Conference on the Rapid Transit Question

Tuesday, January 21st, 1930.

1930

Conference on the Rapid Transit Question

Called by

The Board of City Planning Commissioners

at 10:00 a. m.

Tuesday, January 21st, 1930

in the

Hearing Room of the Board of Public Works

City Hall, Los Angeles

FOREWORD

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Much discussion has taken place recently in connection with the subject of Improved Mass Transpartation, popularly known as Rapid Transit. Various civic bodies and groups have been discussing it, and the Board of City Planning Commissioners, feeling that it was a subject which was, in the first instance, one involved in city planning, called this conference, at which a number of the groups and interests which would be affected by or had been giving thought to the subject, were asked to present their views and experience. The purpose of the conference was five fold.

1. To assist the Planning Commission in making the proper approach to the problem.
2. To bring together those who had been giving thought to the matter, ascertain their views and experience, and make the same available to others who were interested.
3. To briefly sum up the present situation.
4. To define the various factors which enter into the problem.
5. To present to the public, through publication of the proceedings, the information and views expressed.

It will be seen, by a perusal of the papers herein, that the problem is exceedingly complex and covers a large field, and that much thought and study must be given it before it can be solved. Any solution will affect the city as a whole and must be made with that idea in mind. The first element of the problem is the question of whether anything is needed, the second is that of what is needed, the third, what will be the consequences, and the fourth, how can it be acquired and paid for. These four questions should all be answered in some manner before we proceed to achieve a solution.

PROGRAM

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The Present Problem—
Donald M. Baker, President Board of City Planning Commissioners.

Response—
John C. Porter, Mayor.

"An Interpretation of the City Charter Provisions Governing Rapid Transit"—
Erwin P. Werner, City Attorney.

"A Digest and Simple Statement of the High Lights of the Kelker DeLeuw Report"—
J. Ogden Marsh, Chief Engineer and General Manager, Board of Public Utilities and Transportation.

"Possibilities of Rapid Transit To Meet Requirements of Metropolitan Business District of Los Angeles"—
D. W. Pontius, President, Pacific Electric Railway.

"The Objectives of Adequate Internal Transportation Service and Present Obstacles To Creating Such Service"—
Richard Sachse, Consulting Engineer, Los Angeles Railway.

"Wherein the Question of Rapid Transit Is of Interest to 'Downtown' Business and Property"—
John G. Bullock.

"The Community's Interest in the Service of Satellite Business Centers and the Effect Upon Them of Rapid Transit and Its Lack"—
Carl Bush, Executive Secretary, Hollywood Chamber of Commerce.

"Would the San Fernando Valley Be Fed or Drained by Rapid Transit Connection with Metropolitan Center?"—
Chas. L. Wood, Manager, Major Development Association.

"Traffic Connections to Neighboring Cities"—
George A. Damon, Consulting Engineer, Pasadena.

"Traffic Connections with Metropolitan Center of Los Angeles Needed by Whittier"—
John M. Kemmerer, Secretary, Whittier Planning Commission.

"What Kind of Traffic Connection Do Neighboring Cities Need and Want with the Metropolitan Center?"—
R. B. Taplin, Planning Engineer, City of Long Beach.

"What Kind of Traffic Connection Do Neighboring Cities Need and Want with the Metropolitan Center?"—
C. J. S. Williamson, Member Santa Monica Planning Commission.

"An Analysis and Statement of the Purpose of Present Legislation Pertaining to Rapid Transit"—
David R. Faries, Attorney-at-Law.

Discussion.

THE PRESENT PROBLEM

DONALD M. BAKER, Mem. Am. Soc. C. E.
President Board of City Planning Commissioners

Mr. Mayor and Friends:

We are met here today at the call of the Board of City Planning Commissioners to contribute our thoughts, ideas and experience towards the approach to one of the most important questions now facing the City of Los Angeles and the surrounding metropolitan area, a question, if you please, just as important to the future of our city as that of water supply. It has been in the public mind for some years but now is being discussed in a far greater degree than ever before. Much of the discussion, however, which one hears concerning it nowadays is more or less academic and not based upon sound knowledge. It is the purpose of this conference to bring out from those who are most familiar with the subject, technical information which will be of value to our department. We hope also that the varying viewpoints expressed will be of value to all who are present. We have invited to be here, in addition to those who are giving papers, those who have evinced an interest in the subject.

The question under discussion is popularly known as "rapid transit" but such a title no more indicates the real scope than does the phrase "overlapping assessments" indicate what is included when one discusses the method in which public improvements in our city are handled and financed. A better term to be applied to this question would be that of "improved mass transportation."

My subject on the program today is entitled "The Present Problem" and that likewise does not indicate the scope of my paper. I am not going to tell you a lot of facts nor give you a group of conclusions relative to the subject which have been reached by myself or by our Board. I am going to tell you a few facts but primarily I am going to ask you a lot of questions. It is hoped that from these questions, from the points which are raised by other speakers of this conference, and from the various impressions you will receive from the papers given, that we may start to investigate and define just what is involved in this subject that we have been discussing under its popular name "rapid transit."

We are here more to define than to solve the problem. Once we have defined it, then we can seek a solution. That is what our Engineering President, Herbert Hoover, terms a quantitative or engineering method of attack, and being a member of the Engineering Profession myself, such a method appeals to me.

When one sits back and views the present method of life in our cities he is impressed with the vast amount of moving around which people now do. Fifty years ago, or even twenty-five years ago, the radius of daily movement of our population, even in the larger cities, was small. Men worked near where they slept and did their trading likewise close to their homes. Population densities in most large cities were fairly high. In the present day, industry and commerce are carried on in larger units and business necessitates more intimate contacts, with the resulting concentration of industry and commerce in specific localities and the establishment of residential areas at some distance from those given over to manufacturing and business. Transportation then becomes essential.

In a small community, even in the present day, the movement of population does not give rise to any serious problems, as the time element in such movement is negligible. As population increases, however,

area does likewise, distances become greater, and the time element commences to be a factor. If no adequate means of transportation exist a high density of population develops. Soon this excessive concentration of many people in a small area gives rise to unpleasant living conditions and inefficient methods of transacting business, and in rebellion against such conditions we find a movement towards decentralization springing up, industries and businesses moving away from the initial center, with smaller communities developing.

Up until the advent of the automobile the growth of most American cities followed fixed lines of transportation. In the older cities increase in population has largely resulted from the filling in of gaps located between fixed transportation routes. In Los Angeles and its surrounding area, however, growth and development have largely occurred since the automobile has been in common use. The trend of growth has not, therefore, been so controlled by rail transportation because the route of travel of the automobile is flexible. This situation has been greatly accentuated in Los Angeles because here much of our growth has occurred since the World War and rising commodity prices prevented any wide-spread extension of rail lines. Residental sections have moved out and out and people, when they were not able to ride upon rail lines, purchased automobiles. Los Angeles is particularly a city of single family homes and undoubtedly will continue to retain this characteristic. This has without question been encouraged by the method of transportation which its people have used. We will without question continue to spread our population over large areas in the future and maintain a low population density.

Seven or eight years ago automobile congestion became serious and a program was embarked upon to provide more street space to take care of the ever increasing number of motor cars, but this program of improvement has not kept pace with the increase in automobiles and their use and the congestion has continued. This congestion has been further aggravated by the extensive use of automobiles by people living beyond the termini of rail transportation.

When the carrying capacity of the street system in any section approaches the saturation point people go elsewhere, and Los Angeles is only beginning to feel the results of this decentralization movement. We must expect this to occur to a certain degree in any city of such large area, but one of our problems is to determine in the planning of our city to take care of its future millions, just how far we shall allow this decentralization to proceed and still maintain an efficient city structure, continue to conduct our business and commerce in an efficient manner, and promote satisfactory living conditions. Los Angeles is faced with that problem at the present time and the solution of the question of mass transportation is the key to the whole thing.

I have been greatly impressed in various meetings on this subject which I have attended recently with the varying viewpoints which have been expressed. Different phases of the problem appear to have been given considerable thought, but no group or interest, to my knowledge, has approached it on a broad comprehensive scale—one which considers not alone the question of mass transportation, but the effect of same upon the city plan.

I want to leave with you certain questions which must be answered before we can even define our problem. I do not claim that these constitute all the factors which enter into the equation, as we will discover others when we study it further, but these questions will give you an idea of the complexity of the problem and its close relationship with many other questions which are today of vital interest.

The Planning Commission is interested in this subject primarily because of the effect of methods used in circulation and distribution of our population upon future planning of our city. Our present plan, in-

cluding our highway structure and the proposed utilization of our property (zoning), is built around existing transportation facilities, including present and proposed street systems and existing rail lines. Any project involving improved mass transportation will vitally effect the entire structure of the city. Present zoning might have to be radically changed in some cases as a result, and if changes are necessary they should be made as soon as possible so that owners of property will know what to expect in the future. With a change in zoning there naturally follows a change for the plans of our public utilities, such as sewers, water mains, power and telephone lines, etc. It may also follow, and probably will, that our proposed plan of highways will necessitate further study and revising as a result of the introduction of improved mass transportation. At least we may find that we can postpone the improvement of some of them.

Do you realize that our city boundaries include a large area—450 square miles or 300,000 acres, and that a much greater area exists outside of our corporate limits which is physically in all respects a part of the City of Los Angeles, being separated only by political boundaries? That at present about one-third of the corporate area of Los Angeles is fairly well built up but has a very low density of population, which may, however, increase considerably? This situation will necessitate long hauls which must be made at a high rate of speed and for which a reasonable fare must be charged. These things are essential in any system.

Our present subdivision activity is now controlled primarily by the location of our major highways. Improvement of rail transportation might entirely change this picture. Have you thought about the problem of downtown parking in connection with this question? Consider the tens of thousands of people who now drive their automobiles into the downtown area every day on account of the slowness of our rail transportation, or because of the fact that they are not served with such facilities. These automobiles will average slightly more than one passenger per car. We have been spending millions of dollars annually to provide rights of way for this very inefficient means of mass transportation, and these millions have been contributed to very great extent by owners of property abutting upon or adjacent to the highways. If you provide these drivers with a rapid and cheap method of reaching their destination you will immediately remove many of the cars which congest our central business district.

Do you realize the center of the business district has moved in the last twenty-five or thirty years, from north of First Street on Spring southward to Seventh and Broadway, and then westerly, constantly reaching out toward the residental section, with the resulting obsolescence of many business properties and a consequent loss of investment. There is nothing to anchor our central area. In other cities they tear down existing buildings which become obsolete and build new ones. In Los Angeles we allow the old ones to stay and just move on a block.

Do you realize the intimate relationship between improved rail transportation and the existing limitations on the height of buildings in the central area of Los Angeles? At present our maximum limit is one hundred fifty feet, but even in the central area the average height is about half of this. The center of our blocks are not utilized. This has caused our central commercial district to travel in search of new corners.

Must we go to one extreme in providing for improved mass transportation, building a complete rapid transit system, including downtown subways, elevated structures, grade separations, extending way out into the residental district, or will a limited improvement whereby rail traffic in the central area is speeded up through its removal from the surface of the ground be sufficient, at least for the next few years?

What will be the effect of improved rail transportion upon the property just outside of the central business district and inside of the newer residential districts, valuable from the standpoint of proximity to the central area, but built up with old obsolete buildings and residences?

Any improvement in rail transportation must, of course, be paid for by someone. The problem of financing it really becomes one of seeing that the cost is borne by those who are benefited, and that it can be stood by the benefited parties.

Much thought must be given to the proper allocation of these costs. If we place them entirely upon the car riders, fares may be so high as to discourage use of rail transportation. Have you ever considered the fact that a public street is merely a right of way for vehicular traffic, usually provided at the expense of adjoining or adjacent property owners and used in most cases by residents of the entire city? Cannot we consider a rapid transit route in the same light, paid for by those who are benefited, where the riders, instead of owning and operating their own vehicles, pay, through fares, a private concern to do so.

If we are to build improved rail transportation routes partially by public funds, as suggested by some, in order to maintain reasonable fares, then we must consider the public credit. We need so many things in Los Angeles to keep pace with our growth—increased water supply and power facilities, more improved highways, sewer and drainage systems, public buildings, schools, etc. Any financial program must keep in mind the conservation of the public credit.

I have briefly touched upon the relationship between improved rail transportation and the city plan. This transportation system must fit into the present scheme and must not upset it. The Planning Commission at the present time frankly admits that it has no solution for the problem. We cannot compare Los Angeles to other cities and we can only take advantage in a limited way of their experience. The difference in characteristics of Los Angeles from other cities does not mean either that we must or must not have improved rail transportation. Our present problem is to find out what we must do.

We hope that this conference will mark the start of a proper approach to the problem and will serve to clarify it somewhat. The problem at present does not involve the question as to whether we should have subways or elevated roads; that question is merely a nominal one to be determined upon an economical basis. The present problem is one of economics and engineering.

We feel that papers given today will have a very definite value and we hope that some means will be found whereby they can be published and furnished to all those in attendance. We also hope, as the Planning Commission studies this problem, to have the advice of those most qualified to give such advice, and we intend from time to time to call many of you into consultation. We feel that the interchange of ideas resulting from this conference will be very valuable to each of you and will stimulate constructive thought.

We have asked you to be present for a short while, Mr. Mayor, knowing that you are busy, and also knowing that you are interested in this problem which is of such importance to our city, and we hope that your attendance will be profitable to you as well as ourselves. We should be glad at this time to hear a few remarks from you on this general subject.

RESPONSE

JOHN C. PORTER
Mayor

Mr. President, Commissioners, Ladies and Gentlemen:

I just came over this morning to lend my approval to this meeting. I very much approve of such an undertaking. This Rapid Transit problem is one that deserves the very closest attention and scrutiny. We must begin to study the situation. Just last night, I was in a group where we were studying just the opposite to Rapid Transit. We were trying to arrive at some control of the traffic that would possibly be indicated as "Slow Traffic" instead of "Rapid Traffic". One of the talks was along that line. They said, "If we would limit our cars to a certain speed and they knew they must confine themselves to that speed, our traffic problem would be largely taken care of."

Now we are considering another angle, Rapid Transit with Safety. There are a great many things to consider. Some claim that the decentralization of business will help the situation. There are a great many objections to that. Centralization of business tends to better business, I believe. That has been my experience. It also tends to lower prices because of competition. Decentralization would make it more difficult to transact one's business because they necessarily would have to go a longer distance between business houses. So I am happy and glad to see the Planning Commission take this matter up. I think it should go farther than Los Angeles City of course. We should not consider this problem just from one within the City limits because we are growing, getting to be a great empire here. In my annual message, I am touching on the question of consolidation of the City and County Governments. I believe while considering this matter of Rapid Transit, it should be considered from a County-wide viewpoint particularly. Maybe go further than that. So, Mr. President, allow me to say that I very much approve of this survey, this study you are making and one point I want to add is this, comparing statistics with other cities, I find here that our people ride about half as much on street cars as other cities do. That must be necessarily taken into account. How are we going to encourage that. Are we going to get a different type of street car, a different mode of transportation and what will it be? Some say our present street car system will be obsolete in a few years. That needs to be considered also. There are so many problems. I do not know how far you will get in the survey at this time, but I know it must be beneficial, so I wish you every success.

An Interpretation of the City Charter Provisions Governing Rapid Transit

By ERWIN P. WERNER
City Attorney

Article XX of the Charter of the City of Los Angeles, as adopted January 22, 1925, and as amended January 15, 1929, provides as follows:

"Sec. 210. The Board of Public Utilities and Transportation shall have the following powers and duties:

"(1) To investigate all privately owned public utilities in the City of Los Angeles (except utilities at the harbor placed by this charter under the jurisdiction of the Harbor Department) and compile such data as may be necessary to determine the proper services to be furnished by such utilities or the charges to be made therefor. The board shall have the right of access at all reasonable times to the property and records of said utilities for the purpose of investigation and may require reports respecting said matters from such utilities at such time and in such form as said board may prescribe.

