CHAPTER VI

Transit

Street Railroads and Auto Buses

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

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

"(c) Street railroads, including their routes, terminals and connections. This shall include traffic lines in the whole metropolitan district of Cincinnati on the Ohio side."

"(f) Auto buses and trackless trolley lines, including routes, terminals, storage facilities and connections. This shall include trunk lines in the metropolitan district of Cincinnati on the Ohio side."

The Problem

Today the street railroad and the auto bus problem must be considered together, because they serve the same general purpose. They either compete with one another or they supplement one another. It has been recognized that the rapidly growing competition between street railroads and auto buses was wasteful to all concerned, and there has been of late a marked attempt all over the country to avoid duplication of service and to develop plans of co-operation or common ownership, whereby the street railroads and the auto buses would supplement each other as part of one unified system. In at least 200 cities street railways are now operating bus lines.

It is generally felt by traction experts that a trolley or bus line should be near enough to the people whom it serves, so that no one will be required to walk more than a quarter of a mile, or at the outside half a mile, to reach the trolley or bus. This means that at best each route will serve effectively a strip not over a mile wide. When such mile wide strips have been laid down, centering along each trolley and bus line, all territory lying outside of these strips can be assumed to be inadequately served.

Each of these outlying unserved territories presents its own problem for solution. In each case the question is:

1. Should this outside territory be served by an extension, or possibly by a relocation of one of the existing trolley lines?

2. Should it be served by a bus line running to the center of the city?

3. Should it be served by a bus line which acts as a feeder to a near-by existing trolley or rapid transit line?

4. Can it be served by commuting service on an existing steam railroad, or possibly by boats along the Ohio?

Maximum Daily Traction Travel

Trolley travel (total) for December 1st, 1920, (data from Traction Co.)

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** Approximately 30,000 or 75 per cent of these may be considered as incoming.

!!Approximately 57,000, or 85 per cent of these may be considered as outgoing.
Steam Railroads

To determine first the part which the steam railroads play in the local transportation, a special count of commuters was made in the summer of 1921. At that time it was found that including all of the railroads coming into Cincinnati from the Kentucky side as well as the Ohio side, there was a total of only 3,167 commuters per day. In proportion to the total population of the whole Cincinnati metropolitan district, this number of commuters by the steam railroads is so small as to be negligible, and therefore, the steam railroads can be readily left out of account except for considering their possible competition with the interurban trolley or bus lines.

River Transportation

There are no commuters and virtually no local transportation of passengers on the Ohio River, except to Coney Island. Therefore, local transportation by water can also be left out of the account except to the latter resort.

Trolley Service

This reduces the local public carriers to the trolley lines and the bus lines. It is generally agreed by traction specialists that unless there is enough available clientele along a route to warrant an average of a 10 or at most, of a 12 minute headway, auto buses are more economical than street cars, (operating and overhead expenses both included.)

In view of the present cost of construction, maintenance and operation of street car lines, good practice indicates that unless there is an average contributory population along a street car route of 1,300, or at a minimum 1,250 people per square mile, a 12-minute headway is not warranted, and bus service pays better than trolley service, where both services charge the same fare.

In Cincinnati it might appear at first thought that the unusual fact that at rush hours the trolleys and buses are almost equally full, both inbound and outbound, would tend to reduce this factor of 1,250 people per square mile. However, the rapidly decreasing downtown population is making this factor less important each year. At best it serves only to permit a small decrease in frequency of service or a small decrease in operating cost, both of which have already been discounted.

The use of one man instead of two-man cars might be thought to extend the range of the trolley, but in practice, the saving in labor is so small in proportion to the total cost of plant and operation, that at best it would serve only to lower the above 12-minute headway to 11½ or at most 10 minutes.

Trolley Bus

There is a possible intermediate service between the street car service and that of the bus. It is what is popularly known as the trolley-bus or the trackless trolley. This type of service was tried experimentally during 1922, 1923 and 1924 in Staten Island, New York and Norfolk, Virginia, as well as in several other cities, but with indifferent success. This lack of success has been due largely to the fact that the auto service is much more quickly and cheaply installed, and still more to the fact that the auto bus has been greatly improved in construction and economy of operation during the last year or two.

On the other hand, in one of these cities, the traction company, on popular demand, has agreed to install trolley buses in now unserved territory where there are at least 600 people per square mile (which corresponds to a 27 to 30-minute schedule), provided such service be subject solely to the State Utilities Commission and be required to pay no more for paving than do the auto buses. The city government refused, however. In the light of these experiences, we be-
lieve that today we are justified in assum-
ing that where it is not economical or prac-
ticable to extend the trolley service, the only other service that should be con-
sidered is the auto bus, at least until such time as the trolley-bus has demonstrated its efficiency.

Rapid Transit

The rapid transit service although inti-
mately related to the trolley and bus ser-
vices is being considered in a separate fol-
lowing chapter, where its effect on the local transit situation is developed in de-
tail. As a matter of fact, however, there is no part of the city within a quarter or half mile of the proposed rapid transit route which is not within a correspond-
ing distance of one of the existing street car or bus lines, except for a few hundred acres now undeveloped between Bond Hill and Ivorydale, about fifty acres now undeveloped between Bond Hill and Nor-
wood and about fifty to a hundred acres now undeveloped between Oakley and Norwood Heights. Therefore, the rapid transit system actually reaches almost no territory that is not already reached by street cars or buses.

