no satisfactory solution of certain grade crossing problems can be found in any other manner, and it is certain that the industrial future of Des Moines depends upon the adoption of a plan which has for its basis the coordination of railroad operations.

Chicago and Northwestern.

The proposed rerouting of the C. & N. W. Railway and the removal of its freight and passenger terminals from East 6th Street will at once relieve this section of the city from railroad grade crossings. The substitution of
electric power under the operation of the Ft. Dodge, Des Moines/Southern between Des Moines Street and the C. & N.W. yard in north Des Moines will for many years make unnecessary the separation of grades at Pennsylvania Avenue and other intersecting streets as far northeast as the proposed joint C. & N.W., Ft. Dodge, Des Moines and Southern yard, or about to Hull Avenue.

When traffic on the Ft. Dodge, Des Moines and Southern becomes so heavy and continuous that grade crossing elimination is advisable, it is recommended that the track be depressed and the streets carried over, this being the more desirable form of construction especially through residential districts.

At Hull and Douglass Avenues, subways are recommended when conditions justify the expense of this construction.


The tracks of these roads parallel each other from Dean Street to about Hull Avenue, where the C.C.W. Railway diverges from the other two by a long curve to the right, again coming close together for a short distance at the north city limits line.

As at present laid out the tracks of the three railroads are from 25 to 30 feet or more apart and would therefore require 3 separate structures in the case of subways at each crossing. The excess space between tracks may
become useful in later years for passing sidings and storage tracks and it is believed advisable for the present to treat each road as a separate project, although the same method of elimination is recommended for all.

The entire stretch of tracks from Dean to Hull Avenues is low and flat with a number of industries scattered along the way. It is recommended that the tracks be raised from 10 to 14 feet and that the streets be lowered at the tracks to such depth only that drainage to existing sewers can be obtained. This, in general, will not be more than from 4 to 6 feet.

At Dean and Walnut Streets, viaducts are recommended to carry the streets over the tracks as these streets are so close to short line junction and the intricate track layout in the vicinity where track elevation must cease, that subways are impracticable on account of the great depth to which they would have to be built.

It is suggested that Capitol Avenue be closed or diverted into Grand Avenue the first street where the elevated tracks will reach their maximum height.

From Grand Avenue northward surveys at the principal streets are recommended, omitting or rather closing intermediate streets that are not improved or greatly used.
In the future if the growth of the city warrants it, these streets can be opened up at a cost not greatly exceeding that of the work done now.

In the first part of the program it is recommended that tracks elevation be not carried beyond Easton Boulevard, eliminating the crossings at Peon, Walnut, Grand, Des Moines, Avenue Frederick Hubbell, East University and Easton Boulevard.

**Short Line Junction to Des Moines River.**

That section of East Des Moines lying south of Court Avenue and Capitol Hill is low, flat and thinly settled. It will eventually become almost exclusively industrial in character, and on each will require several good avenues of communication with the other sections of the city.

Owing to the multiplicity of trackage, viaduct construction generally is recommended for this district. In many cases the topography distinctly favors this type, as for example 25th, 16th and 36th Streets. Pedestrian end within in the Major Street Line.

From the Des Moines River to East 4th Street inclusive, it is recommended that the streets remain at grade as there is an evident lack of necessity for grade crossing elimination in this section.
East 6th Street is an important thoroughfare and is designated a Major Street in the Street Plan. A viaduct here is desirable.

Other streets that are open and in use across these railroads are 5th, 7th and 9th Streets, at any of which a viaduct could be constructed, though there is no necessity for eliminating each crossing as the expense entailed would not be justified.

It is probable that viaducts at 6th, 9th, 14th and 18th Streets will constitute a satisfactory program for this district.

Chicago, Great Western, Burlington and Others - East Des Moines.

In addition to the foregoing grade crossings in East Des Moines, southern section, there are quite a number made by Great Western and Burlington railroads especially that will ultimately require attention, such as at 6th, 9th, E 9th, Scott Street, and other streets either proposed or in progress. Practically all of these can be taken care of by elevating the tracks and passing the street underneath.

Southwest First Street to Southwest 11th Street.