"(2) To establish and prescribe by resolution regulations providing for the operation of, the extent, character and quality of service of, the rates to be charged by and the extensions to be required of, any said utility, all in a manner not in conflict with any paramount regulation, rate fixing or extension requirements for any such utility by the state or nation. The Secretary of the Board shall publish once in the official newspaper a certified copy of every such proposed regulation, tentatively approved by the board, together with a notice to any and all persons to show cause, if any, within five days from the date of publication of said notice, why the proposed regulation should not be made effective. Any person interested in or affected by the proposed regulation may within five days after the expiration of such publication, file objections thereto with the Secretary of the Board, specifying the grounds of such objections. The Secretary shall lay all such objections before the board at its next regular meeting after the expiration of the time for filing the same, and the board shall then fix a date not less than five days later for hearing any and all objections, and shall, after said hearing, finally act on said proposed regulation by approving, changing or rejecting the same, providing that any resolution of the board approving any such regulation shall be published once before becoming effective and shall be subject to the referendum provisions of this charter relating to ordinances. Any resolution fixing rates must be approved by the Council, by ordinance, before taking effect.

"(3) To investigate complaints against the service or charges of any said utility and to make orders adjusting the same.

"(4) To inspect all such utilities as to their compliance with their franchises, the ordinances of the city and the laws of the state, and as to their service generally; and to enforce in the manner prescribed by law a compliance with the terms of such franchises and ordinances or laws applicable thereto.

"(5) To keep a record of all public utility franchises granted by the city or exercised therein.

"Section 211. Every application made to or granted by the Council for a franchise for any public utility (except utilities at the harbor placed by this charter under the jurisdiction of the Harbor Department), shall, before any action is taken thereon, be referred by the Council to the Board of Public Utilities and Transportation for its recommendation respecting the same. Said board shall proceed to inquire into such application or grant, and within thirty days after such application or grant has been referred to it, or longer if allowed by the Council, shall report to the Council its recommendation relative thereto. If, in the judgment of the board, such application or grant should not be advertised for sale or granted, it shall so report, stating its reasons therefor; and if, in the judgment of the board, such application or grant should be granted, it shall recommend the terms and conditions upon which the same should be so granted. No franchise shall be advertised for sale or granted unless such application or grant shall have been

referred to the Board of Public Utilities and Transportation as aforesaid; provided, however, that if said board shall fail to report thereon within the time herein prescribed, or as extended by the Council, nothing herein contained shall be construed to prevent the Council, in its discretion, from proceeding to advertise such franchise for sale, or from awarding or granting the same, as provided by law. No franchise shall be advertised for sale or granted contrary to the recommendations of said board except upon a three-fourths vote of the entire Council.

"Sec. 212. The term 'public utility', as used in this charter, is hereby defined as including the following:

"(1) Any public service declared by the Constitution or Statutes of the State of California or the decisions of the Federal or State Courts, to be a public utility;

"(2) The operation of vehicles for hire, regardless of the form of transportation;

"(3) Any public service declared to be a public utility by the Council by ordinance which the city has authority to adopt."

For a proper legal construction of the Charter certain sections of the State Constitution must be considered.

The State Constitution prior to 1879 made no mention of franchise rights of public utilities. In 1911, however, the constitutional amendment was adopted (Art. XI, Sec. 19) providing that:

"Any municipal corporation may establish and operate public works for supplying its inhabitants with light, water, power, heat, transportation, telephone service or other means of communication. Such works may be acquired by original construction or by the purchase of existing works, including their franchises, or both. Persons or corporations may establish and operate works for supplying the inhabitants with such services upon such conditions and under such regulations as the municipality may prescribe under its organic law, on condition that the municipal government shall have the right to regulate the charges thereof. A municipal corporation may furnish such services to inhabitants outside its boundaries; provided, that it shall not furnish any service to the inhabitants of any other municipality owning or operating works supplying the same service to such inhabitants, without the consent of such other municipality, expressed by ordinance."

And in 1914 Section 23 of Article XII was adopted giving the Railroad Commission of the State "power and jurisdiction to supervise and regulate public utilities in the State of California, and to fix the rates to be charged for commodities furnished or service rendered by public utilities, as shall be conferred upon it by the Legislature, and the right of the Legislature to confer powers upon the Railroad Commission respecting public utilities is hereby declared to be plenary and to be unlimited by any provision of this constituti

Section 23 above referred to originally had been enacted in the Constitution of 1879 and had been amended in 1911. Pursuant to the Section the Legislature had enacted the original Public Utility Act February 10, 1911, which was re-enacted and amended, and in 1915 an entirely new Public Utility Act was enacted, which is now in effect as amended.

The Public Utility Act as amended in 1911 contained Section 82, limiting the powers of the Railroad Commission. That section read as follows:

"This act shall not affect such powers of control over any public utility vested in any city and county or incorporated city or town as, at an election to be held pursuant to laws to be hereafter passed by the legislature, a majority of the qualified electors voting thereon of such city and county, or incorporated city or town, shall vote to retain, and until such election such powers shall continue unimpaired in such city and county, or incorporated city or town; but if the vote so taken shall not favor the continuation of such powers, they shall thereafter vest in the commission; provided, that where any such city and county, or incorporated city or town shall have elected to continue any power respecting public utilities, it may, by a vote of a majority of its qualified electors voting thereon, thereafter surrender such powers to the Commission in the manner to be prescribed by the legislature; or is such

> municipal corporation shall have surrendered any such powers to the Commission, it may, by like vote, thereafter reinvest itself with such power."

The Public Utility Act as re-enacted in 1915 continued the power of the Railroad Commission to regulate every public utility in the State, but Section 82, above set forth, was omitted, the Legislature evidently intending to take away from the municipality the powers therein given and to fix them in the State Commission.

CONFLICT WITH RAILROAD COMMISSION

On August 12, 1915, the Railroad Commission, in Decision 2879, Case 683, established rules and regulations for certain public utilities to apply on and after October 11, 1915, to all such utilities doing business in the State.

The Commission, on September 24, 1915, advised the City of Los Angeles that it had jurisdiction over transportation matters in Los Angeles, effective December 1, 1915.

On November 19, 1915, the Board of Public Utilities of the City adopted the same set of rules set forth by the State Commission, substituting the name "Board of Public Utilities" wherever the words "Railroad Commission" appeared. This question of jurisdiction between the Board of Public Utilities of the City and the State Railroad Commission **has never been forced to a decision.** The City has sought to cooperate with the Commission rather than assert its position. The Commission appears to take the position that all service matters affect the rates and that therefore it has complete jurisdiction over such matters, except for the police powers of the City. It, however, yields to the Board of Public Utilities the adjudication of minor complaints inside the city limits. The Board of Public Utilities, however, takes the position that it has jurisdiction over all service matters, and if the cost of service is affected by service regulations, the recourse of the Commission is to adjust rates to those service conditions.

However, in this connection, the Constitution provides (Art. XI, Sec. 6) that:

> "Cities, * * * organized under charters framed and adopted by authority of this constitution, are hereby empowered * * * to make and enforce all laws and regulations in respect to municipal affairs, subject only to the restrictions and limitations provided in their several charters, and in respect to other matters, they shall be subject to and controlled by general laws * * *."

It was held in **Civic Center Assn.** v. **Railroad Comm.,** 175 Cal. 441, that the provision of Section 23, Art. XII, as amended in 1914, giving the Legislature power to confer additional powers on the Railroad Commission, is general and does not prevail over this section.

However, the fixing of rates is not a "municipal affair", within the meaning of this section.

San Leandro v. **R. R. Comm.,** 183 Cal. 229.

But, in **City of Los Angeles** v. **Central Trust Co.,** 173 Cal. 323, it was held that the provision of the Los Angeles Charter, giving the City power to regulate the construction and operation of railroads within the City, is paramount to the Public Utility Act as to grade-crossings, so far as operations within the City are concerned, and the question whether, and to what extent, the streets of a municipality shall be subjected to such secondary uses as the maintenance there of telegraph and telephone poles and wire is a "municipal affair". **(Sunset T. & T. Co.** v. **Pasadena,** 161 Cal. 265.)

CONFLICT IN CONSTITUTIONAL PROVISIONS

As the Constitution now stands, it gives the City the right to regulate and fix rates for public utilities supplying inhabitants with light, water, power, heat, transportation, telephone service, or other means of communication. (Art. XI, Sec. 19.)

At the same time, Art. XII, Sec. 23, of the Constitution states that the Railroad Commission shall have such power to regulate public utilities and fix the rates thereof "as shall be conferred upon it by the Legislature.". Further, that if the City votes to divest itself of the power of regulation, other than the fixing of rates, **"such power shall thereafter vest in the Railroad Commission, as provided by law."** Further that where a city has elected to retain its powers, it may thereafter, by vote of a majority of its qualified electors, **surrender such powers to the Railroad Commission in the manner prescribed by the Legislature.** Further, that **"nothing in this section shall be construed as a limitation upon any power conferred upon the Railroad Commission by and provision of this constitution now existing or adopted concurrently herewith."** (This latter provision would see to refer to the power given the Railroad Commission to regulate the transportation of passengers and freight.) (Art. XII, Sec. 22 of the Const.)

It therefore appearing that the only power given the Railroad Commission directly by the Constitution is in the matter of "transportation of passengers and freight by railroads and other transportation companies"; and the power to fix rates and regulate public utilities is conferred by the Constitution directly upon the cities but only indirectly upon the Railroad Commission, and that the Commission exercises these additional powers only through the enabling act of the Legislature known as the Public Utility Act, it would appear to follow that municipalities which had not voted away their prerogative to regulate public utilities, other than the fixing of rates, as provided in Article XII, Section 23, may still exercise that jurisdiction; and that, furthermore, a constitutional amendment would not be required to re-invest all cities with power to fix and regulate rates, but that merely an act of the Legislature revising the Public Utility Act is required for that purpose.

In this connection, we might state that with the conflicting provisions of the Constitution and the taking of jurisdiction by the Railroad Commission over matters which are open to question, the charter requirements are more or less nullified, and the Department of Public Utilities and Transportation is reduced in its functioning to little more than a mere agent of the Railroad Commission and to the investigation and handling of minor matters. It might be said that this has, in general, a stultifying effect upon municipalities which are thereby prohibited from handling local matters of transportation in the way most desired by their inhabitants.

It may be necessary to bring a test action to determine this question of jurisdiction, unless the entire matter can be amicably adjusted without recourse to the courts.

OTHER CHARTER PROVISIONS

Section 3 of Article I of the Charter provides for the granting of franchises, the more important provisions of said section being as follows:

> "(8) (a) The city may grant franchises for fixed terms, permits or privileges, for the construction and operation of plants or works necessary or convenient for furnishing the city and its inhabitants with transportation *** may prescribe the terms and conditions of any such grant, and may prescribe by ordinance, approved by a vote of the people, the method of procedure for making such grants, subject to the limitations

elsewhere contained in this charter; except that the Council shall adopt an ordinance which shall establish the procedure for granting to the holder of an existing franchise, any franchise required for the extension of facilities, ordered by the city, as authorized in paragraph (c) of this subdivision, or for granting a new franchise for a period not exceeding ten years to replace a franchise about to expire, as authorized in paragraph (d) of this subdivision; provided that such procedure ordinance and every ordinance granting any such franchise shall be subject to the referendum.

"(b) Except as otherwise in this charter provided, every franchise, permit or privilege, for the construction, extension or operation of a public utility shall reserve to the city the right to purchase the property of such utility, or find a purchaser therefor, upon one years' written notice, either at an agreed price or a price to be determined in a manner to be prescribed in the grant. In fixing in any franchise the price to be paid by the city for any utility, no allowance shall be made for franchise value, good will, going concern, earning power, increased cost of reproduction, severance damage, or increased value of right of way.

"(c) Every grant of every such franchise, permit or privilege, shall provide that the Board of Public Utilities and Transportation Commissioners shall have power to order extensions of the facilities authorized therein, after a hearing as provided in this charter, and the grantee of such franchise, permit or privilege shall, by its acceptance thereof, agree to comply with every such order. Provided, that when such extension of facilities is for construction or operation outside of the limits of the original franchise to which it will connect, the Council shall first grant such additional franchise rights as may be required to cover such extension.

"(d) No fixed term franchise, permit or privilege for the construction and operation of plants or works necessary or convenient for the furnishing of the city and its inhabitants with transportation, communication, terminal facilities, water, light, heat, power, refrigeration and storage, or any other public service, shall be made for a period exceeding twenty-one (21) years, except in the case of franchises for the construction and operation of subways and elevated railways, as hereinafter provided, and no such grant for the extension of an existing utility, operating under a franchise granted by the city or county, shall be made for a period beyond the expiration date of the franchise, under which such utility or the portion of such utility with which such extension is to be connected, is held or operated, nor in any case for a period longer than twenty-one (21) years. The city may, by ordinance, five (5) years or less prior to the expiration of any franchise, grant to the holder of such franchise a new franchise to replace such franchise about to expire, such new franchise to run for a period not to exceed ten (10) years from the date of expiration of the franchise it replaces. All such franchises so granted shall be in accordance with the procedure ordinance at the time in force, and shall carry all the conditions required in the original franchise. No fixed term franchise, permit or privilege for the construction or operation of elevated railways or subways shall be granted for a period exceeding forty (40) years for the original franchise, or for a period exceeding ten (10) years for a franchise to replace a franchise about to expire."

Subdivisions (e) to (p), incl., provide for the granting of indeterminate franchises.

Subdivision (9), Section 3, Article I, provides:

"No franchise, permit or privilege shall be granted across or along public streets or ways, or on a private right of way for street, interurban, or other railroads, operated on or suspended from elevated structures, or through subways, until after the adoption by the city of a comprehensive elevated railway and subway plan for the development of rapid transit into, out of and through the city, and the city shall have selected that part of such plan, if any, that it may desire to own and control, operate or lease; but after such selection made by said city, it may make grants not in conflict with such plan for the operation through or over such parts of said plan as are selected by said city, or for the construction and operation of such parts not so selected, or of additional subways, or elevated railways, or approaches to and connections with that part owned and controlled by said city, at such elevations, grades and alignment as shall be approved and fixed by ordinance. No subways or elevated railways shall be so constructed as to cross at grade."

Section 2, Subsec. (11), Subd. (m), in this connection, provides:

> "The City of Los Angeles, in addition to any other rights and powers now held by it, or that hereafter may be granted to it, under the constitution or laws of the state, shall have the right and power, subject to the restrictions in this charter contained ***:
>
> "(11) Among the rights and powers which may be exercised by the City of Los Angeles are the following, this enumeration being a partial enumeration and in no sense a restriction or limitation upon the rights and powers of the city ***:
>
> "(m) To provide for the acquisition, construction, improvement or alteration, maintenance, use and control of streets, tunnels, subways, rights of way, public places, harbors, sewers, storm drains, and other public or local improvements, on, above or below the surface of the land or water."

It is therefore plain that, under the organic law of the City, it is legally possible to construct a rapid transit system in Los Angeles, provided there shall first be adopted by the City a comprehensive elevated railway and subway plan for the development of rapid transit into, out of, and through the City, as provided by subsection (9) of Section 3 of the Charter, quoted above.

CAN SPECIAL ASSESSMENT DISTRICTS BE FORMED TO BEAR ALL, OR A PORTION OF THE COST OF CONSTRUCTION OF RAPID TRANSIT STRUCTURES?

It might be stated, in general, that under the Charter and the Improvement Acts, special assessment districts can be formed to bear all, or a portion, of the cost of construction of rapid transit structures, **provided it can be shown that there will be a resulting special benefit to the property included within such districts.** In other words, in order to create special assessment districts to finance, or to aid in financing, rapid transit construction, the City of Los Angeles could, under subdivision (p) of subsection (11) of Section 2 of the Charter, adopt a procedural ordinance for that purpose; or it could make use of one of the special assessment statutes of California. As to the latter, however, amendments would doubtless be necessary to cover the specific question of rapid transit construction. (See **Larsen** v. **San Francisco,** 182 Cal 80; **Spring Street Co.** v. **Los Angeles,** 170 Cal. 24; **Hayes** v. **Handley,** 182 Cal. 273.)