Trolley Route Improvements

A map has been prepared showing half-
mile and mile strips centering on each trolley and bus line now existing within Cincinnati and for several miles outside, and another map was prepared showing corresponding strips along all interurban and bus lines and around each railroad commuting station throughout all of Hamilton County.

On the assumption that it requires a population of at least 1,250 people per square mile to make a trolley service pay, a comparison of these half-mile and mile service strips along the existing trolley lines with the 1920 population spot map, shows almost at a glance, that there are virtually no areas now existing within Cincinnati and even within the county, that would warrant immediate extension of any existing trolley line.

On the other hand, a comparison of the 1970 population spot map with the exist-
ing trolley service strips, indicates vari-
ous new territories now unserved by trol-
ley or bus or served by bus only, which it would probably be profitable to serve with extensions of the existing trolley lines or to re-route them, at a date to be cal-
culated, but at any rate within the next fifty years.

Trolley lines should be extended or re-
routed as a part of the City Plan as indi-
cated on the accompanying Trolley and Bus Map.

1. The Warsaw Avenue Line should be extended by 1930 over Bridgetown Pike and Glenmore Avenue to Cheviot, connecting with the existing trolley line on Montgomery Avenue.

The area between Price Hill, West-
wood and Cheviot is bound to have a considerable development in the fu-
ture. The population is already over 1,000 people per square mile. There is probably no area within equal distance of the center of the city now unserved by transit, that has as good a chance of growth as this area, therefore, it can be safely assumed that eventually a trolley line will pay through this region. This line will also help Che-
viet and Westwood, in that it will give them another means of traveling to and from the center of the city.

2. The College Hill Line should be relocated by 1930 from Spring Grove Avenue, over the Hopple Street Viaduct and thence along Beekman Street, Runnymede and Chase Avenues, to connect with the existing route again on Hamilton Avenue. However, whenever Virginia Avenue is extended to Hamilton Avenue, as proposed on the Thoroughfare Map, the trolley line should be re-routed over Virginia Avenue to Hamilton Avenue instead of along Chase Avenue.

Beekman Street and the Runnymede Avenue area on the west side of Mill Creek, are now relatively inaccessible, and yet there is no good reason why this area on the west side of the valley should not have just as good a development as the east side, once access to it is provided. The population is over 1,000 per square mile. Therefore, it is most important that the street car lines now running on Colerain Avenue
should be transferred to Beekman Street and Runnymede Avenue. One of these two lines terminates in Cummins ville and the other at College Hill. In either case, going up the west side of the valley only makes the trip a trifle longer and if a person is in a hurry, there is always the possibility of going to Cummins ville directly by the subway instead of continuing on the trolley car down Beekman Street. As soon as Virginia Avenue is extended to Hamilton Avenue, the total distance from College Hill to the city will be hardly any longer by Beekman Street than it is now by Colerain Avenue.

Attention should also be called to the fact made evident by reference to the flood maps, that the route via the Viaduct and Beekman Street is the only one which is above high water at all times.

3. The Sixth Street Line should also be relocated by 1930 over Hopple Street Viaduct, Beekman Avenue and Runnymede to Cummins ville, replacing the present Colerain Avenue Line from Hopple Street Viaduct north. In order to accommodate the business along Colerain Avenue, between Spring Grove and Virginia Avenues, a shuttle service could be instituted, or the present Sixth Street cars might be turned east on Colerain at Runnymede and operate through Colerain to a terminus near Spring Grove Avenue.

4. Whenever the Hopple Street Viaduct, Beekman Street and Runnymede Line is in operation, the Colerain Avenue Line from Hopple Street Viaduct to Cummins ville should be abandoned, releasing Colerain Avenue for tracking. This should be undertaken as soon as the Rapid Transit Line is in operation.

When the subway is in operation there will be no need for trolley lines paralleling it on Colerain Avenue as well as on Spring Grove. As Spring Grove Avenue is wider, it is better to leave the trolley line on it and abandon that on Colerain Avenue. This abandonment will greatly relieve the trucking situation and the traffic conditions up Mill Creek Valley.

5. The Bond Hill Line, which now stops at the B. & O. tracks, should be extended north over Paddock Road to Regent Avenue in Bond Hill as soon as the railroad grade separation is finished. It ought to be extended immediately.

There can be no question in any one's mind that the Bond Hill trolley line should be extended at least to the center of Bond Hill as soon as the grade separation over the B. & O. tracks is completed.

Until such time as tracks need to be laid in Paddock Road, buses could doubtless be operated to advantage. This might continue to be the case for a long time to come. Many passengers would doubtless transfer to the Rapid Transit line, as soon as it is in operation. If a large majority of the passengers do so, it might be found wise to operate a shuttle service from Bond Hill for them and turn the Reading Road cars easterly at Dana Avenue as an alternative to the suggestion hereafter made for the Winton Place cars (see 8 below).