Between Southwest 1st Street and Southwest 11th Street, railroad tracks partially or wholly occupy Vine Street, Market Street and Elm Street. The district is one of intensive railroad and industrial activity, including as it does four of the largest freight stations, team yards, two passenger stations and some 60 warehouses and manufacturing establishments.
South of this district, between Elm Street and
the river, is another great area devoted to industries and
warehouses, no less important than that north of Elm Street.

Communication by teams and streams between these
two districts and the main business district of both West
and East Des Moines and to the various freight stations,
is necessary to their existence and is becoming increasingly
difficult to maintain.

Regardless of whether or not main line freight and
passenger trains are removed from their present channel be-
tween Elm and Cherry Streets, as is proposed in another section
of this report, it will become necessary to consider the
separation of grades and yards between 1st Street and 11th
Street. The intensive use now made of the 7th Street viaduct,
the sole unobstructed passageway over the tracks, proves its
usefulness.

The viaduct is the best type of construction to
use here and it is recommended as a tentative program to
build viaducts at 3rd Street, 5th Street and 9th Street,
leaving 2nd, 4th, 6th and 11th Streets at grade. It is
probable that a viaduct at 5th Street will be prohibitively
expensive on account of the difficulty of obtaining a sat-
sactory north approach to it without interfering with
Court Avenue, which is only about 250 feet from the first
railroad tracks. About 500 feet is needed to afford an
approach with a reasonable grade.
West First Street can be carried over the tracks of Rock Island and Burlington, but it will be necessary to cut the Des Moines Union tracks at First Street in order to bring the north approach to grade at Court Street. These tracks can scarcely be dispensed with.

Bloomfield Road.

The present bridge across Raccoon River and the railroad tracks connecting Bloomfield Road with the Grand Ave. Locust Street intersection will in a few years require replacement. It is not only obsolete but is of insufficient width. Its relocation somewhat eastwardly of its present position, as described in the Major Street report, will greatly increase its accessibility and usefulness.

Chicago, Great Western and Burlington Railroads: South Side.

Bloomfield Road crosses at grade the west end of the C.G.W. yard, and the main line of the C.B. & Q. Railroad. The latter is at the foot of a very severe grade on Bloomfield Road. As the tracks of the two railroads are almost 1600 feet apart it is advisable if practicable to move the C.B. & Q. track northward away within 500 feet of the C.G.W. and eliminate both crossings with a single viaduct. The design of such a viaduct should be such as to permit of the full development of the space underneath for railroad yard purposes.
Southwest 9th Street, which also crosses the C.G.W. Railroad at grade can be carried over the tracks by replacing the present 9th Street bridge by one of different type. While this is done the grade crossing of the Des Moines Terminal on the opposite side of the river, can be eliminated as well.

This grade crossing occurs at the bottom of two descending grades of University Avenue just west of the bridge over Des Moines River. Street traffic is dense and swift. This crossing can be conveniently eliminated by means of a viaduct over the traction company's tracks, and would result in an improved approach to the bridge.

The foregoing description covers the principal grade crossing problems confronting Des Moines at the present time. Fortunately, the conditions are such that practically any of the projects can be undertaken separately, with the exception of those involving track elevation such as along the parallel tracks of the Rock Island, C.G.W. and Ft. Dodge, Des Moines and Southern in East Des Moines, from Walnut Street northward. These must necessarily be treated as a single project.

It is believed that the wholesale elimination of grade crossings in Des Moines is an unnecessary procedure at this time and would involve an excessive expenditure by both the city and the railroads. It is recommended, however,
that a program be agreed upon by all of the railroads and the city in order that the gradual elimination of crossings can proceed in a systematic manner and in conformity with the provisions of the Major Street Plan, Zoning, and other features of the City Plan. It is with this object in view that the general program for grade crossing elimination included in this report has been prepared. When a detailed study is made of the various projects involved and their cost computed, it will doubtless be necessary to depart somewhat from this plan.

The essential idea at the present time is for the railroads, as a unit, and the city to study and agree upon this or a similar plan and then treat each portion upon its merits when the question of elimination of individual crossings arises.