The construction of subways or tunnels and of elevated structures beneath and above a public street to be used by street railways for rapid transit constitutes a use comprehended within the public use permitted by the dedication of a street to the public, without imposing an additional servitude upon the land of abutting owners. (See **Hayes** v. **Handley,** 182 Cal. 273; **Colegrove Water Co.** v. **City of Hollywood,** 151 Cal. 425.)

It is also true that the construction of such subways or elevated structures for the purposes stated would constitute a public improvement for the use and benefit of the public, assuming that such structures constitute a reasonable use of a public street. (See **Larsen** v. **San Francisco,** 182 Cal. 1.)

A Digest and Simple Statement of the High Lights of the Kelker DeLeuw Report

By J. OGDEN MARSH
Chief Engineer and General Manager, Board of Public Utilities and Transportation

SUBJECT: Resume of Kelker & DeLeuw Report on Comprehensive Rapid Transit Plan for the City and County of Los Angeles. Also, on the outline of some views on the Economics of Rapid Transit.

It appears that the inception of serious constructive thought approaching the subject of rapid transit, embracing the corporate and metropolitan area of the City, was sometime early in 1923. About this time, the seriousness of traffic conditions in the congested districts and its effect upon the general economic condition was beginning to be realized. Private and public interests were confronted with the absolute imperativeness of the initiation of corrective and relief measures. There were, therefore, numerous agencies and committees organized for the purpose of studying and advocating improvements of the various specific phases of this major problem. Paramount in this respect, were the Parking Survey Committee created by the City Council under the supervision of the Board of Public Utilities and charged with making a survey of all matters pertaining to the parking of automobiles and their effect upon general traffic; the Committee on Major Highways employed by the Traffic Commission in working out a major highway system for the Metropolitan area; the State Railroad Commission, Board of Public Utilities and the two local street railway companies engaged in making a valuation and service survey of the local street railway operations of the Pacific Electric Railway and the total operations of the Los Angeles Railway; the Grade Crossing Committee created by the Los Angeles Automobile Club of Southern California for the purpose of endeavoring to eliminate grade crossings throughout the City and County of Los Angeles. Also, at about this time, the President and Chief Engineer of the Board of Public Utilities were authorized by the City Council to visit all the larger cities in the United States for the purpose of studying the various transportation problems existing in the respective cities, and thereby becoming more competent to recommend improved and corrective measures in the problem confronting Los Angeles. This, as well as the fact that there did not exist at that time any committee, or individual, whose specific duties were to generalize or coordinate the results of all the other various committees in meeting the needs of metropolitan Los Angeles, resulted in the Board of Public Utilities recommending to the City Council that they be allowed to employ a transportation expert for the purpose of making a comprehensive survey embracing the transportation problems of the whole metropolitan area. Negotiations were finally completed and agreement reached whereby the City and the County were to appropriate funds up to $40,000.00 for this purpose, each bearing fifty percent of the expense. As a result, Mr. R. S. Kelker, Jr., and Mr. C. E. DeLeuw, nationally recognized transportation experts, doing business under the firm name of Kelker, DeLeuw & Company, headquarters Chicago, were employed by the City and County in July, 1924, for the purpose of making a complete and comprehensive investigation and survey of traffic conditions and transportation facilities of the City and County of Los Angeles, and to compile and deliver to each party fifty (50) printed copies of a report thereon. Also, to embody therein their conclusions regarding present traffic and transportation problems and their recommendations for the improvement thereof.

The survey was immediately begun. With the assistance and cooperation of various city and county officials, as well as representatives of private transportation companies in and around Los Angeles, the investigation was completed, a report compiled and submitted to the President and members of the City Council of the City of Los Angeles, and the President and members of the Board of Supervisors of Los Angeles County, on April 10, 1925. The report, in general, dealt with the early construction of Rapid Transit systems in various other cities of the United States, and the population of the respective cities at the time it was felt an economic necessity existed for rapid transit; the use of public funds in supporting and making possible such facilities; elements commonly recognized as entering into a metropolitan transportation system; coordinated operation of rapid transit lines, interurban lines, street railway lines and motor bus lines, and various other factors. The report dealt, in particular, with one phase relating to the underlying factors of the social aspects of rapid transit, and very adequately set forth the basic fundamental necessities and economics involved in Los Angeles' transportation problems. Excerpts therefrom are as follows:

"From an extensive survey of the present transportation facilities and traffic conditions, and after a careful study of the available transportation and traffic data, it is evident that a Comprehensive Rapid Transit Plan for the City and County of Los Angeles must be in accord with the following factors:

'1. The future orderly development of Los Angeles requires the construction of rapid transit lines and the extension and expansion of other transportation facilities;

'2. If the city's unequalled position, when compared with other large cities with respect to the number of families per dwelling, is to be maintained, it must continue to spread and this spreading can be accomplished only by providing rapid transportation at a reasonable rate of fare;

'3. If the car rider is required to pay a fare sufficient to support all of the capital required for rapid transit construction, either the fare must be substantially increased or the rapid transit system must be quite limited.

'4. If the cost of rapid transit construction is shared by

a. The car riders,
b. The property benefited, and
c. The public at large,

then the extent of the rapid transit system may be proportionately increased;

'5. Only by the adoption of a comprehensive plan can a sound and economical construction program be prepared;

'6. The unification and operation by a single management of all the public transportation services within the suburban area (an area circumscribed by a circle having a radius of approximately six miles) is essential to first-class service;

'7. Existing facilities should be utilized in the greatest measure consistent with the development of the transportation system.' * * *

THE PHYSICAL PLAN

* * * "Because of the widespread distribution of the population in Los Angeles, and the need for rapid transit service throughout the city, extreme care had to be taken to guard against planning a system of rapid transit lines that would be a burden to the city and its citizens because of too great an investment in costly structures. It is impracticable to finance lines, sufficient in number to make rapid transit service directly available to all, but it is possible to finance successfully a sufficient number of rapid transit lines, to make the service directly or indirectly accessible to all, when properly coordinated with the street railway and bus lines. The location of the lines, and the structural design of the proposed rapid transit system is based upon this premise, as well as upon the assumption that the interurban trains will operate, in the urban area, over structures provided for the urban rapid transit trains."

The report also states that,

> "It is evident from the experience of other large cities that rapid transit lines cannot be constructed and operated on a self-sustaining basis at a low rate of fare, unless the territory to be served is an area with an extremely dense population and the number of rides per capita (riding habit) is high."

The density of population of various cities is compared as follows:

> "Greater New York has average of 31 persons per acre (161 persons per acre in the Borough of Manhattan). Boston 27 per acre; Philadelphia 22 per acre; Chicago 22 per acre; Los Angeles—Urban area approximately 6-mile circle 10.2 persons per acre; 4-mile circle 15 per acre. Entire municipal area 4.2 per acre. Comparison with other cities for entire area is not reasonable, due to the large sparsely settled areas within the corporate limits of Los Angeles."

The number of persons per dwelling, 1920, is given as follows:

> "New York 15+; Boston 9+; Chicago 8; Buffalo 7; Cleveland 7—; Detroit 6+; Pittsburg 6+; San Francisco 5.5+; United States at large 5+; Los Angeles 4.5+."

The report concluded with a recommendation for the immediate construction of 26.1 single track miles of Subways and Tunnels; 85.3 Elevated Railroads and Depressed Track; 41.6 of Surface Street Railway at an estimated cost of $133,385,000.00. It further outlined for future construction 15.4 single track miles of Subways and Tunnels; 155 Elevated Railroads and Depressed Track, and 62.7 miles of Surface Street Railways. No estimate of cost was made for this future proposed construction. Likewise, no recommendations were made relative to the method of financing the $133,385,000.00 estimated cost of the program for immediate construction. It had been anticipated that the report would be adopted by the City. One of the particular reasons for this was the fact that Section 9 of Article 1 of the new City Charter, adopted by the Board of Freeholders January 22, 1925, and placed in effect July 1st, same year, was drafted to read as follows:

> "No franchise, permit or privilege shall be granted across or along public streets or ways, or on a private right of way for street, interurban, or other railroads, operated on or suspended from elevated structures, or through subways, until after the adoption by the city of a comprehensive elevated railway and subway plan for the development of rapid transit into, out of and through the city, and the city shall have selected that part of such plan, if any, that it may desire to own and control, operate or lease; but after such selection made by said city, it may make grants not in conflict with such plan for the operation through or over such parts of said plan as are selected by said city, or for the construction and operation of such parts not so selected, or of additional subways, or elevated railways, or approaches to and connections with that part owned and controlled by said city, at such elevations, grades and alignment as shall be approved and fixed by ordinance. No subways or elevated railways shall be so constructed as to cross at grade."

Obviously, and rightfully so, this section of the City Charter was so drafted to preclude the possibility of any pressure, either political or otherwise being brought to bear upon any official of the City tending to force them to acquiesce in the construction of any portion or unit of a rapid transit system until such time as an intelligent and economically sound plan as a whole had been adopted; and for the specific purpose of forestalling an imprudent, illogical or piecemeal construction of rapid transit lines. To date, however, the report in question has not been adopted. Some five years have elapsed since this survey was made, with numerous physical changes in the factors entering into the transportation problems in and about Los Angeles during the interim, and it is felt that the value of the report has diminished to such a degree that it is quite unlikely that it ever will be adopted.

The ever-increasing street traffic in Los Angeles leaves but little question that sooner or later measures will have to be undertaken for

expediting the movement of such traffic. Inasmuch as the street surface is rapidly approaching the saturation point, and the cost of street widening in the central business area is prohibitory, obviously some means of diverting a portion of that traffic, either above or below the surface, will have to be adopted. When the movement of street traffic is reduced to as low a speed as it is rapidly approaching in Los Angeles, the economic loss becomes serious. The ever-increasing use of the private automobile, competing for street space with public transportation agencies, indicates that the street space it occupies today is absolutely not going to decrease. Since the private automobile fills a real public need and is a part of our modern system, it is illogical to hope for any curtailment in its use.

Mass transportation agencies are vitally essential in modern life, and with the City spreading out over a large area as Los Angeles now does, not only mass transportation but RAPID mass transportation becomes one of the outstanding economic problems in the growth of the community. The trouble is that transportation is usually regarded as a private matter affecting only the car riders and the private operating companies. Such, however, is not the case as can be realized after a moment's thought on the subject. It can readily be seen that with practically no exception, benefits accrue to every individual inhabitant of a city from the existence of a public transportation system serving such city. It would appear, therefore, that when it becomes necessary to improve, enlarge or initiate such an enterprise, the cost should be apportioned somewhat commensurate with the individual benefits derived. The question of proper apportionment of such cost, of course, then remains to be answered. The City of Detroit, in its proposed financial plan for a rapid transit system, answered that question in this manner—distributing the cost as follows:

(a) By an at-large assessment on the City to cover the benefits derived by the City at large for one-fourth the permanent-way cost.

(b) By proximity assessment on the local district to cover benefits that accrue to the property in the vicinity of the lines for three-fourths of the permanent-way cost.

(c) By mortgage bonds to cover the benefits to the rider for cost of equipment.

Mr. John H. Delaney, Chairman of the Board of Transportation, New York City, answers this same question in his public explanation of how New York could have more subways and yet maintain the 5c fare, as follows:

(a) Users of the system would bear all of the expenses of operation; all of the cost of additional equipment after operation begins, and 40% of the original cost.

(b) The City at large would contribute 35% of the original cost in 8 years and would do so without increasing the base rate.

(c) Properties along the lines that would be at least doubled in value, to supply 25% of the original cost and have 10 years in which to pay the assessment.

The Board of Public Service of the City of St. Louis, with reference to proposed rapid transit for that city, has this to say as to distribution of costs:

(a) Three-fourths of the cost of right-of-way and permanent construction to be assessed against specially benefited properties in proportion to the amount by which they will be benefited over and above the general benefits to the City as a whole.

(b) One-fourth of the cost of the right-of-way and permanent construction to be paid by public utility bonds of the city, interest and sinking fund charges on which will be paid out of the general city fund.

(c) All of the cost of tracks, rolling stock, electrical and other equipment to be paid for by the operating company. As this is part of the cost of operating the system, it will come from fares collected from the car rider who ultimately bears the cost of the service rendered directly to him.

While there seems to be some disagreement as to the proportion of the assessment in the three foregoing instances, there does appear to be an agreement as to the groups upon which the assessment should fall.

The above is a very brief outline of a large subject, and is submitted for the purpose of inviting discussion.

Possibilities of Rapid Transit to Meet Requirements of Metropolitan Business District of Los Angeles

By D. W. PONTIUS
President, Pacific Electric Railway

My own view is that an adequate rapid transit plan should be worked out for the district where traffic is most seriously delayed at present. This district, would, roughly, embrace the territory say from 20th Street on the south to the Plaza on the north, and from Figueroa Street or a short distance beyond on the west, to Central Avenue or a short distance beyond on the east. Such a plan should provide, in so far as it is practicable, for the removal of all surface lines in the metropolitan business district.

Every city of importance should endeavor to preserve a metropolitan business district, and I believe every city of importance has this very thing in view.

It is doubtful if these subways could be provided under a bond issue spread over the entire City of Los Angeles and probably the only way the subways can be built would be by a local bond issue covering only the districts affected, and this necessarily would have to be arranged by the property owners in each district and not by a general election.

Subways in the metropolitan business district is principally a property owners' problem, but the local service railroads, I believe, should join in on the equipping of the subways, when built, in so far as financial conditions will permit, in some way to be determined after a study has been made.

My view is that the only way a matter of such magnitude can be determined is by organization of a committee to make a study and determine just what can be worked out. This committee should be made up of property owners of the district affected, the City of Los Angeles, which, I should think, would include representatives of the City Council and the City Planning Commission, and probably representatives of the railroads concerned.

An off-hand opinion given by anyone cannot possibly be convincing and it is possible that my own views in this matter are wrong, but this can only be determined by a study such as suggested.

The relief afforded by a system of subways as outlined would not only materially improve city street car service but also interurban service, as the greatest delays to traffic are encountered in getting through the metropolitan business areas.

At the present time two of the most vital points to be considered in connection with interurban transportation are the preservation of the continuity of existing private rights of way of the rail lines and the grade crossing problem.

Manifestly it is impossible to work out a transportation plan to meet the requirements of the public if the rail line cannot be assured of retaining its present rights of way. The seriousness of the grade crossing problem is well understood, and unless every means possible is taken to avoid the opening unnecessarily of additional crossings and to close little used existing crossings where reasonable that they be closed, the high speed value of the private rights of way is lost, not only to the railroads but to the public. The Pacific Electric has steadily improved its equipment and our problem now is to operate with safety at high speed that equipment. Much has been accomplished and through cooperation much more can be accomplished in the future.

The Pacific Electric Railway system as it stands, constitutes and is the foundation for an expanded rapid transit interurban system for the territory which it covers. This service will be needed in the future as much and probably more than it ever has been needed in the past. This view is concurred in by many nationally known transportation experts who have not only inspected the interurban railroads as well as the street car lines here, but have made extensive studies of traffic conditions.

All of the above points must be considered in planning an adequate transportation service for this territory. As to what constitutes adequate service, I think that briefly it can be stated as follows:

1. Comfortable, modern equipment.
2. Reasonably fast schedules that can be maintained.
3. Reasonably frequent service.

There are, of course, many other details involved, but to my view the three items listed are the basic principles.

Comfortable, modern equipment can only be provided under a progressive program such as the Pacific Electric now has in effect, and the program it follows is of course dependent upon what is reasonable from a financial standpoint.

The need for reasonably fast schedules and their dependability are self-evident and need not be elaborated upon.

Proper frequency of service is simply a matter of constant and careful analysis of traffic and must be provided to hold the traffic to the line under present competitive conditions.

Traffic conditions in the City of Los Angeles, the local street car and bus problem, as well as the interurban railroad problems are all closely united. The people, not only throughout the United States, but from all points over the entire world, are looking this way and the population is in any event going to continue to increase rapidly. Our problem then is to prevent the present increasing traffic congestion conditions from becoming intolerable, which would result in Southern California being pointed to as an undesirable place to live, which would be exactly the opposite to our national and international reputation at this time.