6. Mariemont should be reached by 1935 at latest; either by an extension of city service over the Cincinnati, Milford and Manchester Line or by an extension of the present Madisonville Line over Plainville Pike, or both. This trolley extension to Mariemont is sure to be warranted by the growth of this new territory within the next ten years. Until then a temporary bus line feeder to the trolleys in Madisonville will be sufficient.

7. The Crosstown Line should be extended west of Clifton Avenue, down the new McMillan Street extension and across the viaduct proposed on the Thoroughfare Map from the foot of the trolley inclined railway just above McMicken Avenue, over to Harrison Avenue at the eastern entrance of the present Harrison Avenue Viaduct, thence across the present Harri-
son Avenue Viaduct and southwardly over State Avenue. This line is needed now. It should be extended as soon as the viaduct is built.

Whenever the proposed viaduct from the McMillan Street extension to the Harrison Avenue Viaduct is carried out, the Crosstown Line should be extended over it and so on out to connect with the existing Harrison Avenue Line on the west, and on down State Avenue. The sooner this improvement is carried out the better.

8. The Bond Hill Line might be extended from Reading Road over Dana Avenue, the proposed Wasson Road extension, thence along Edwards Road, Erie Avenue, Ault Park Road and Ault Park Road extended to Wooster Pike and possibly to Mariemont, thus creating an outer cross-town trolley line. Some such cross-town connection should be created by 1940. Meanwhile this route should be served by a bus line.

It is now impossible to go cross town by trolley in Cincinnati, except for the short cross-town line on McMillan Street. The more the city grows and the more it spreads out, the more necessary it is to have means of crossing directly from one outlying part of the city to another.

9. The Madisonville Line should be re-routed over Delta Avenue to Eastern Avenue. This should be done by 1930.

In order to relieve the trolley traffic situation at Peebles Corner, it would be most helpful to re-route the Madisonville Line over Eastern Avenue to Delta Avenue, and so out Erie Avenue to Madisonville. This implies no new trackage. It should not take any longer time to go from Madisonville to the center of Cincinnati by the new route than it does by the existing one. This could be done to good advantage now. It should certainly be done by 1930.

Bus Lines

In April, 1924, when a special study was made of the bus line situation in Cincinnati, it was found that there were 23 distinct bus lines in operation, carrying a total of a little over 10,000 people per day. The service and equipment varied from one bus a day to one bus every 15 minutes and the seating capacity from nine seats to thirty, with an average of about twenty seats per bus. The tendency, however, in Cincinnati, as all over the country, is to use larger and better buses.

The greatest asset of the motor bus is its mobility.

The following are among the principal reasons why the motor bus is popular with the people it serves in every city where capably managed systems are operated.

1. Faster movement is possible through congested traffic, not subject to delays by others breaking down or getting in their path.

2. Express service may be run without affecting normal operation.

3. Individual breakdowns have no general effect on balance of service.

4. "Switchbacks" may be effected at any point to meet temporary and unusual requirements of traffic.

5. Diversion may be made from regular routes in case of fire, accidents, etc.

6. Special service may be inaugurated over entirely new routes to hospitals, picnics, camp meetings and the like on a moment's notice.

7. Less boarding and alighting accidents, since buses may be stopped adjacent to the sidewalk.

8. Each unit being self-contained, service less liable to interruption.

9. Quieter operation.

Single deck trolley cars, as compared with single deck buses, can provide about twice as much mass transportation per vehicle and per unit of street space. Where the problem is solely one of modernizing the rolling stock of a street railway or of operating buses, the cost per vehicle is less for a modern street car than for a bus of equal carrying capacity.
Operating costs per vehicle mile are less for street railroads than for buses after a certain traffic density is reached.

At present almost all of the bus lines run into the center of the city and, therefore, act as competitors for the trolley lines. It is a recognized fact that buses, which are growing heavier each year, have a harmful effect on street pavements. Therefore, it has come to be conceded generally over the country that bus lines should contribute their share to the cost of paving and paving upkeep along the routes which they traverse. If this were done consistently, the bus lines would probably find it less profitable to run into the center of the city and would tend more and more to confine their service to those parts of the city not already served by the trolley lines. In other words, they would logically follow the arteries, thoroughfares and traffic ways serving new districts where there are no trolley lines. It is felt quite generally today, that the most effective use of the auto bus is as an extension, supplement or feeder to the existing, well-developed trolley line.

A study of the facts in many other cities, as well as Cincinnati, shows that a bus system is not likely to pay unless there are at least 250 people per square mile in the territory within a half mile on either side of the bus route.

Bus Route Improvements

With this standard in mind, the accompanying map, showing mile-wide strips, served by the existing bus and trolley lines was compared with the population spot maps for 1920 and 1970, and the conclusions which follow with regard to new or extended bus lines and the date at which they should be put in operation, is based on this detailed study.

Bus lines should be extended or new bus lines installed as a part of the City Plan, as indicated on the accompanying Trolley and Bus Map.