The Objectives of Adequate Internal Transportation Service and Present Obstacles to Creating Such Service

By RICHARD SACHSE
Consulting Engineer, Los Angeles Railway

MEMORANDUM of Los Angeles Railway Corporation to Board of City Planning Commissioners, City of Los Angeles, on the Objectives of Adequate Transportation Service and Present Obstacles to Creating Such Service, in connection with a study of "Rapid Transit" submitted to Rapid Transit Conference, January 21, 1930.

MEMORANDUM

I. Purpose of Memorandum

This memorandum was prepared in compliance with the request of the Board of City Planning Commissioners of the City of Los Angeles dated December 27, 1929, addressed to Mr. George J. Kuhrts, President of the Los Angeles Railway Corporation, and reading in part as follows:

> "The Board of City Planning Commissioners is impressed with the necessity of making an immediate start in studying the subject of "Rapid Transit." The Board has no preconceived ideas as to what, if anything, is necessary to be done in order to assure Los Angeles of every necessary modern transportation facilities.
>
> The Board is impressed with the probable fact that Los Angeles possesses characteristics quite unique in itself, and that unquestionably there is within the city the intelligence to successfully cope with the problem of transportation.
>
> As a first step the Board is calling a conference of representatives of those agencies whose professional or business interests place them in a position to contribute constructive information for the advantages of Los Angeles. This conference is called for January 21st, 1930, at the City Hall beginning at 10:00 a.m. in Room 360.
>
> The Los Angeles Railway naturally possesses both an interest and information that it is our earnest desire you shall contribute on the above named occasion. The Board therefore respectfully requests that you prepare or arrange to have prepared a statement of facts as known to your organization on the question of more adequate transportation facilities for Los Angeles. It is hoped that this statement will be as long as necessary to be complete, but as short as possible to be interesting and intelligible to some of the others who may not have any specialized viewpoint that you naturally would have.
>
> It is especially desired that the papers, a list of which is enclosed, shall be entirely free from controversy—though it is quite permissible and to be desired that proper and pertinent questions be definitely raised. All of those who appear on the enclosed list are being asked to prepare and submit similar statements, but each, of course, from the standpoint of their own particular interest.
>
> We are very desirous of making the sum total of testimony introduced at the conference of exceptional value to the City. To that end, we would appreciate it greatly if you can arrange to have the paper you prepare submitted not later than January 14th. The reason for this suggestion is, that with so many contributing to different phases of the same subject, there is a possibility that gaps will exist in the continuity of the testimony that by all means should be prevented. It is in anticipation of these possible discrepancies, that we ask the privilege, between the date of the conference, of having you augment your statement in such respects as will fill in the missing data."

Attached to the letter of the City Planning Commission is a memorandum on "Rapid Transit Conference" giving a list of persons and interests invited by the Board to participate in the Rapid Transit Conference, and assigning to different men and to different interests certain subjects

on which the Board desires to be informed. This conference memorandum, in part, reads as follows:

> "This call is intended to be inclusive rather than exclusive and it will be appreciated if ommissions from the list are called to our attention immediately.
>
> The subjects indicated also should be considered as being reasonably flexible. The desire is to have the subject comprehensively presented at this preliminary session. Others will doubtless follow to consider solutions as soon as a definite statement of the problem is made, which it is hoped will occur at this meeting on the 21st.
>
> It is suggested that contributors refrain at this time from open controversy and confine their statements to a presentation of fact or propounding pertinent questions that must ultimately be answered. Beyond that, it would be presuming to suggest further what should constitute your contribution.
>
> It is planned that these papers will be published and possibly analyzed and edited to form a comprehensive statement of the elements forming the Rapid Transit question as it presents itself to the city. It is hoped that the conference will result in pointing the way to the next logical step."

The subject assigned by the Board to the Los Angeles Railway is: "The objectives of adequate internal transportation service and present obstacles to creating such service," and this has been taken as the title of this memorandum.

II. Scope of Memorandum

This memorandum is confined to the subject assigned by the Board and deals with the local street railway and bus transportation service as it is provided by the Los Angeles Railway in its relation particularly to the rapid transit problem.

We have also made reference to a number of investigations and reports that have heretofore been made on the same subject. These reports contain an enormous amount of data on Los Angeles local and interurban transportation. In order to save time and money and to avoid unnecessary duplication of work these existing reports, in our opinion, should be carefully studied and abstracted by your Board in order that a proper foundation for the discussion may be had.

III. The Objectives of Adequate Local Transportation Service

Local transportation service as distinguished from interurban service is intended to include the means of mass transportation serving the urban area of the City of Los Angeles, by rail lines and street cars and by motor coach lines and motor coaches. In this memorandum this area includes the territory served by the rail and coach lines of the Los Angeles Railway and the Los Angeles Motor Coach Company.

The objectives of the mass transportation service furnished by us and by any other local transportation utilities must be to provide adequate local transportation by electric railway or by motor coach for the City of Los Angeles meeting, as completely as possible, the following requirements:

(a) Any part of the City (within the area of service) must be accessible and be connected by rail or motor coach service with all other parts and such mass transportation service must be given with

1. Maximum safety,
2. Maximum speed,
3. Maximum frequency,
4. Maximum comfort and convenience,
5. Minimum fare.

These requirements taken together, if they could be completely met, would furnish "adequate city-wide local mass transportation service."

It is not an over-simplification, therefore, to say that an analysis and a study of these six factors comprises the entire question of local transportation, including the question of rapid transit within this urban area.

An effort will be made in this memorandum to discuss, briefly, the essentials of each of these items, and the effect on each item of a rapid transit program or system will be considered.

IV. City-Wide Local Transportation Service

The expression "city-wide" has a special meaning for the City of Los Angeles. The tremendous extent of the city area (442 square miles at the present time), and the configuration of its boundary precludes the possibility of the entire corporate city being included within a single urban or local mass transportation system. Electric lines extending from the center of the city (say the City Hall) to Owensmouth, or San Fernando, or San Pedro, will always have to be considered as interurban rather than urban lines.

These facts are clearly set forth in the Joint Report on the Street Railway Survey for the City of Los Angeles made jointly in 1925, by the California Railroad Commission, the City of Los Angeles, the Pacific Electric Railway Company and the Los Angeles Railway Corporation. In this report the maps on pages 29, 51 and 55 show the "Local Transportation Area," as distinguished from the "Metropolitan Rapid Transit Area."

Map No. 2, page 51, shows the boundary of the "Maximum Local Transportation Area" at a 10 mile radius from 7th Street and Broadway, and the Present Local Transportation Area at an 8 mile radius.

The consensus of opinion among engineers and city planners is that the maximum practical area of a local mass transportation system must lie approximately within a circle with a 10 mile radius; or measured by time within approximately 60 minutes ride from any point within the circle to any other point.

It will be noted that in Los Angeles this maximum has just about been reached.

In this connection reference is made to pages 50 to 66 of the "Joint Report," under the heading of General Description of the Territory and Population Served," and particular attention is called to the comparison of the Los Angeles situation with Chicago, New York, San Francisco and other cities. Excerpts from this chapter of the Joint Report are attached to this memorandum as Appendix "A".

If we refer to the map showing the local transportation lines, both rail and motor coach, within this "Local Transportation Area" it is apparent that practically the entire area is remarkably well served by mass transportation facilities. The physical means are, therefore, largely in existence to meet our first requirement of an adequate local transportation system: namely, that "any part of the city within the area of service must be accessible and connected with all other parts."

It is true, of course, that this service is given by two separate companies, the Los Angeles Railway Corporation and the Pacific Electric Railway.* It is clear that the Pacific Electric and the Los Angeles Railway lines connect at many points and as far as the physical and operating situation is concerned there is no obstacle to free interchange of traf-

*In order to avoid detail, the additional comparatively small rail and motor coach local carriers operating in this area are left out of consideration for the purpose of this memorandum.

fic between the two lines. The question of the "universal transfer" will be referred to under the subsquent heading of "Fares".

The conclusion is justified, therefore, that Los Angeles is remarkably well served, in comparison with other comparable cities, with local transportation lines. Furthermore, the Los Angeles Railway is on record that it is prepared to extend its service wherever and whenever a reasonable need for additional transportation lines, whether rail or motor coach, developes, and such extensions will be made by rail or by motor coach in accordance with the needs of each specific case.

V. Maximum Safety

That maximum safety is a prime requisite of an adequate transportation service goes without saying. This is so well understood that usually no reference is made to this factor in discussions of this kind. Statistics show that in all urban areas, including the Los Angeles area, travel by street railway is the safest form of travel. It is safer than motor coach or bus travel, and automobile travel, and safer than walking. What element of risk exists is brought about by the congestion and the conflict for the possession of the available street area between the different modes of transportation, and particularly between the private automobile and street cars and motor coaches. It is clear that a rapid transit development will have no influence on the factor of safety.

VI. Maximum Speed

Next to safety the principal requirement, on the part of the public, of a transportation service is maximum speed. It is not only the time element that is controlling, but speed is demanded for its own sake. Included in the speed requirement are rapid acceleration and deceleration.

Our street cars and motor coaches are built for a speed of 35 miles per hour. The actual average speed of cars over the system as a whole, including layover time is 10½ miles per hour; the running speed (excluding layover time) is 12 miles per hour. For the motor coach service the corresponding figures are 12 miles per hour and 14 miles per hour. There is, therefore, an enormous discrepancy between the possible speed and the actual speed.

The question immediately arises: to what extent is the control of speed within the company and to what extent is this control outside of the company's power and authority? It is at once apparent that the low average speed on any line is accounted for by the slowing down in the congested districts. In these districts, during the rush hours, the average speeds falls below 5 miles per hour.

The electric railway industry is making great efforts in the development of improved types of equipment, both of street cars and motor coaches, in the direction of greater power, faster acceleration, greater braking capacity and lower weights; together with greater comfort, less noise and more attractive appearance. A lot has been accomplished in these directions during recent years and there is expectation by car builders and transportation companies that equipment can be designed capable of competing in those respects with the automobile.

But even if we had the highest speed equipment at the present time we still would be unable to lower our running time materially in the congested districts under the present traffic conditions. In other words the limitations with regard to speed are to a very large extent beyond the control of the transportation agency.

In the non-congested sections of the city the speed at the present averages between 15 and 25 miles per hour and is generally satisfactory. With a speed of 20 miles per hour it would be possible to run through the entire "local transportation area" in an hour's time, and that is gen-

erally considered a satisfactory travel time for such a distance. The private automobile within an urban area cannot do much better.

The construction of rapid transit lines, above or below the surface and free from intersections at grade, would make possible an even higher average speed but at best the average would not exceed 25 miles per hour. This is the experience of rapid transit lines in all cities, unless special tracks and facilities are provided for "express service", as is done on certain limited portions of the subway system in New York. Provision for "express service" increases costs enormously and no such plans have ever been made for Los Angeles.

This higher speed would be had only on a comparatively few and comparatively short rapid transit arteries and the balance (certainly more than 75%) of the "local transportation area" would remain unaffected and would not be benefitted in this respect. It is necessary, therefore, to compare and measure the benefits and advantages of greater speed secured by a rapid transit system against the costs of all kinds of such a system and against its disadvantages. It is further necessary to ascertain what alternatives there are and at what cost they will improve present speed conditions.

A large number of studies have been made in Los Angeles and in other large cities throughout the country with this end in view. And it has been universally found that mass transportation can be materially speeded up to the benefit of an overwhelming proportion of the population by means of traffic regulations and at an insignificant cost compared with the construction and operation of entirely new rapid transit lines. Among the most obvious and most important means of expediting mass transportation in the urban congested areas is a better control of parking on important traffic arteries; the installation and extension of coordinated progressive traffic signals; the extension of the skip-stop system; the giving of the right-of-way to the mass transportation vehicle in preference to the private vehicle, particularly during rush hours; the clearing of car tracks on certain streets during certain hours (rush hours) by the establishment of "traffic lanes". All of these measures have been adopted in part by a number of other large cities and information is available to ascertain the effect of these measures.

It is interesting to note in this connection that in all cities where there exists municipal operation of street railways (San Francisco, Seattle, Detroit), traffic regulations are promptly made and rigidly enforced, giving the street car and the motor coach the right-of-way as far as possible and every effort is made, by police and traffic regulation, to speed up this service. The need for speedy service is of course equally great in cities where a public utility company furnishes this service and no reason exists why the same consideration should not be given the street car riders regardless of ownership and regardless of the form of operation.

VII. Maximum Frequency

The patron does not like to wait for the street car or the bus and the ideal condition would be to have a car or a bus "in sight" at all times. As a practical matter, of course, the frequency of the service must always be determined by the volume of traffic. In the downtown section of Los Angeles the ideal of "a car in sight at all times" is substantially obtained, and this certainly is true during the greater part of the hours from 8 a. m. to 7 p. m. Checks that have been made for a number of years by independent investigators of the California Railroad Commission and of the City of Los Angeles have stated it as their conclusion that the service of the Los Angeles Railway over its entire system is reasonably satisfactory as far as the item of frequency of service is concerned.

The creation of a rapid transit system would have no effect, practically, on this particular factor. It is apparent that the large percentage of the area of the city and the great percentage of the population, would have to depend as now on the surface transportation system, and the frequency of that service would not be improved but might possibly be impaired.

VIII. Maximum Comfort and Convenience

This item includes the capacity of cars, the comfort and convenience of seating arrangements; the reduction or elimination of noise; the availability of through lines; the doing away, as far as possible, with the necessity for transfers and generally everything that goes towards meeting the wishes of the public, including cleanliness, efficiency and courtesy of employees, light, air, etc.

No reason exists why the surface street car and motor coach cannot operate as exceptionally convenient and comfortable vehicles in all of these respects. The surface system has great advantages in this regard over all other forms of transportation including subways and elevated railroads. Great efforts are now being made by all mass transportation systems, including the Los Angeles Railway, to improve equipment and service in all of these matters and these efforts are meeting with success. I might say in this connection that our railway has designed and is now asking for bids on new cars and on new buses that represent the best and the very latest developments in the items of speed, comfort and convenience.

One of the most important things in this regard is the matter of seating capacity. The ideal condition, of course, would be a seat for every rider at all times. The fact must be faced, however, that there has never been a mass transportation system anywhere, and never can be, that will completely meet this ideal. The reason lies in the nature of this service. When it is realized that during the rush hours traffic is more than five times as heavy as it is during similar non-rush periods the impossibility of providing sufficient equipment to furnish a seat for every passenger during the rush hour traffic period must be evident. Furthermore, even if sufficient equipment were available, it would be impossible to move all cars and buses through the congested area during the rush periods. This is the finding of the Joint Board of Engineers above referred to who say in their report on pages 328-329:

> "Pending the carrying out of comprehensive and extensive street improvements and rapid transit programs which will require very large expenditures of money, it will not be possible to accommodate a materially larger amount of traffic than that at present within the congested district of the city and especially during the rush hours***"

The effect of street congestion in mass transportation is extensively discussed in the Joint Report referred to (pages 325 to 329) and excerpts appear in the Appendix, attached, to which reference is made.

IX. Minimum Fares

One of the important objectives of adequate local transportation service will always be the lowest possible cost of such service and this to the patron means the lowest possible fare.

My conclusion is that the rate of fare, within reasonable limits, is not the most important item in adequate mass transportation service. Given the choice between high grade service at a somewhat higher rate and poorer service at a lower rate, I am satisfied that the very great majority of the people served will prefer the better service at the higher rate. There is, however, an "economic maximum" of fare for a street railway service and this maximum, in my opinion, under present conditions, is 10 cents per ride.

It is an error to assume that public utility transportation systems are in favor of raising the rates of fare. I am intimately familiar with the policies and managements of several large mass transportation companies and without exception they are all extremely anxious to keep in effect the lowest possible rate. If they do ask for higher rates before commissions and before courts it is not because they want to, but because they have to. It is because the cost of the service is steadily increasing, the gross revenue is either remaining stationary or declining, and the net revenue is disappearing.