The Oakley-Carthage Bus Line should be started within the next few years, from the end of the Oakley trolley line at Madison Avenue and Marburg Avenue, over Marburg Avenue, Ridge Avenue, Pleasant Ridge, Country Club or Galloway Roads and over the extension of the latter as indicated on the Thoroughfare Map, to Carthage Pike. This line will open up a new and rapidly developing territory now unserved by any transportation, lying between Madisonville and Pleasant Ridge, and between Pleasant Ridge and Carthage. There are already over 250 people per square mile along this route and the number is rapidly increasing. The need of this line should stimulate the improvement of the poorer pavements along this route.

The Carthage-Mt. Airy Line should be established by 1950, starting from the end of the Oakley-Carthage Line at the corner of Carthage Pike and Galloway Road, extending and continuing over North Bend Road to College Hill and thence along the North Bend Road to Colerain Avenue, where it would connect with the proposed Westwood-Mt. Airy Bus Line. It will probably be at least 25 years before there will be 250 per square mile within this territory, which is half inside and half outside of the city limits. It is the most logical way of opening up a large territory, which must eventually come into the market, and also serve as a necessary connecting link in the third outlying crosstown line of communication. With these connections to Westwood on one side and to Oakley on the other, it would also form a connecting link of an interesting sightseeing trip.

The North Fairmount-Mt. Airy Westwood Line should be established immediately from North Fairmount, along Baltimore Avenue to Mt. Airy and back along Montana Avenue to Westwood, and the pavement improved. Along Baltimore Avenue there are at present 425 people per square mile and along Montana Avenue, 180 people to the square mile. This is enough to warrant an hourly service along this line. In any case, it would serve to open up the nearest large territory to the center of the city, as yet unserved by transit. This line could con-
nect with other bus lines now existing and could also serve as a feeder to the trolley lines.

A Westwood-Mt. Airy-Cumminssville-North Fairmount Bus Line should be established by 1930 at latest. It should follow Baltimore Avenue, north from North Fairmount and then follow West Fork Road into Cumminssville, then out to the north along Colerain Pike and then west and south along North Bend Road to Cheviot and Westwood. This line should be operated in conjunction with the Westwood-North Fairmount Line, by looping the buses around the longer route and back along the shorter route, and vice versa. This outer route around Mt. Airy Forest would serve today, at least 180 people per square mile, and would open up a large and very attractive undeveloped territory between Cheviot and College Hill. It could connect with the existing trolley lines and bus lines at Westwood, Cumminssville and North Fairmount.

A Coveland-Fernbank Bus Line via the Warsaw-Cleves Pike, from the end of the Glenway Avenue and Eighth Street Trolley Lines to Fernbank, should be established by 1935. At present there are less than 100 people per square mile through this territory, so that the line would have no immediate advantage, but eventually, it is the only logical way of serving a large inaccessible territory most desirable for residence.

A Westwood-Cleves Bus Line over the Bridgetown-Cleves Pike from Westwood to Cleves, should be established in the near future, certainly not later than 1930. There are already 156 people per square mile along this route, and including Cleves and North Bend, the average amounts to over 200 people per square mile. Across this region, there is today no means of transit, it is growing rapidly, and more than any possible route will serve a territory that is now ripe for a good class of development. This route would provide much shorter access to Cincinnati from Cleves and North Bend, then that now existing, which follows along the river. One bus could undoubt-
edly handle this service on a two-hour schedule, with 16 miles for the round trip.

A Cumminssville-New Baltimore-Harrison Bus Line from Colerain Avenue and Blue Rock Pike, along New Haven Road, should be established by 1940. There is at present an average of about 70 people per square mile throughout this region. Even the communities of New Baltimore and Harrison only contain 566 and 1,309 inhabitants, respectively, so that immediate service to this region should not prove profitable. Within 15 years, however, at the present rate of growth, it should be worth while.

A Winton Place-Hamilton Bus Line via Winton Road and Bank Lick Road to Hamilton Pike should be established by 1935 and possibly by 1930. At present there are about 100 people per square mile along this route, while within the city limits, there are about 170 people along the route. While this route opens up an entirely new territory now unserved between College Hill and Carthage, and between Mt. Healthy and Wyoming, nevertheless the rate of growth would not warrant the operation of a bus line here for at least five years and probably not before ten years. Furthermore, Winton Road would have to be regraded and resurfaced before it could be used for heavy buses.

A Mt. Washington-Batavia Bus Line via Corbly Road and Clough Pike should be established by 1940, or possibly by 1935. This route serves an area between the existing interurban line and the two existing bus lines running west from Mt. Washington and the Beechmont Avenue Causeway. There are at present less than 100 people per square mile in this region, nor is it growing rapidly enough to warrant the operation of another bus line through it inside of ten years.

All the rest of the outlying region within the county is now adequately accessible by existing interurban trolley lines, or by bus lines, or by commuting service on the railways, so much so that no new or extended bus service anywhere else within the county could be expected to pay for at least 20 years to come, if ever.
about constant, while the number carried by the Cincinnati & Dayton Line has been steadily increasing, although the excellent bus service now operating between Cincinnati and Hamilton and Dayton is drawing from the patronage of the interurban trolley road.

In view of the rapidly increasing use of the private automobile and of the rapid improvement in interurban motor bus service, it is obvious that no new interurban trolley lines can be established successfully, except possibly for the handling of local freight.

It is also true that interurban bus lines are most likely to pay today between larger cities, and even then only when they are not too far apart. Even between Cincinnati and such larger cities as Indianapolis, Louisville, Lexington, Columbus, etc., the steam railroad service is so frequent and the automobile use is increasing so rapidly, that probably no new interurban trolley service could be established profitably.

With regard to interurban bus service, the increased popularity of long distance, high-class bus service, as evidenced most strikingly in California, suggests that the time may come in the not far distant future, with the improvement of the principal connecting highways, when it will be profitable to establish de luxe bus service between Cincinnati and each of the large neighboring cities, even up to a distance of 250 miles.

The handling of freight by trolley has been on the increase of late, especially where interurban trolley lines serve well-cultivated farming districts. Through regions which provide a fair amount of daily freight, this freight service has tended to counteract the falling off in passenger service. On the other hand, the rapidly increasing use of the motor truck and the improvement of the main city and county highways, has rendered the business of carrying freight by trolley precarious at best. Therefore, it is generally felt that the possibilities of freight handling are not sufficient to warrant the establishment of any new outlying trolley lines.

Interurban Trolley and Bus Lines

Two of the seven interurban lines coming into Cincinnati have been recently discontinued. The Cincinnati and Columbus Line was discontinued in 1919 and the Interurban Railway & Terminal Company was discontinued in 1922. Data was obtained from the Public Utilities Commission, from the old Public Service Commission and the old Railroad Commission in Ohio as to the annual number of revenue passengers carried on each of the lines during the last 15 years. As is shown on the accompanying diagram on three of the lines, the Cincinnati, Lawrenceburg & Aurora Line, the Cincinnati, Milford & Blanchester Line and on the Cincinnati, Georgetown & Portsmouth Line, the number of passengers carried has been decreasing steadily, while the cost of operation and the competition has been increasing steadily.

The number of passengers carried by the Ohio Traction Company has remained
To find a remedy for anticipated congestion, a special study was made of the traffic conditions at this point. The results of a ten-hour traffic count were analyzed and have been graphically presented on two accompanying charts. One shows a complete analysis of the ten-hour traffic of the day, separated as to vehicles and street cars, and the other one gives the same information for the maximum hour—that is, between 5:00 and 6:00 P.M. Obviously, it is for the maximum congestion that further relief must be found.

The importance of this intersection can be visualized by comparing the daily traffic on McMillan Street with that of Gilbert Avenue. McMillan Street traffic is already two-thirds of that on Gilbert Avenue, while the traffic counts on all the main radials of the city show that Gilbert Avenue is now carrying one-fourth of the total traffic entering and leaving the "Basin."

Peebles Corner Re-Routing of Trolley Cars

Peebles Corner is at the present time beyond any doubt the most congested intersection in the city outside of the downtown "Basin." This fact is well established in the public mind and has been recognized by the City Administration, as manifested by the ordinance prohibiting left-hand turns for vehicles at this point. Since the extension of McMillan Street, traffic is increasing at an imposing rate on this crosstown thoroughfare, and according to the emanation district studies the intersection will remain one of the most important ones in the city for a long period of years, or, more accurately, until such time as relieving crosstown streets and radial arteries may be constructed.
It is to be noted that the prohibition of left-hand turns does not apply to street cars, of which 54 take such turns during the maximum hour. This number amounts to 4.4 per cent of the total maximum hourly traffic, but in consideration of local conditions, it is safe to say that each turning street car retards traffic as much as five or six automobiles. Thus it can be estimated that they cut down the traffic handling capacity of the intersection by at least 25 per cent.

Of the car lines making left-hand turns at Peebles Corner, the turns of individual car lines should be done away with as follows:

1. The Zoo-Eden line should be re-routed over Vine Street, instead of through Mt. Adams. Although this line is considered as something of a sight-seeing line, passing through Eden Park and around the Art Museum, it would follow a much more direct and logical route down Vine Street.

2. The North Norwood line should be routed over Mt. Adams, taking the place of the Zoo-Eden line as far as service to this section is concerned, and should follow Gilbert Avenue the rest of its course.

3. The Vine-Norwood line should be carried over Gilbert Avenue rather than Vine Street. It probably now serves the convenience of a very limited number of people, and would at least serve no less if re-routed.

The left-hand turns of inbound cars of all car lines serving the northeastern parts of the city should be eliminated by re-routing the same over one or more of the side streets which run parallel to McMillan Street (such as Chapel Street). Chapel Street carries a double track at present as far as Alms Place. By sufficient street widening, the double trackage could be extended over to Gilbert Avenue and by a proper arrangement at the intersection with Woodburn Avenue, connection could be established to Madison Road. The Madison Road extension to the proposed link of the Victory Park way (now being fostered by the present City Administration) could be utilized for street car purposes if properly designed. A transposition of the turning point in this manner would move the traffic-hampering turns from Peebles Corner to points where the harm done would be greatly diminished.