In this connection it is interesting to mention the fact that the average fare of all street car riders in the United States in cities of 25,000 population and over, and including more than 200 electric railways, was for the month of November, 1929, 8.43 cents. This includes all reduced fares such as school children fares, token fares, passes, etc. Please note how this 8.43 cents average for the United States compares with the present 6.51 cents average fare for revenue passengers on the Los Angeles Railway. Out of 667 cities in the United States with mass transportation systems 235 at the present time charge a 10c flat or zone rate of fare. The facts are that the mass transportation rates in Los Angeles, considering the extent and character of service, are low and more than 20% below the average for the United States.

Under this item of minimum fare belongs the question of whether it is better for the city, from the standpoint of adequate local transportation, that a zone system at 5 cents zone rates should be established, or whether it is better to continue under the present system of a city-wide flat fare. There are advantages and disadvantages in both plans. From the standpoint of the company a zone system can be devised to produce approximately the same gross revenue as under the present system. My own opinion is that it is to the advantage of the city to maintain a city-wide flat fare as long as possible.

The criticism that Los Angeles does not have a unified local transportation system can be remedied by the establishment of the so-called "universal transfer" between the red and yellow local lines. The reasons why such a system is not in effect at this time are familiar to this conference.

What effect would a rapid transit system have on the rate of fare? There is no doubt in my mind that it would increase the fare. This increase would either have to be paid by the car riders or it would have to be paid in whole or in part by the city. Whether the burden would be met by increased taxation or by some form of special assessment is a question outside the scope of this memorandum. One other effect would be bound to follow: an increased rate would become necessary not only for the patrons using the rapid transit system, but also for the patrons using the existing and remaining surface lines. This would be true, in my opinion, because the combined investment in the combined transportation facilities and the combined operating expenses would become very much greater while the total number of patrons would by no means increase in the same proportion.

X. Present Obstacles to the Creation of An Adequate Local Transportation Service

Certain obstacles to the creating of an adequate local transportation service have been referred to under the previous headings. The Los Angeles Railway desires to go on record as saying that as a rule we have received, and are receiving, full cooperation and consideration from the City of Los Angeles and from the regulating authorities in our efforts to furnish the best possible transportation service at the lowest reasonable cost. The City of Los Angeles and the company are more fortunate in this respect that a number of other transportation systems in other large

cities where a chronic antagonism seems to exist between the transportation company and the city authorities.

It is true, however, that obstacles do exist and it is also true that they are not the result of ill will or of antagonism between the parties. Rather are they the consequences of the revolutionary economic transportation and traffic developments during a comparatively few recent years and due to a lack of understanding of a large and difficult problem. The obstacles may be divided into three classes:

1. Physical,
2. Legal,
3. Financial.

Of the three the last one, the **financial** obstacle, is the most important and apparently the most difficult to overcome. The causes of the financial difficulties of the street railways throughout the county, including the Los Angeles Railway are very clear and not all difficult to understand. It is common knowledge that there has been a great change in the value of the dollar since the war. Labor costs have increased on an average of 100% since 1914, and the cost of materials that go into the operation of a street railway have increased about 90%. The general level of commodity prices is now about 70% higher than in 1914. But our street railway fare remained at a nickel, the same as in 1914, until the Federal Court granted us a higher rate, which now has been sustained by the United States Supreme Court. This company had to cope with a condition, therefore, where it had to meet with a prewar nickel the almost 100% increased transportation costs of an after-the-war period extending over 10 years from 1918 to 1928. That really is the sum and substance of the story and no amount of good management or good will or good advice was able to overcome this inherent impossibility of that situation.

In addition the automobile assumed the proportions and the importance that we are all familiar with. It not only put a practical stop to all normal increase in mass transportation traffic, but it also made much more difficult the operating conditions of the street railway systems. The development of the bus and the motor coach falls in this same period. This resulted in an extended period of trial and experimentation and that period is not yet over. There were a good many influential people, and there still are some, who concluded that the day of the street railway and of the mass transportation system was over. It is being realized now that that is a mistaken view, certainly in cities as large as Los Angeles.

The matter of financial obstacles is large enough to justify an extensive report of itself. In this memorandum we must content ourselves with a very brief summary. The following facts stand out:

(a) The street railway company has only one source of income: the car fare from its patrons;

(b) This income in the aggregate must be large enough to meet the total cost of service;

(c) This total cost consists of out of pocket operating expenses, including depreciation, of taxes, and of a return to the owners of the property sufficiently large at least to secure additional capital for necessary improvements, extensions and betterments.
Such improvements and betterments must be paid for by new capital and by the investor and owner, and it cannot be expected that they will be furnished by the rate payer. In this respect this utility is not different from any other utility, or, indeed from any other business.

(d) These costs must be met or the service cannot be given. Under private operation the patron has to pay the entire cost; under municipal ownership a considerable portion of the total is paid by the community (taxes, paving, interest) and the patron pays the balance. It does not necessarily follow that municipal operation is cheaper.

The public does not realize, and I am sure this conference does not appreciate, the great burden that is placed upon the street car riders in taxation and in franchise requirements. It is these burdens that are probably the greatest obstacle today, and an obstacle that can be removed, to an adequate system of local transportation.

The most glaring is the paving requirements. This costs the company approximately $500,000 a year. It is a glaring form of discrimination against the street car rider and in favor of certain property owners and results in absolutely no benefit whatever to the street railway patrons or the city as a whole: It is discrimination pure and simple in favor of a small class. This matter has been exhaustively discussed by representatives of the City, by the Railroad Commission and by others and reference is made here to excerpts from the "Joint Report" above referred to, in the Appendix, attached to this report under the heading "Franchises and Paving". We believe that this Committee should go on record and should use its influence to remove this obstacle towards an adequate development of the Los Angeles mass transportation service.

The same thing is true in regard to franchise taxes and on this item also reference is made to the Appendix.

The relief of the transportation utility and of the street car patrons of these particular burdens would in time result in a reduction in cost of the service of somewhere between three-quarters and a million dollars per year. This saving the company would be glad to return to the car rider and to the city, either in reduced rates, or in increased and better service. There would be no difficulty to reach an agreement that would insure this result.

The patron of the mass transportation system is most unfairly discriminated against in the payment of State taxes. This discrimination and injustice against the citizen who, on the average, is least able to bear it, is not generally recognized. If it were properly understood I have no doubt the injustice would be removed. Under the present system the street railway company must act as the tax collector for the State. In the present year the Los Angeles Railway will be under the necessity of collecting from the street car and bus riders between $700,000 and $750,000 in State taxes. Five and a quarter cents out of every dollar the company takes in goes for that purpose. The people who do not ride, and who also benefit from the existence of the mass transportation system do not contribute one cent towards this tax. To the street car patron this tax is of no benefit whetever because the money is not expended for purposes of better service. This tax is entirely different, therefore, from the gasoline tax where the automobile rider is taxed for his own benefit and where the proceeds are expended exclusively for road improvements.

You will note, therefore, that paving taxes, franchise taxes, and State taxes together constitute a burden on the street car rider each year of more than a million and a half dollars. By the removal of this burden a very large and permanent improvement in mass transportation service and in traffic conditions generally could be brought about and at no additional cost to the city.

The **legal** obstacles above referred to consist in the main in the franchise provisions and in other provisions of law requiring the continued carrying of the burdens above referred to. Legal assistance towards a better transportation service is further required in modification of traffic ordinances that will assist in providing a speedier and more convenient street railway service.

The **physical** obstacles have already been referred to; they are largely connected with traffic congestion and while it is not possible to do completely away with them under present conditions much improvement can be brought about by real cooperation between the utility and the city.

The most urgent immediate need we would suggest would be the installation of the progressive automatic traffic signal control. This would not only assist in speeding up street railway service but would benefit equally, at least, all other street traffic.

XI. To What Extent Would a Rapid Transit System Meet the Requirements for an Adequate Local Transportation Service and What Would Be the Cost.

When the subject of this memorandum is considered from the standpoint of "rapid transit" it becomes necessary to ask this question: to what extent would a rapid transit system, as compared with the present, or improved surface system, meet the requirements for an adequate local transportation service and what would be the cost? In order to answer the question it is necessary to know a number of things that are not known at the present time:

(a) What sort of a rapid transit system is proposed (the system contemplated in the Kelker Report or a modification of that plan)?
(b) Where will the rapid transit lines (subways, elevated) be located and how far will they extend?
(c) Will the rapid transit system be "self-contained" or will it connect with the existing surface lines of the Pacific Electric and of the Los Angeles Railway?
(d) Will the rapid transit system be constructed to serve both interurban and local traffic and handle both the equipment of the Pacific Electric and of the Los Angeles Railway?
(e) Will a separate fare be collected on the rapid transit system, with or without transfers to the existing surface lines, or is there intended a unification of the existing local services of the Pacific Electric and the Los Angeles Railway, including the motor coach lines?

These are a few of the questions that immediately occur and that must be answered if an estimate is to be made of the capital and operating costs of a rapid transit system and of its effect on the city and on the existing transportation lines.

Equally important are the questions of financing and of revenue. These subjects have been assigned to other papers in this Rapid Transit Conference and their discussion does not belong in this memorandum. But it is proper in this place to make the point that the cost of any rapid transit plan should be carefully measured against the benefits that may reasonably be expected from the consummation of the plan and that these costs be compared with the costs of alternate possibilities of transportation improvements, such as suggested in this memorandum.

Concretely, what would bring greater benefit to the City of Los Angeles and particularly to the downtown district: the giving relief to the existing transportation agencies from paving burdens, tax burdens and franchise burdens to the extent of say $1,000,000 per year under an agreement that this saving would be reflected in specific improvements of service, or the expenditures of a much larger sum of money, running into the tens of millions, for the creation of a new rapid transit system?

Another important question should be studied and answers invited from people best qualified to speak: to what extent is it desirable, from the standpoint of a healthy development of the entire city, to block the tendency of decentralization and to interfer with the building up of outlying business centers, assuming that this movement can be delayed? A student of present day growth and development of large cities must be struck by the fact that remarkable changes are now taking place in the life of our cities. It is probable that these changes will make their way in spite of efforts to stop them.

A modern city differs tremendously from a city of even 25 or 50 years ago. Los Angeles is one of the "new cities" and it is eminently a city of growth. In the new city health, light, sunshine, space, beauty will more and more rule supreme.

Let us assume the maximum plan for subways and elevated railways were accomplished and in effect. Is it not true that the greater part of the present congestion would still remain and the great majority of people would have to take either the street railway or the bus or would travel in their own automobiles? The saving in time would be small for a small percentage, the great majority would not be affected at all; the cost of transportation would be greater; fares would be higher; taxes would be increased and the decentralization of the city would go on as before.

This is the experience of New York and to a lesser extent of Chicago. In New York the cost of subways already greatly exceeds a billion dollars and hundreds more of millions are going to be spent, yet the congestion increases month by month and year by year. The 5 cent fare is possible only because the city pays the deficit. The surface cars and the buses in New York are as necessary as ever and handle about as many passengers as ever. The private automobile in Manhattan has almost disappeared and the taxicab congestion is almost intolerable. An increasing number of thoughtful people have reached the conclusion that the creation of the monster "Manhattan" with its aggregation of sky scrapers was an enormous mistake and that this error will not be repeated in any other city in America.

The Los Angeles Railway wishes it understood that it is not opposed to the development of a rapid transit system for Los Angeles, but we believe that very careful consideration must be given to all phases of the problem and complete study made before a plan is adopted and money spent. We should know, among other things, the experiences of other cities; the character of Los Angeles and wherein our city differs from other large centers of population; the relative costs; where the money is to come from; the relative importance of necessary public requirements (water, power, streets, schools, etc.); how near have we come to the limit of taxation, and then a comparison should be made of benefits expected from a rapid transit system at such and such a cost, with what can be accomplished by adopting other means at much lower expense.

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APPENDIX

Excerpts from "Joint Report on Street Railway Survey City of Los Angeles" to Railroad Commission of the State of California, Board of Public Utilities and Transportation, City of Los Angeles, Los Angeles Railway Corporation, Pacific Electric Railway Company, by Lester S. Ready, Chief Engineer, California Railroad Company; J. O. Marsh, Chief Engineer, Board of Public Utilities and Transportation, City of Los Angeles; Richard Sachse, Consulting Engineer, Los Angeles Railway and Pacific Electric Railway. (Accompanying Rapid Transit Memorandum of Los Angeles Railway, January, 1930.)

From Part II, Chapter I

General Description of the Territory and Population Served

The larger area tributary to the City of Los Angeles or what might be called the Los Angeles Metropolitan Area is shown on Figure 2 (Map of Territory tributary to Los Angeles, Metropolitan District). This area includes the country from Santa Monica on the Pacific Ocean on the west to Redlands in San Bernardino County in the east (a distance of 80 miles), and from Balboa in Orange County on the south to the northerly boundary of the City of Los Angeles, northerly of San Fernando (a distance of 65 miles).

The outstanding characteristic of this territory is that its boundaries are fixed by the net work of inturban lines of the Pacific Electric Railway radiating in all directions from its center, the down-town district of Los Angeles. On the west and south the natural and permanent limits of this metropolitan area are fixed by the Pacific ocean; on the north the barrier is again permanent and natural and formed by a series of mountain ranges, broken by a few narrow passes. This mountain chain runs almost due east and west for 160 miles or more, half way across the State from the ocean above Santa Monica to the desert, east of the San Bernardino Mountains, with a maximum elevation on San Gorgonio Mountain of 11,485 feet. To the south and east the country is more open although intersected from north to south by various mountain ranges of considerable elevation (Santa Anna Mountains south of Chino with a rise to 5,680 feet; east and southeast of Riverside the western range of the San Jacinto Mountains with a rise to nearly 3,000 feet). These ranges and other similar mountain barriers divide this southeast country into a series of fertile plains and valleys tapped by steam and electric railways and by a system of paved highways all leading to the metropolitan center of the City of Los Angeles. This large area of approximately 5,000 square miles, about 1/5th of which is now settled and cultivated and developed farm, orchard and city land, is truly tributary to Los Angeles and is for this reason referred to in this report. While it is true that a local Los Angeles street railway system, distinguished from rapid interurban transit lines, can never reach the outer sections of the territory here delimited, it is equally true that the local transportation system must be planned and operated with the total population and development of this entire area in mind. The people and the products of this great area will in the future still more than in the past find their center of attraction in Los Angeles. That this area in a future not too distant will easily support a population of 5,000,000 with agricultural, industrial and commercial development corresponding to such numbers, if adequate provision for water, power and transportation is made, there can be no doubt.

The City of Los Angeles itself, as shown on Figure 2, cuts across the westerly quarter of this area, from northwest to southeast and from north to south a length of 50 miles. The city's present political boundaries clearly represent Los Angeles as consisting of three separate districts with large unincorporated areas intervening, and connected on the south by a narrow "pan-handle" or "shoe string". On the north the previously existing "shoe string" through Cahuenga Pass has recently been obliterated by the incorporation within the city of considerable adjoining territory.

The northern part embraces the San Fernando Valley and the mountains between the valley and the ocean northeast of Santa Monica. In area this is the largest of the three parts, including 233 square miles. In population it is the smallest; the number of inhabitants at the present time being estimated at 25,000. Its development is in the future.

The center includes the City of Los Angeles proper and this portion, with the radius fro mBroadway and 7th Streets of roughly 7 miles, is now and always will be the heart of the greater city. We have included in the center also the portion of the city between Inglewood and the ocean north of El Segundo. In the area the center section embraces about 150 square miles with a population of approximately 1,000,000. The connecting link between this center and the northern district is the short, narrow strip of Cahuenga Pass, northeast of Hollywood.

The southern section which may be called the Harbor District, is even now a good sized community in and by itself, of 24 square miles with a population of approximately 40,000. It is connected to the center by the "shoe string", running straight north and south about a half a mile wide and a distance from 7th and Broadway to the municipal water

front at San Pedro of 22 miles. Dividing the city, in accordance with these present boundaries, we may summarize:

Division	Area	Population
Northern District	233 sq. miles	30,000
Center	150 " "	1,000,000
Harbor District, including Shoe String	24 " "	40,000
Entire City of Los Angeles	407 " "	1,070,000 (estimated as of July 1, 1924.)

The division of the city as indicated above is shown in Figure 3 (Los Angeles and Vicinity, showing Distribution and Density of Population).

A study of this map cannot fail to indicate that there will be a strong tendency in the future to include within the city boundaries all of the territory at least lying between the present westerly boundary and the ocean south of the northern district and north of San Pedro shore. This would add approximately 150 square miles to the total area shown above and a present population of about 150,000. A further extension of the city easterly beyond its present boundary is also likely.

Regardless, however, of present and future political boundaries the transportation needs of the population require the treatment of certain areas as units. The size of such areas must be determined in the first instance by economic and transportation considerations. Having these limitations in mind, different units in size and shape will result, depending on whether we deal with rapid interurban transit or with local street car and motor bus transportation. This report deals with local transportation, principally. Since, however, the city must be the center of the rapid transit lines and those lines are interlaced with the local lines, the two services must necessarily be studied together.

On the map Figs. 2 and 4 the local system of the Los Angeles Railway Corporation is shown in black dotted lines and the Pacific Electric Interurban lines in solid black. Taking the longest local line as a measure (the Hawthorne line), we find a straight line distance from 7th and Broadway to Hawthorne of 10¼ miles. A circle with a 10 mile radius and 7th and Broadway as the center includes the territory shown on Fig. 4 a territory that may be designated as **"Present Maximum Area of Local Transportation Service by Los Angeles Railway."** As a matter of fact at only six points does the present Los Angeles Railway service extend beyond the six mile radius and it is correct to say that the present local service territory of the Los Angeles Railway is inside a six mile circle with its center at 7th and Broadway. Within that six mile area the 5c fare with free transfers obtains on the Los Angeles Railway lines.

The Pacific Electric local lines, as so designated for the purpose of this report, fall within the 8-mile circle and embrace generally, the first and second fare zones (one zone, single fare 6c; two zones, single fare 10c). Irrespective of the fare, and taking the Los Angeles Railway and the Pacific Electric local lines together, we may say that the present local transportation service territory includes an area lying within an 8-mile circle measured from 7th and Broadway. The area is shown within a red circle on Fig. 4 and marked "Present Local Transportation Area."

This area in relation to the total territory shown on the three maps presents an interesting study. Its relative insignificance in territorial extent is clearly shown on Fig. 2. Its importance in relation to the central portion of the city is brought out in Fig. 4 and the fact that the present local transportation area includes by far the largest portion of the population of the city is clearly indicated in Fig. 3.

It is useful to compare the character and extent of this area with local transportation areas in some other large cities.

In **Chicago** where the transportation problem has been the subject of intensive study for over 10 years, the geographical conditions differ materially from Los Angeles. The transportation area occupies not a full circle but almost exactly half a circle, the shore line of Lake Michigan cutting the circle in two. Within this half circle the present local transportation area (that is the territory served by the surface street car lines), lies within a 10-mile circle with the center at State and Madison Streets. On the Chicago South Side the area extends to a 15-mile radius and in the northeast of the city to a 12-mile radius. It may be added here that in the opinion of the engineers who have recently reported on the Chicago local transportation situation, this surface system area cannot be further extended under the present street car service, because from 70 to 80 minutes are required to cover the distance between the outer limit and the center.

In **New York** the boundaries are natural ones on the east, south and west, and compress the local transit area into a 10-mile circle. To the north the local lines extend to the 15-mile circle. New York, in the matter of transportation, is in a class by itself, and comparisons cannot be readily made with other cities.

In **San Francisco** the extent of the street car system is again controlled by natural boundaries, ocean and bay west, north and east, and only to the south is expansion possible. Taking the street railway transportation center at Powell and Market Streets, the furthermost point of the city limits is inside the 8-mile circle with over 90 per cent of the street car trackage lying within a 4-mile circle.

On the **East Side of the San Francisco Bay in Oakland, Berkeley and Alameda,** the local street car lines serve a strip of territory 28 miles long and from 2 to 6 miles wide. Assuming a center at Oakland City Hall, a seven-mile circle will include all local lines, with one exception, in the one-fare zone.

Other large cities, considered from a similar point of view, show generally similar conditions and it may be stated that the local transportation area rarely extends beyond a ten-mile radius from a common center and in the majority of cities includes a smaller area.

The present local transportation area of Los Angeles compares favorably with corresponding areas in our large cities and the comparison becomes even more favorable if the factors of the five-cent fare and the average length of haul are considered. It is not likely that the local transportation area in Los Angeles can be extended beyond the eight-mile circle. This circle, as shown on the map, Fig. 4, would include Watts, Inglewood, Culver City, Sherman, Glendale, Annandale, South Pasadena, and part of Alhambra, Monterey Park, Huntington Park and South Los Angeles.

Beyond the eight-mile circle is the interurban rapid transit area. Any point within 90 minutes reach by rapid transit may be considered as within commuting distance, although the large percentage of commuters do not go beyond the 60-minute time limit. Measured by these limits of time table travel time, the commuting area or what might be termed the "metropolitan rapid transit area" is shown on Fig. 2. This chart shows that points on a 25-mile circle are the farthest communities that at present can be reached within 60 minutes. The 90-minute time limit extends this area to the east and southeast to a 40-mile radius, including Upland, Ontario, Santa Ana, and Balboa Beach. In the future, by better facilities in the congested district (subways or elevated railroads), it will be possible to shorten rapid transit time schedules materially; or, put in another way, to increase correspondingly the areas that can be served in a given time.

The development of this territory and its growth in population and resources in the past, especially the recent past, is the basis upon which to estimate for the future. The rise of Los Angeles to one of the largest

cities of the United States in population and area in a remarkably short space of time is one of the outstanding facts of the recent history of the State of California. All of those immediately concerned with this report are more or less intimately familiar with, and indeed were a part of, this development so that but little space need be given to a review of these happenings. In a number of official and unofficial reports the past and recent history of Los Angeles is described in detail and a repetition here of such detail seems unnecessary. Particular reference is made to the report of the Engineering Department of the California Railroad Commission, of 1919, on "Railroad Grade Crossing Elimination and Passenger and Freight Terminals in Los Angeles," and to Chapter III of that report "History and Development of the City and of Transportation Facilities." In that report the growth of the city in area and population and other measures is shown in a series of charts in Plates 6, 7, 8, 9, etc. In 1851, the year of its incorporation, its area was 28.0 square miles and during the next 55 years until 1906 the geographical limits remained substantially the same, the increase amounting to only 1.20 square miles. The population records during this 55 years show the following increase:

1860—(first available census figure)—3,700
1870— 5,728
1880— 11,090
1890— 50,395
1900—102,479
1905—240,000 (approximately)

In 1910, the population was 310,198, with a city area of slightly over 100 square miles. The official 1920 census gives Los Angeles a population of 575,480, and an area of over 350 square miles. The estimate of the present population, (July, 1924), is between 1,000,000 and 1,100,000 and the city area 407 square miles.

A comparison of the growth of Los Angeles with the population and comparative growth of other large cities is instructive. Fig. 5 gives such a comparison (Chart Showing Population and Growth of Large U. S. Cities).

Fig. 3 of this report shows the density and distribution of population and it is interesting to compare this figure with the plate following Fig. 6, showing similar information for the year 1917, this last figure being taken, with the permission of the Commission, from the Railroad Commission's Los Angeles Terminal and Grade Crossing Report (page 71), "Distribution and Density of Population, Los Angeles, November, 1917." A comparison of the 1917 and 1924 population charts shows the fairly uniform increase in density of population in all directions from the center with the most marked increase towards the south and southwest and towards the northeast.

Fig. 7 shows the principal business centers of the City of Los Angeles and the relation of these centers to the distribution and density of present population.

Referring to the last chart (Fig. 7), showing the business centers, Los Angeles is now repeating the development of other large cities; namely, that in addition to the main and original business district newer business districts, steadily growing in importance, are developing in the outlying sections of the city. In Los Angeles this normal development is accelerated because of the great insufficiency of available street area in the original business section and because California, and Southern California in particular, has a larger number of automobiles in relation to population than any other portion of the United States. The climate of Los Angeles and its attractions as a tourist center will insure a continuation of this condition with consequent increasing congestion and a consequent tendency toward accelerated business decentralization. This acceleration will take place more rapidly in the future unless better transportation facilities, including the widening and improvement of streets in the present principal business districts, are brought about.

FROM PART II, CHAPTER IX

"TRAFFIC CONDITIONS IN THE CITY OF LOS ANGELES STREET RAILWAY AND OTHER TRAFFIC"

(Pages 325 to 329)

"Fundamental Considerations in Dealing with Traffic Congestion.

It is our view that the problem of traffic congestion can not be successfully dealt with unless certain fundamental facts and principles are understood and accepted. Further, when accepted, they must be acted upon and any measures proposed and adopted in violation of such principles will of necessity be unsuccessful. These fundamentals have in part been stated in the report of the Parking Survey Committee and adopted by that Committee. Some of the facts when stated are so obvious that they appear self-evident, but it is nevertheless desirable and necessary to state them.

Traffic congestion arises from a combination of the following circumstances:

(a) The available street area is able to accommodate only a certain amount of street surface traffic.

(b) When the ultimate capacity (the "saturation point") is reached, additional traffic must either be diverted or additional traffic facilities must be created under the surface (subways) or above the surface (elevated roads).

(c) As the saturation point is approached, increasing congestion comes about with resulting danger to life and limb and inconvenience and loss to passengers and business.

(d) If congestion becomes intolerable before the remedy indicated under (b) can be provided, a measure of relief can be had only by legal and police regulation of the various kinds of traffic and by the strict and uniform enforcement of such regulation.

(e) Such regulation must proceed upon the principle of the greatest good to the greatest number and upon a recognition of the fact that the more important and more necessary uses to which streets are put are superior to the less important and less necessary uses.

(f) In order to determine the relative importance and necessity of street use it is necessary to classify the several uses.

(g) Such classification for the purpose of this report is made as follows:

1. Streets are used for **moving traffic** (pedestrains and vehicular traffic, including autos, trucks, street cars, busses, horse-drawn vehicles, railroad rolling stock and other vehicles used for the transportation and delivery of passengers and commodities):
   (a) Moving in the district.
   (b) Moving from outlying districts into the district.
   (c) Moving from outlying point to outlying point passing through the district.
2. Streets are used for **traffic not moving** (parking, storing, and commerical occupancy).

(h) On the basis of the classification given under (g) the relative importance and necessity for the use of the space of public streets is as follows:

1. The availability of the street for moving traffic is of first importance.
2. The availability of the street for traffic not moving is of a second importance.
3. Any available street capacity, after all of the moving traffic is taken care of should be assigned:
   First: to parking of private vehicles in accordance with a proper definition of the term "parking".
   Second: to commercial parking.
   Third: to storage purposes for private and commercial vehicles.

(i) If the available street capacity is not sufficient to make provision for all of the uses indicated under (h), then the less important use should give way for the more important use in the following order:

1. There should, first, be prohibited the use of the street for storage purposes.

2. There should, secondly, be prohibited the use of the street for commercial parking.
3. There should, thirdly, be prohibited the use of the street for private parking.
4. It follows that the use of the street for moving traffic is paramount to all other uses.

(j) To determine the relative **importance of moving traffic** in public streets, the following considerations should govern:

1. Steam railroad traffic, both freight and passenger is the most hazardous and inconvenient form of interference with other modes of traffic and should, on congested thoroughfares, be eliminated, both longitudinally in the streets and at street intersections.
2. If in the congested district vehicular freight traffic by trucks and delivery wagons and vehicular passenger traffic conflict to such a degree in a public street that one or the other form of traffic must give way, then the freight traffic must be confined to certain thoroughfares or to such hours of the day or night when it will least interfere with the passenger traffic.
3. Of the different forms of vehicular passenger traffic there should be extended the greatest consideration to those means of transportation which will serve best and most economically the greatest number of people and at the same time demand the smallest relative amount of street space. This consideration demands a recognition of the fact that **public means of transportation** (street cars, busses) are of greater importance than private vehicles and that the former should have first consideration.
4. A greater consideration for the public vehicle as compared with private vehicles is further justified in view of the fact that the area of the public streets in the congested district set aside for the use of the public vehicle (street car tracks) is relatively insignificant as compared with the street area set aside for private use. And it is to be remembered that even the space set aside for public vehicles is available at the same time for the private vehicle by reason of the fact that the automobile and other vehicles use that portion of the street area occupied by street railway tracks.

(k) Of the two forms of moving traffic, vehicular and pedestrian, the latter is the more important one and the availability of the use of the public streets (including the sidewalks) for pedestrians is of greater importance than the use of the street for vehicular traffic. A recognition of this fact requires the regulation of pedestrian traffic on street intersections from the standpoint of giving superior consideration of the safety and convenience of pedestrian traffic.

If these elements of the problem of congestion are accepted as sound, then any step that will expedite street railway and motor bus service as the most efficient means of mass transportation and will confine these forms of transportation to the most direct and most convenient routes with as little interference from other traffic as possible, will tend to relieve congestion. Through traffic between points outside of the congested district should not interfere with traffic in the congested district. This can be accomplished only by routing such traffic outside the boundaries of the congested district or by providing subways or elevated railways and avoiding the street surface within the centers of congestion.

Pending the carrying out of comprehensive and extensive street improvements and rapid transit programs which will require very large expenditures of money, it will not be possible to accommodate a materially larger amount of traffic than that at present within the congested district of the city and especially during the rush hours, and the development of outlying business districts will continue at a rapid pace. We believe that the city as a whole is not hurt by decentralization and that such decentralization, all things taken into consideration, is deemed desirable."

Wherein the Question of Rapid Transit Is of Interest to "Downtown" Business and Property

By JOHN G. BULLOCK

Property values downtown depend upon profitable use of this property for business purposes. Business activity largely depends upon having adequate transportation. That expresses briefly the reason why property owners and business men in the downtown district are concerned in Rapid Transit. Continued delay or failure to provide Rapid Transit will tend to depreciate the stability of property values and other investments in downtown business. Anything which seriously affects an important part of our city must eventually react upon the prosperity of all other parts and is, therefore, a matter of concern to everybody.

Balanced prosperity requires the normal, healthy growth of all parts of the city in proportion to the increase in population and wealth of the city as a whole and not as a result of choking the development of some particular district.

We may discuss the interest of the Downtown district in Rapid Transit, but we must recognize that Rapid Transit is not only a downtown problem. It is a city-wide problem.

Commercial, financial and public activities of the entire community are being affected by transportation diffficulties. The daily lives of hundreds of thousands of persons are influenced by the condition that those who must travel into or through the downtown district cannot always do so with reasonable speed and comfort. Such unsatisfactory conditions will not disappear by ignoring them. They will become worse and worse until the transportation needs of the city are adequately provided for.

Rapid Transit is not proposed as a substitute for other means of transportation. It does not need to raise any question as to the relative merits or rights of street cars, busses, automobiles, etc. All of these various facilities, properly coordinated, are needed in the Los Angeles of today and in the Los Angeles of tomorrow. The apparent conflict between them is largely due to the fact that now they are all trying to use the same street surfaces at the same time. Providing for part of this traffic below or above the street level will increase the traffic capacity of the streets for other vehicles.

Again, we should remember that the chief interest in traffic is not as an abstract problem but as a vital business matter, and that it affects all districts of the city and all classes of citizens.

It is idle to consider whether the need for Rapid Transit could be eliminated by developing numerous other business districts instead of the Downtown district. Everyone who is familiar with the economic structure and business life of a city realizes that we must conveniently centralize many of the large commercial and public institutions of various kinds which are required to serve Los Angeles and to carry on business with the rest of the world.

The centralized or "Downtown" business district is not an artificial creation. It is based upon necessity and convenience and is an essential part of the community. Its growth and proper functioning is of importance to the whole city.

Likewise the growth and development of business districts in other parts of the city and in suburban communities is also an important factor in the progress of metropolitan Los Angeles. This is recognized by many business houses who find it desirable to establish branches to more con-

veniently serve various districts. This does not diminish the importance of the Downtown business district. In fact, as these other parts of the community grow and prosper, the Downtown district must also grow to serve them and to keep pace with their growth.