The elimination of right-hand turns of street cars would bring about a further relief. The traffic count showed that they amount to 12.3 per cent of the total traffic during the maximum hour, and it is estimated that their elimination would increase the traffic capacity of the intersection by at least 35 or 40 per cent. Half of the right-hand turns at Peebles Corner should be eliminated by re-routing the South Norwood, Evanston, Gilbert Avenue and Kennedy Heights car lines over Gilbert Avenue across the intersection instead of over McMillan Street and Woodburn Avenue. The rest of the lines, and if desired all of the lines, should use the proposed Chapel Street-Madison Road extension. These changes would, taken altogether, greatly relieve the traffic situation at Peebles Corner, at least until such time as the new relieving streets indicated on the Thoroughfare Map could be carried into effect.

**Gilbert Avenue Viaduct Trolley Re-Routing**

It is obvious that the traffic confusion at the western end of the Gilbert Avenue Viaduct is as bad as it is at any place in the city. During 1923, the Cincinnatus Association pointed out that the primary cause of this congestion was the present arrangement of the street car tracks, both outgoing and incoming street cars crossing the outbound vehicular traffic at the rush hour, both on Gilbert Avenue and on Broadway.

The various solutions that have been proposed of building a new trolley bridge or of moving the tracks to another part of the bridge, are bound to cost an unwarranted amount of money, although it is probable that any permanent solution of the problem will necessitate the creation of a separate route for the street cars which would join the present route on
Gilbert Avenue through a cut or tunnel. However, there is nothing in present conditions that would warrant such a costly solution.

With the carrying out of the one-way traffic system throughout the downtown district and with the corresponding one-way re-routing of the trolley cars within the central business district, the inbound trolley tracks from the Gilbert Avenue Viaduct should be removed where they turn down on Broadway, and the inbound cars re-routed north on Broadway, west on Ninth Street and down Sycamore. The present tracks on the Gilbert Avenue Viaduct should stay as they are now, but in leaving the viaduct at the northern end the tracks should be swerved 10 or 15 feet to the west for a distance of about 200 yards, so as to leave two full moving traffic lanes between the trolley line and the parked automobile lane along the east curb of Gilbert Avenue. This solution of the problem will do away with all left-hand trolley turns at the viaduct and remove most of the worst confusion in crossing the trolley tracks. As most of the outbound trolley cars come to a full stop on Broadway to take on passengers before turning on to the viaduct, automobiles outbound on Eighth Street would have plenty of opportunity to cross the single trolley track in safety. Widening the bottleneck for outbound automobiles at the north end of the viaduct will double the capacity of the avenue there.

Cincinnati, Lawrenceburg & Aurora Approach to the Dixie Terminal

In connection with the downtown thoroughfare studies, it is recommended that Second Street and Third Street be continued as crosstown trucking ways in the Bottoms.

As Second Street is developed as a downtown crosstown thoroughfare, the Cincinnati, Lawrenceburg & Aurora route to the Dixie Terminal, if built, should be along Third Street, as recently proposed. The damages and right of way costs for the development of an elevated structure along Third Street or along Second Street are not warranted by any harmful effect that the few cars on this line could have on Third Street traffic, especially if Second Street continues to be the main traffic street.

Trolley and Bus Terminals

A bus garage does not differ in its effect on traffic from any other public garage. Trolley car barns, which in the early days used to be located in downtown districts, are now customarily located in more outlying regions, where land is cheaper. Interurban trolley car barns are rarely large, in fact, none of them in Cincinnati are large enough to have any serious effect on the surrounding district, either from the standpoint of traffic handling, or of cost, or of causing a break in the continuity of business frontage.

The increase in the use of the trolley is not likely to cause any great increase in the number of cars which have to be stored, and therefore few new trolley barns are likely to be built. The few that will be built will be in outlying regions, where land is cheap.

According to the Zoning Ordinance, no trolley car barn or bus garage can be located in any residence district, and the bus garage, like other public garages, can be located in business or industrial districts only, provided they conform to certain necessary restrictions which will take care of their location. Therefore, the only problem is that of seeing that future trolley car barns are so located that they will not prove unpleasant to any near-by residence districts, that the turning in and out of trolley cars will not interfere with the proper flow of traffic on thoroughfares, and so that good continuity of business in local business centers will not be interfered with.

Abandoning Existing Trolley Lines

The lines which it least pays the Traction Company to operate are the following:

- Hamilton Line,
- Winton Line,
- Fifth Street Line,
- Glendale Line,
- Edwards Road Line.
From the standpoint of the public, the abandonment of any of these lines at the present time would cause great inconvenience. Each serves a well-populated and growing region, unserved by other transportation, and therefore all should be retained. Only along the Fifth Street Line is the population decreasing. Eventually the line can be given up without inconvenience.

Whenever the Cincinnati, Lawrenceburg & Aurora Line is continued to the Dixie Terminal, and in any case within ten years, the Fifth Street Line can be abandoned.

Street Car Re-Routing in Central Business Districts

In the previous chapter on the Downtown Traffic Problem, traffic congestion is to be relieved by a comprehensive system of traffic and parking regulations, and by the widening of the roadways on a number of streets. All of the traffic is made one way on Race, Walnut, Main and Sycamore Streets and Broadway, and on Fourth, Fifth, Sixth, Seventh and Ninth Streets. Left-hand turns are prohibited at nine street intersections. Thirteen blocks should be repaved soon.