The discussions of this question during the past several years have shown that many of the leading citizens and city and county officials have long believed that Los Angeles must provide Rapid Transit, but these discussions and various studies and surveys have not yet led to action.

Action now is the great need. We can assume that everyone wants the Rapid Transit system planned and built to include the best engineering ideas and construction, skill and beauty.

The Los Angeles which provided for its Harbor needs, the Los Angeles which provided for its water supply and now is planning for greater future needs in these and other essential utilities cannot fail to grapple with and solve the transportation problem and provide soon for a Rapid Transit system adequate for immediate needs and designed for future expansion.

The general experience of large cities should make us realize that the longer a necessary major improvement of any kind is deferred, the more expensive it is likely to be.

We should also constantly remember that while we defer the construction of Rapid Transit, we can not escape or postpone paying for it in wasteful traffic delays, and general slowing up of business.

The "Downtown" district and the entire city and county needs Rapid Transit and are interested in making a beginning quickly.

The Community's Interest in the Service of Satellite Business Centers and the Effect Upon Them of Rapid Transit and Its Lack

By CARL BUSH
Executive Secretary, Hollywood Chamber of Commerce

(A paper by Carl Bush prepared for a preliminary rapid transit conference called by the Los Angeles Planning Commission.)

The following statement is made with the distinct understanding that it is in no sense the result of investigation, nor to be accepted as a well-considered conclusion on the subject. The subject matter being general and extremely broad, it follows that this statement can point out only a few well-established facts, and the writer expressly reserves the right to present at any proper time or place statement which may be at variance with those contained herein after the subject matter has become more definite and opportunity has been offered for careful study and analysis.

The subject assigned to me is clearly divided into two parts, the first being, as quoted above, "the community's interest in the service of satellite business centers." To my mind so-called satellite business centers as they exist in and around the metropolitan district of Los Angeles are the result of two comparatively new forces in community development, namely the use of the automobile, and the perfection and widespread use of the telephone for all business purposes. It might be said here that there is no well-defined system of satellite business centers in the immediate vicinity of the downtown business section; rather there is a continuation of business along many thoroughfares radiating from the downtown centers with an occasional expansion of business around some important corner or group of corners.

That these outlying business centers do render a distinct and much to be desired service to the general public is sufficiently evidenced by the fact that they exist and have existed for a number of years, and that in several instances they have maintained a consistent growth over a sufficient period to demonstrate that the public appreciates and wants to use the services offered. It is to be expected that these centers will continue to grow individually and to multiply collectively as the population of the area increases, while as long as the automobile furnishes an individualized method of transportation for shoppers and others engaged in business it is my opinion that no development of public transportation can be devised which will eliminate the increasing use of the automobile for shopping and other business purposes within areas reasonably close to any major business center.

Surface transportation using bus and street car will assist the automobile in making all business centers easily accessible, due primarily to the fact that the lesser capital expense involved in such transportation makes it possible to provide street car and bus lines at frequent intervals, and these lines inevitably in order to pick up their residential traffic become connecting feeders between the various business districts of the city and their adjacent residential areas. Such lines operate to handle traffic in both directions especially for shopping traffic, in proportion to the popularity of the business centers touched by the transportation lines in question.

There is probably no city in the world having a type of business development even closely approximating that of the City of Los Angeles and in my opinion this is primarily due to the two influences above mentioned plus the fact that the tendency in development throughout the community is away from, rather than toward, congestion either in

traffic or living conditions. This latter situation is popular with present inhabitants and is undoubtedly one of the greatest assets the area has in attracting new population. It is not likely therefore that any material change in the conditions now existing except the natural changes occasioned by growth will occur in this area within any time which we can use as a measure in our study of the transportation problem.

Briefly then, it is my observation that outlying business centers of many varieties and varying outstanding qualities are and will be popular just as long as the automobile and surface transportation make it practical for a large proportion of our population to reach all of the business centers. I am inclined to believe that even though there should by some means be a lessening of the use of automobiles and surface transportation that for many years at least the tendency would be to increase the frequency of business centers to walking distances rather than to abandon the outlying business district idea, and center a greater proportion of business in a given small area. I think it should be obvious that the above conditions exist with reference to established outlying business centers exactly as they do with reference to the established downtown center. In other words, the present established outlying centers are in some respects only the beginning of a greater number of such centers, and the frequency with which rather large and complete business centers can be established and maintained is as yet an unsettled question.

From the foregoing I believe it is rather obvious that from a strictly local business standpoint certain arrangements of rapid transit service might tend to injure the development of any given outlying business center while other possible systems might serve to augment the expansion and prosperity of these centers.

THE EFFECT OF RAPID TRANSIT UPON OUTLYING BUSINESS CENTERS

The second part of the general subject embraces so many indefinite possibilities that a definite answer to the question asked could only be made after studying some predetermined rapid transit system. In general it would seem that the construction of rapid transit lines serving the outlying business and residential areas of the city might tend to seriously injure the service rendered by surface transportation lines operating within the same general area. In proportion to such injury to surface transportation, rapid transit lines would tend to injure particularly outlying business centers, such injury being offset by whatever advantages might accrue to a given business center by reason of a rapid transit line making the area surrouding that center a more desirable place to live.

Rapid transit lines, unlike surface lines, do not necessarily render the same transportation service in both directions for all classes of passengers. Surface lines as a rule, as noted under the first heading, are equally useful in both directions, the general condition being that they are used for two distinct purposes in addition to many of lesser importance. The first in point of time and probably volume, is the daily travel of employed persons from the outlying districts to or through the downtown business center; the second is the shopping travel which will divide in proportion to the usefulness of the shopping centers reached by the lines. A rapid transit line, however, presumes infrequent stops, some engineers indicating that frequencies of greater than one mile defeat the very purposes for which rapid transit lines are designed. Such stop frequencies might easily force passengers using such lines to go completely under or over an outlying business center without any practical opportunity to choose whether to stop there or stay on the car until it reached the downtown center.

It would appear from casual observation and information available from other localities that the greater development from rapid lines occurs at considerable distances from the downtown center if the line is a long one, and if the line is short that the improvement is noticed at or near the outer end of the line. As many of the Los Angeles outlying business centers are within the five to ten-mile radius from the downtown business center, it is obvious that a system of rapid transit could be designed which would be little or no benefit and might be somewhat detrimental to the closer in sections.

On the other hand a system having its termini generally at points approximately five miles from the downtown center would tend to greater development of residential areas just outside the five mile circle, and such development, assuming that there would be no curtailment in surface transportation beyond the five-mile points, would undoubtedly cause a corresponding development in business in adjacent centers.

It should not be out of place at this time to call attention to the fact that as yet few areas within the Los Angeles metropolitan area will warrant the tremendous expense involved in rapid transit line construction for the use of what might be termed local traffic. Consequently such lines of necessity must be built more or less at public expense as their usefulness would be completely destroyed by high fares. If this is the case, it is the opinion of many students of local civic problems that any rapid transit lines to be built under existing conditions will have to be built and paid for by the districts directly interested and benefitted, rather than from any city-wide financing plan. That financing rapid transit lines by property owners or taxpayers in a comparatively small district should be approached with the utmost caution should be obvious.

There is another element entering into public financing at this time which in my opinion should be given the most serious consideration. I refer to the fact that this city, in company with others, must shortly engage in a financial outlay greater than ever before undertaken by this city for the purpose of acquiring additional water supply. I believe that the opinion is widespread that all public financing should be curtailed just as much as possible until the water financing situation has been completely solved. There can be no question but that water is our greatest and most important problem, and any financing undertaken without due regard to this fact, for any purpose, is apt to defeat its own end.

Would the San Fernando Valley Be Fed or Drained by Rapid Transit Connection with Metropolitan Center?

By CHAS. L. WOOD
Manager, Major Development Association

Angelenos, whether native born or adopted, are justly proud of the fact that Los Angeles in the past decade has grown more rapidly than any other city in the world.

The very rapidity of that growth, however, has given birth to several serious problems, which, if too long neglected, will finally defy solution.

Probably the most vital problem confronting the city at this time deals with transportation—with the satisfactory movement of human freight from any one given point in the city to any other given point.

Without adequate transportation facilities, the growth of Los Angeles City will soon be checked. The outlying districts will stagnate, and slowly but surely their stagnation will spread until it has affected the entire city.

In planning a transportation system which will fill the need of Los Angeles, not only today, but many years hence as well, it is necessary to study carefully the trend of the city's growth and to painstakingly analyze the basic facts which will determine the locale of the greatest future development.

During the last ten years the trend of greatest residential development has consistently been to the west and to the north. In every instance it has been accompanied by the development of business and shopping districts.

Hollywood is now densely populated and possesses a business and shopping district second in importance and volume of business to the downstown district alone. Real estate values in the entire Hollywood area have appreciated to such extent that many property owners there no longer consider it economically sound to improve their lots with small houses, their contention being that the total investment required is out of all reasonable proportion to the potential income from a five or six room house.

A somewhat different development has produced approximately the same economic condition in the West Wilshire, Beverly Hills and Santa Monica Bay sections of the city, where property valuations have increased tremendously during the last few years.

Now, Los Angeles is essentially a city of individual homes. The apartment house and apartment hotel, which have been of prime importance in the development of practically every other large city in the United States, have been relegated to minor roles in the development of Los Angeles. It is true that several million dollars are now being expended here every year for the construction of multi-unit dwelling places, but the great tendency of the city still seems to be toward the individual home.

Since an apartment house accommodating forty persons can be erected upon the same sized lot required for an average six room residence, it is obvious that any city committed to the individual home idea must necessarily expand over a great area.

Where then will the next great residential development occur?

In answering that question it is necessary to take into consideration the fact that the district to be developed must possess the following advantages:

First—It must be in line with the established trend of residential development;

Second—It must be in position to enjoy the full benefits of our city government, utilities and educational facilities, or in other words, within the city limits;

Third—It must offer homesites at reasonable prices;

Fourth—It must be comparatively close in, probably within reasonable distance of both the Hollywood and Metropolitan districts; and

Fifth—It must naturally lend itself to the installation of adequate transportation facilities.

After carefully considering these most vital points as well as many others of less importance, I believe that the answer to the question is obvious.

San Fernando Valley is destined for the next great residential development—IF rapid transit lines connecting the valley with the metropolitan business district are installed in the near future.

Before pointing out the valley's need for rapid transit to the metropolitan area, however, I wish to stress the fact that even without such transportation, it is absolutely inevitable that San Fernando Valley, because of its great natural advantages, will realize phenomenal improvement within the next few years. Especially is such a prediction applicable to the North Hollywood, Van Nuys, San Fernando and Burbank sections, which are nearest Hollywood and the downtown district. As a matter of fact, tremendous development is already under way in those communities as their unprecedented increase in building permits during the past year proved most conclusively. In North Hollywood alone building permits for the year 1929 totaled $1,566,339, a figure greater than that recorded for any other community of similar population in the entire state.

It was only a few years ago that the great ranchos into which the San Fernando Valley was originally parcelled finally passed out of existence. With their passing, the real march of progress began.

Probably the most comprehensive highway building program ever carried out in the city has provided easy access to every part of the valley. Since January 1, 1924, two hundred and seventy miles of paved roadway and seventeen miles of sidewalk and curb have been constructed at an approximate cost of $9,500,600. The work has been so intelligently planned that already San Fernando Valley enjoys a highway system far superior to that in any other district of the entire city.

With the construction of good roads the character of the 100,000 acres of land contained in the valley basin was irrevocably changed. The agricultural period was succeeded by the residential period.

Several factors guaranteed the permanence of the transition.

The greatest part of the money expended for the construction of highways and for other improvements in the valley was obtained by direct property assessment. Agricultural land could not stand the burden. Furthermore, with better highways and great accessibility, the valuation of land for the purpose of taxation doubled overnight. The tax burden in many sections of the valley also became too great to be supported by agricultural land.

Still another factor in the transition was the subdivider, who quickly saw the opportunity to sell thousands of residential lots and to colonize large areas on the acre home site plan. The acre home site plan, incidentally, is intended to offer an ideal scheme of life to the family of average means, for one or more members of the family are able to care for the specialization of that acre while others of the family carry on their work in the city. The great valley improvement program served as an ideal advertising element in this land selling campaign and at first both lots and acre home sites sold readily.

In many instances the potential purchaser was assured that he could live in the valley, enjoy all of the pleasures of country life and at the same time continue to work in Hollywood or Los Angeles without inconvenience by traveling back and forth either on the electric train or in his private automobile. I have no doubt that the assurance was honestly given, but the arrangement pictured has proven most impractical.

And as long as commutation between San Fernando Valley and Metropolitan Los Angeles continues to be impractical because of the high cost in time and money, just so long will the real development of the valley be deferred.

To illustrate the condition which now exists, let us examine the case of the individual whose home is in North Hollywood and whose business is in the downtown district.

He finds the inconvenience of using the present Pacific Electric lines prohibitive. In the first place, the limited trains, which leave North Hollywood at 6:35 a.m., 7:05 a.m., and 7:33 a.m., stop only at the station; consequently the commuter is forced to walk a long distance from his home to the station or else reach the same terminal by driving or being driven.

After boarding the train he is forced to spend a full hour en route to his work. Two hours per day, therefore, comprise the minimum time cost of rail travel between North Hollywood, the "close in" community of the valley, and Metropolitan Los Angeles. The fare is 25 cents each way or 50 cents per day, reducable of course by the monthly pass system, but still an item of expense demanding careful consideration on the part of the average wagearner. I contend, as do most other persons living in North Hollywood, that the combined cost in time and money effectively checks such commutation.

And yet, North Hollywood, being the gateway to the valley, is in far better position than the other more distant sections.

Having found the inconvenience and cost of rail travel prohibitive, the commuter next attempts to solve his problem by driving to and from his work in his automobile.

An immediate time saving is achieved. Instead of spending two hours each day in travel he spends approximately one and one-half hours, the exact time being determined by traffic congestion. The money cost of commutation has been greatly increased, however. Very conservative estimates recently completed by the Automobile Club of Southern California fix the minimum cost of operating a motor car at 4 cents per mile. It is twelve miles from North Hollywood to the central business district, and consequently, using the Automobile Club's estimate as a fair basis of computation, the daily cost of motor car travel between the two points would be 24 multiplied by four, or in other words, 96 cents. A parking fee of approximately 35 cents must be added. Is it possible then for the man who earns an average income to drive each day to his place of business in Metropolitan Los Angeles from him home in North Hollywood? The answer is perfectly obvious.

And yet North Hollwood is the "close in" community of the valley.

Many families have established residence in San Fernando Valley under the illusion that the family wage earner could maintain his employment in the central section of the city. The conditions outlined above have combined to dispell that illusion and almost without exception those families have been forced to move to districts with better transportation facilities.

Excepting in those sections of the city which are immediately adjacent to great industrial development, the majority of Los Angeles wage earners are employed in the central business dictrict, and it is erroneous to think that any residential section can enjoy proper development while it remains in a state of partial seclusion.

I do not presume to designate the type of rapid transit service which should be installed between San Fernando Valley and central Los Angeles. Neither do I presume to outline the most ideal route for such service. Such information, to be authentic, must be founded upon engineering study and long experience in railway administration.

Considerable study of the valley's transportation problem, however, prompts me to mention certain features which should be offered to the valley by any system of rapid transit which might be installed.

Again using North Hollywood as an illustration—the maximum running time between that community and the heart of the metropolitan area should not be greater than twenty minutes. I have been informed by nationally known engineers that such a schedule is eminently practical.

While it is apparent that adequate rapid transit service could not be profitably operated on lower rates than those now charged by the Pacific Electric lines, I believe that it is equally apparent that there should not be an increased fare.

Finally, rapid transit service should operate trains at frequent intervals, at least every thirty minutes and preferably every twenty minutes.

Given such service, the San Fernando Valley will immediately enter an era of phenomenal development. Home hungry thousands will seek the advantages offered there, for the united appeal of reasonably priced home sites, city utilities, excellent schools, convenient and economical transportation, and ample living room, cannot be denied.