With these changes going into effect, in particular the fixing of one-way traffic, the present street car routing through the central business district must be reconsidered.

It is evident that street cars should not continue to run in two opposite directions on streets where all other vehicles are permitted to go in only one direction. Therefore, it becomes necessary on virtually all of the central business streets to route cars in one direction only.

In any scheme of re-routing street cars in the congested districts, the following principles should be kept in mind:

1. On any one-way street the street cars should be operated only in the direction of travel required for all other vehicles.

2. Left-hand turns should be avoided whenever possible, and in any case kept down to an absolute minimum.

3. Except where left-hand turns are inevitable, the single track should be placed off center, allowing a distance of 8½ feet (or 8 feet minimum where absolutely essential) between the street car traffic lane and the curb on the right-hand side of the street.

4. The number of switches should be reduced to a minimum, and they should be operated automatically.

5. Main loading and unloading stations should be grouped rather than scattered.

6. The number of loading points should be reduced so as to avoid too frequent stops.

7. Loading should be done, both front and rear, without collecting fares on boarding outbound cars.

8. Schedules should be revised so as to eliminate stalling to kill time in the congested area.

9. Cars should be provided with more adequate signs to indicate where they go.

10. Sign boards should be placed at the car stops with a key to the car lines stopping there.

11. Trolley poles should be done away with and the overhead wires attached to buildings.

12. More trailers should be used during rush hour periods.

In working out a system for re-locating the downtown street car lines, the following considerations were also borne in mind:

1. Passengers should not be required to walk any further than they do at present to reach their street car line.

2. Passengers should not be required to walk any further in transferring from one line to another than they do at present.

3. Access to the hotels, railway stations, theaters and department stores should be as easy as at present.

4. The various lines should not loop across each other any more than absolutely necessary.

5. Crossings should be reduced to a minimum.

6. The aggregate track mileage and average route mileage should be decreased rather than increased.

7. The total number of cars passing along any one block in any one direction should not be materially greater than at present, and certainly not greater than can be handled effectively.

After a great many studies, a scheme was finally evolved which it is confidently believed satisfies all of these conditions.
DOWNTOWN STREET CAR REROUTING

Typical Solution Applying Principles Enumerated in Downtown Street Report and After Establishment of One-Way Streets

CINCINNATI, OHIO

Key to Symbols:

- Key to Symbols
- City Planning Commission
- Technical Advisory
- Consulting Engineers
- Corporation
- New York
- 1924

Based on Proposed Traffic Rules—an Effective Scheme
and which will prove to be fully as convenient as the present system. At the same time it should considerably relieve the trolley congestion and its effect on general traffic in the central business district.

As an essential part of the City Plan, and with the installation of the proposed traffic regulations and roadway widenings in the central business district, all of the street car lines should be re-routed within the congested district, as shown on the accompanying map.

This re-routing would result in a single car track on all central business district trolley streets except Twelfth Street, Central Avenue and Fountain Square. Car tracks would be eliminated entirely on the following blocks, with a consequent relief to automobile traffic:

1. Sycamore Street between Fourth and Sixth Streets.
2. Main Street between Fifth and Sixth Streets.
3. Vine Street between Fourth and Fifth Streets.
4. Elm Street between Fourth and Seventh Streets.
5. Sixth Street between Sycamore Street and Broadway.
6. Sixth Street between Central Avenue and Vine Street.
7. Seventh Street between Central Avenue and Elm Street.
8. Ninth Street between Vine Street and Sycamore Street.

No new track would have to be laid on any street where there are no tracks at present, except (1) on the widened stretch of Ninth Street between Sycamore Street and Broadway; (2) on Seventh Street between Vine Street and Walnut Street.

The present points of maximum street car congestion under the present routing are as follows:

(In the majority of these cases the cars are now running in both directions on these most congested blocks. These figures, however, are for the maximum number of cars operating in one direction on one track during the rush hour, based on the service during the maximum fifteen minutes):

1. Elm Street between Sixth and Seventeenth Streets—128 cars.
2. Fourth Street between Broadway and Main Street—120 cars.
3. Broadway between Seventh and Sixth Streets—112 cars.
4. Fourth Street between Vine and Elm Streets—116 cars.
5. Broadway between Fifth and Fourth Streets—100 cars.

The maximum number of cars in any one block in both directions together, is on Broadway between Sixth and Seventh Streets, where there are 184 cars per hour.

According to the scheme proposed on the accompanying map, the maximum hourly congestion, based on the maximum fifteen minutes, would be as follows:

(All of these are single track streets):

1. Sycamore Street from Ninth to Sixth Streets—135 cars.
2. Walnut Street from Seventh to Sixth Streets—129 cars.
3. Fourth Street from Walnut Street to Central Avenue—112 cars.
4. Fourth Street from Sycamore to Main Streets—103 cars.
5. Fifth Street from Main to Sycamore Streets—103 cars.
6. Vine Street from Sixth to Seventh Streets—91 cars.
7. Fountain Square from Vine Street to Walnut Street in both directions—130 cars.

The principal loading and unloading stations should not be located on any of the more congested blocks. Thereby, it is possible to reduce to a minimum the number and length of stops on the more congested blocks. Thus it is readily seen that the proposed re-routing will allow fully as many cars to pass through the downtown district, with considerably less interference with traffic.

It remains to compare the present and the proposed scheme (as indicated on the accompanying map) as to relative mile-
age in the downtown district, relative blocks served and relative convenience to passengers. This works out in detail as follows:

1. The Gilbert Avenue Lines, as re-routed, do not serve the corner of Broadway and Fourth Street, but do serve five extra blocks of Sycamore Street, one block of Ninth Street and one extra block of Broadway. Almost no patrons would have to walk any farther, and many would need to walk a block less to take these cars. The mileage would be increased by one block, but if the inbound cars are re-routed by Court Street, this extra mileage would be reduced. In any case, trolley cars must be kept off of Eighth Street. If the North Norwood Line were to be re-routed over Mt. Adams and the Madisonville Line over Eastern Avenue, the aggregate result would not be materially affected.

2. The North Norwood cars include one-half block more within the loop, which means that no passengers would have to walk any farther, and some would have to walk a half block less than at present.

3. The Reading Road Lines, by avoiding the stretch of Main Street between Fifth and Ninth Streets would greatly relieve the congestion there, but would oblige some patrons to walk one block farther. The track mileage is the same.

4. The Highland - Auburn Lines cover exactly the same route as at present.

5. The Clifton-Ludlow Lines, by eliminating the routing on Vine and Walnut Streets, would oblige some patrons to walk one block and others two blocks farther than they do at present. On the other hand, the patrons from east of Main Street would be saved a block’s walk. The track mileage is decreased by several blocks.

6. The Glendale Line, Lockland Line and the McMicken-Main Line would serve all their patrons as at present, and in addition would save a walk of one block to patrons east of Main Street and north of Ninth Street. The track mileage would be the same.

7. The various Vine Street lines are all served fully as well as at present, and in addition the Vine-Norwood Line and the Vine-Burnet Line are brought a block farther down to Fifth Street, thereby saving a block’s walk to a large number of patrons. The track mileage is about one block more for half the lines. If the Vine Street-Norwood Line were to be routed over Gilbert Avenue, the effect would not be materially altered.

8. The East End Line serves Fifth Street as well as Fourth Street, so that most of the patrons would have to walk a block less. The track mileage is about one block more.

9. The Sedamsville Line is just the same as at present.

10. The Sixth Street Line change would cause a few patrons to walk a block farther, as the tracks are taken off Sixth Street between Central Avenue and Elm Street. The track mileage is virtually the same.

11. By moving the John Street Line from Fifth Street to Walnut, Seventh and Elm Streets, a few patrons on Fifth Street west of Vine Street would be inconvenienced, while a great majority of patrons would be saved a walk of at least two blocks. The track mileage would be increased by several blocks.

12. The Warsaw-Elberon Lines, by being removed from Sixth Street between Central Avenue and Elm Street, and from Central Avenue between Fifth and Eighth Streets, would require a few passengers to walk a block farther. On the other hand, by its looping a block farther east on Walnut Street, the great majority of patrons would be saved a block’s walk in the center of the city.

13. The lines using Elm Street, by their removal from Sixth Street between Vine and Elm Streets, would cause a few patrons to walk a block farther. On the other hand, by their
returning along Vine Street north of Seventh Street, a considerable number of patrons would have to walk a block less. The track mileage is about a block less.

14. The North Fairmount Line, by moving two blocks farther south to the corner of Walnut Street and Fifth Street, would save most of the patrons a walk of one or two blocks. The track mileage is increased by two blocks.

15. The Colerain-Clark Street Line, by coming a block farther east to Walnut Street, would save the majority of patrons a block’s walk. A few patrons would be inconvenienced on Sixth Street west of Vine Street. The track mileage would be about the same.

16. The Westwood and College Hill Lines, by extending the loop from Elm Street, Sixth Street and Vine Street over to Walnut Street, Fourth Street and Central Avenue, would cause a few patrons on Sixth Street west of Vine Street to walk a block farther, but the great majority of patrons would have to walk a block or two less. The track mileage would be increased by several blocks.

In the aggregate, car mileage and track mileage would be increased a little, but a negligible amount in proportion to the increased service which the change would afford the car patrons.

A relatively small number of patrons would be obliged to walk a block, and occasionally two blocks farther, to reach their cars than they do according to the present route. On the other hand, the great majority of patrons would be saved a walk of at least a block.

In the aggregate, the railway stations, hotels, theaters and the department stores are served better than by the present system, and in many instances, considerably better.

Under the present system, the maximum walk for a transfer between any two lines is two blocks. Under the proposed system, it is the same distance, but in many cases where there is now a walk of two blocks, it would be reduced by the new system to one block or none.

As far as the public is concerned, there is everything to be gained and almost nothing to be lost by the immediate adoption of this re-routing plan. As far as the traction company is concerned, the trackage changes would be executed concurrently with roadway widening and repaving. The extra cost involved is small in comparison with the benefits that the changes should bring to the service.