We who live there eagerly await the great trek to San Fernando Valley, and we predict that not many years after the installation of rapid transit lines the valley will contain one million inhabitants. Before scoffing at that prediction, please remember that the San Fernando Valley contains one hundred thousand acres, which, divided into the usual five lots each, will provide the staggering total of five hundred thousand residential lots.

Without dealing in futures, San Fernando Valley has much to offer rapid transit. Approximately one hundred thousand persons live in the valley at the present time. Most of them live in several small communities and consequently cannot be reached by rapid transit lines without the establishment of numerous connecting lines.

Furthermore, we believe that the installation of rapid transit lines will tend to concentrate the population in the existing communities and retard the subdivision of the many thousands of acres of valley land which still are being used for agricultural purposes.

Several great industrial developments already offer business to rapid transit. The San Fernando Valley is the proven hub of aviation enterprise in Southern California. Three great airports, each one a nest of aircraft manufacturing plants and air transport enterprises, have already been built in the valley.

The United Airport, the most recent of the three, is being developed as a complete aeronautical headquarters. It is a terminal for air transport lines and in addition provides adequate space for all industries intimately connected with aviation.

The Grand Central Air Terminal in the western section of Glendale is the terminal for Pickwick Airlines, Transcontinental Air Transport-Maddux lines, and Nevada Airlines. It comprises 180 acres, represents an investment of $2,500,000, and dispatches nine passenger planes daily on regular schedule.

The Metropolitan Airport, located near Van Nuys, comprises 392 acres, is the home of many aviation enterprises, notably the Bach Manufacturing Plant, employing approximately 350 persons, and dispatches 35 ships daily.

Because of its ideal climatic conditions, its reasonable land values, and its topography, aviation leaders predict that a great per cent of all future aviation development in Southern California will occur in the San Fernando Valley.

The motion picture industry is firmly established in the valley. At present three studios, First National, Universal and Mack Sennett, are in operation and employ many hundreds of persons. It was recently announced that a fourth studio in the valley would be erected in the near future by R.K.O. It seems certain that the high real estate values in Hollywood will force every motion picture company to establish its studio either in San Fernando Valley or in the Culver City district.

San Fernando Valley eagerly waits the residential development which is its natural right. God, Himself, with His protecting arms, the mountains, completely surrounded this 100,000 acre domain from the premature encroachments of man until the latter evolved more modern methods of city planning.

About eighteen years ago this responsibility was assumed by hardy men of vision. The bringing of Owens Valley water 250 miles to assist in the building of greater Los Angeles was the sign to change the ranch area into this modern place for people to live, and in this length of time that has elapsed these 400 miles of permanently paved highways have been constructed, four large high schools, up-to-date in every respect, churches, country clubs and golf courses have done their part to make San Fernando Valley the ideal living place.

President Hoover's announced purpose is to bring about better living conditions for the American people, and San Fernando Valley offers every facility for local aid in the fulfillment of the presidential plan.

A modern up-to-date rapid transit system is the only factor needed to feed into San Fernando Valley a teeming population. Rapid transit service in other sections of the United States has never failed to bring about development in suburban areas. For instance, prior to the development of Indianapolis as an interurban center of transportation, less than 250,000 people per annum came into that city by electric cars, while now upwards of 4,000,000 per annum enter Indianapolis over the interurban railroads.

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Given such service, the San Fernando Valley will immediately enter an era of phenomenal development. Home hungry thousands will seek the advantages offered there, for the united appeal of reasonably priced home sites, city utilities, excellent schools, convenient and economical transportation, and ample living room, cannot be denied.

We who live there eagerly await the great trek to San Fernando Valley, and we predict that not many years after the installation of rapid transit lines the valley will contain one million inhabitants. Before scoffing at that prediction, please remember that the San Fernando Valley contains one hundred thousand acres, which, divided into the usual five lots each, will provide the staggering total of five hundred thousand residential lots.

Without dealing in futures, San Fernando Valley has much to offer rapid transit. Approximately one hundred thousand persons live in the valley at the present time. Most of them live in several small communities and consequently cannot be reached by rapid transit lines without the establishment of numerous connecting lines.

Furthermore, we believe that the installation of rapid transit lines will tend to concentrate the population in the existing communities and retard the subdivision of the many thousands of acres of valley land which still are being used for agricultural purposes.

Several great industrial developments already offer business to rapid transit. The San Fernando Valley is the proven hub of aviation enterprise in Southern California. Three great airports, each one a nest of aircraft manufacturing plants and air transport enterprises, have already been built in the valley.

The United Airport, the most recent of the three, is being developed as a complete aeronautical headquarters. It is a terminal for air transport lines and in addition provides adequate space for all industries intimately connected with aviation.

The Grand Central Air Terminal in the western section of Glendale is the terminal for Pickwick Airlines, Transcontinental Air Transport-Maddux lines, and Nevada Airlines. It comprises 180 acres, represents an investment of $2,500,000, and dispatches nine passenger planes daily on regular schedule.

The Metropolitan Airport, located near Van Nuys, comprises 392 acres, is the home of many aviation enterprises, notably the Bach Manufacturing Plant, employing approximately 350 persons, and dispatches 35 ships daily.

Because of its ideal climatic conditions, its reasonable land values, and its topography, aviation leaders predict that a great per cent of all future aviation development in Southern California will occur in the San Fernando Valley.

The motion picture industry is firmly established in the valley. At present three studios, First National, Universal and Mack Sennett, are in operation and employ many hundreds of persons. It was recently announced that a fourth studio in the valley would be erected in the near future by R.K.O. It seems certain that the high real estate values in Hollywood will force every motion picture company to establish its studio either in San Fernando Valley or in the Culver City district.

San Fernando Valley eagerly waits the residential development which is its natural right. God, Himself, with His protecting arms, the mountains, completely surrounded this 100,000 acre domain from the premature encroachments of man until the latter evolved more modern methods of city planning.

About eighteen years ago this responsibility was assumed by hardy men of vision. The bringing of Owens Valley water 250 miles to assist in the building of greater Los Angeles was the sign to change the ranch area into this modern place for people to live, and in this length of time that has elapsed these 400 miles of permanently paved highways have been constructed, four large high schools, up-to-date in every respect, churches, country clubs and golf courses have done their part to make San Fernando Valley the ideal living place.

President Hoover's announced purpose is to bring about better living conditions for the American people, and San Fernando Valley offers every facility for local aid in the fulfillment of the presidential plan.

A modern up-to-date rapid transit system is the only factor needed to feed into San Fernando Valley a teeming population. Rapid transit service in other sections of the United States has never failed to bring about development in suburban areas. For instance, prior to the development of Indianapolis as an interurban center of transportation, less than 250,000 people per annum came into that city by electric cars, while now upwards of 4,000,000 per annum enter Indianapolis over the interurban railroads.

Traffic Connections to Neighboring Cities

By GEORGE A. DAMON
Consulting Engineer, Pasadena

Before we can intelligently state our rapid transit problem there are a number of concepts we should have in mind.

Rapid transits may be defined as transportation on either "rail" or "rubber" over a right of way of adequate width and free from grade crossings.

Our Los Angeles district problem is quite "different" and we can learn little from other communities except "how not to do it." No other city has our unique conditions.

Considering our greater Los Angeles regional district, we find we have a metropolitan center containing 50 per cent of the population of the entire district. (Area of center about 100 square miles—area of surrounding district about 1000 square miles.) Half of our population is located within 10 per cent of our area.

The next 2,000,000 people very probably will "settle" in the same ratio and this location of our sleeping population divides our transit problem into two coordinated parts, —(a) rapid transit for the metropolitan center and (b) rapid transit for the satellite sub-centers. At the present time every rider in the metropolitan center can reach the central business district within a period of 30 minutes by street car, by auto bus, by taxicab or by private automobile, and consequently there is little economic urge for expensive "off-surface" rapid transit structures for rapid transit for the benefit of this central district.

Street traffic congestion in this central area has passed its maximum. There is less street congestion today than there was five years ago in the downtown business district. Our street paving, opening and widening program is catching up with the growth in the number of automobiles.

The real rapid transit problem of the city is to get the cars of the riders to and from the satellite sub-centers off the streets of the metropolitan center. In other words, we should eliminate the conflict between the movement of local traffic and suburban or interurban traffic. We think of the population in our satellite sub-centers as decentralized, but we must get over the idea that there is any conflict between "centralization" and decentralization—as there is always a 50-50 balance between these forces. The more decentralization we enjoy the greater will be the growth of the original central business district.

All transportation systems work both ways and traffic is an ebb and flow. What we need is an unrestricted circulation on both rails and rubber, with all systems coordinated for both service and fares. Coordination should supersede competition. There is a vehicle best suited for each kind of service and we need every kind of transit for our continuous growth and prosperity.

The "rapid transit" situation in Los Angeles may be briefly recapitulated as follows:

1—The Los Angeles District is a metropolitan center surrounded by many (about 50) satellite communities.

2—The metropolitan center is about twelve miles in diameter and is served by street cars and buses.

3—The "satellites" are served by the Pacific Electric Interurban system and some buses.

4—In the metropolitan center the Los Angeles city charter places a 150-foot height limit on buildings. The density of population is com-

paratively low. Subways are expensive to build ($5,000,000 a mile). These three factors make a "comprehensive system" of subways for the metropolitan district impracticable at this time.

5—Elevated railroads along the streets are very unpopular. "Why build in Los Angeles what they are taking down in New York City?"

6—The private automobile is a very popular form of individual transit, supplying at present over four times the passenger miles carried on the two electric railway systems.

7—The investment in our two electric railway systems is about $100 per capita and we patronize these systems at the rate of about $25.00 per capita.

8—Our people have invested over $200 per capita in private automobiles and spend about $200 per year per capita for the running expenses of automobile transit including about $40 per capita for gasoline and $9 per capita for state gas and license tax.

9—Millions of dollars have been "invested" in good roads.

10—The idea of subsidizing the "rails" by public bond issues, thus adding to the per capita burden, is not popular. Every system "on its own feet" seems to be the formula.

11—"Take the red car (P. E. Interurban) off the streets" is a popular slogan. The tunnel into the Subway Terminal on Hill street and the elevated back of the P. E. Sixth St. station are samples. There are many possible grade eliminations on the Pacific Electric lines which would speed up the interurban service.

12—The Los Angeles rapid transit problem, just now, is a downtown terminal problem for the interurban (red) cars which means a system of underground stations in the business district of the metropolitan center.

13—Some type of "off surface" construction outside the downtown area is also imperative; for instance:

(a)—The elevation of the Long Beach line has been delayed too long.

(b)—An engineering study should be expedited for the separation of grades for both "rails" and "rubber" along the Arroy Seco between Los Angeles and Pasadena. We need both high speed electric lines and high speed highways.

(c)—The Glendale tunnel tracks should be carried on an "off surface way" several miles out farther from the center of the city.

(d)—Burbank and the San Fernando Valley should be served with high speed electric lines free from grade crossings.

14—Both the Pacific-Electric Building and the Subway Terminal Building have been financed (at the present height limit of 150 feet) on the basis of being red car depots. In the course of time this advantage can be extended to other buildings or groups of buildings resulting, perhaps, in a cross town subway connecting the two present "stub-end" electric line terminals.

15—The building of a possible longitudinal subway (from the Plaza to 16th Street), or perhaps a downtown subway loop will depend somewhat upon the location of a Union Depot near the Plaza and this puts a longitudinal subway or loop out of the immediate picture. The proposed expenditure of $11,000,000 for a U.S. Postoffice should speed up the Union Depot movement.

16—Eventually (say in 20 or 25 years) we can expect a unified and electrified terminal for our transcontinental railroads with "air rights" over the tracks and close in air ports over the terminal buildings, but such a future "probability" will not solve our present day problems.

17—Right now there is a steady and increasing stream of ready money amounting this year to $6,000,000 coming back to L. A. County

from the gas tax and the state auto license fees. (Los Angeles County contributes over $16,000,000 a year to these two funds.) Part of this money is now being used to eliminate grade crossings, thus speeding up both "rubber" and "rail" transportation—a perfect example of "co-ordination."

18—An amendment to the State Constitution (to be voted on in November, 1930) will allow the collection of the personal tax on automobiles to be made when the state auto license fee is paid. This collection will produce a vehicle fund from Los Angeles city of about $4,000,000 a year, which could be used for transit purposes if we had a definite community transit plan. Vehicle taxes are better than "assessments" for financing transportation facilities.

19—A logical and continuous transit policy could provide us with a "sense of direction" for the raising and expenditure of many millions of public money and private capital (perhaps $25,000,000 ANNUALLY) for:

(a)—More and wider through streets and plenty of "by-pass" streets.

(b)—More grade eliminations and more bridges.

(c)—Downtown "rapid transit" terminals.

(d)—Better local street car service "co-ordinated" with buses, Taxicabs and interurban electric lines ("universal transfers").

(e)—A consistent paving program.

Traffic Connections with Metropolitan Center of Los Angeles Needed by Whittier

By JOHN M. KEMMERER
Secretary, Whittier Planning Commission

Whittier, a city of 19,000 population now and destined to become 50,000 within the next few decades, is 13 miles east of the center of Los Angeles. Between the Metropolitan Center of Los Angeles and Whittier lies the industrial East Side of Los Angeles with its network of railroads, also other natural and man-made topography, such as Los Angeles River, San Gabriel River, the Rio Hondo, brick yards, cemeteries and subdivisions where street development only meant the necessary passageway to give lawful frontage required to sell the property. Fortunately Whittier is located upon the El Camino Real (the Kings Highway) established by Junipero Serra and his associated Franciscan Fathers so through all the backyard development of Los Angeles we have maintained one arterial highway from Whittier to Los Angeles.

Whittier being upon the slopes of the Puente hills, main line railroads have only skirted its boundary and built spur tracks to serve the local needs.

Whittier with its attractive location on the south slope of the Puente hills overlooking the costal plain to the ocean, from which it is far enough removed to be little annoyed by fogs, is primarily a city of homes. It would be more so had we adequate transportation to Los Angeles. Compared with residence districts of Chicago and New York, having rapid transit service, Whittier should be but twenty minutes removed from the "down town" center of Los Angeles. As a matter of fact the schedule time of interurban transit from Whittier to Los Angeles is 52 minutes and of bus is 45 minutes. Improvement of the interurban transit is dependent largely upon elimination of grade crossings within the City of Los Angeles. Grade crossings elimination will materially aid also in the shortening of time of bus transportation, however, the matter of first importance in providing rapid transit by bus is the completion of the traffic arteries in the City of Los Angeles. At present there is but one arterial highway from Whittier to Los Angeles, Whittier Blvd. and on entering Los Angeles its course is jogged and merged into Seventh Street which is the main traffic artery of the entire City of Los Angeles.

Whittier Blvd. between Whittier and Los Angeles has been designated by the State Highway Commission as the heaviest traveled boulevard in Southern California. Considering this, can we expect it to contribute toward rapid transit, especially when its traffic in Los Angeles is merged with a main artery carrying also interurban, local street railway and trucking to the wholesale market district. Los Angeles City wholesale fruit and vegetable market is on Seventh and Central.

The completion of Sixth Street viaduct will remove the jog and give a new entrance by way of Sixth Street for Whittier Blvd. The completion of railroad grade separation or removal of heavy freight and passenger train service from Alameda Street will quicken the existing bus service.

A large loss of time is now incurred by the mingling of interurban trains with the local street railway traffic; these trains, often more than three cars, also congest the movement of automobiles and block the bus transportation. A plan which will take the interurban trains off the streets seems desirable. Separating this traffic will also make possible more frequent service, the present service during rush hours morning

and evening is on approximately 30 minute interval for interurban and 15 minutes for buses.

Four new arterial highways are under construction direct from Whittier to Los Angeles, the completion of these and their connections within the boundaries of Los Angeles City will distribute and quicken the traffic from Whittier to the metropolitan center of Los Angeles. In addition four other boulevards from the districts adjoining Whittier to the Los Angeles city area are planned. These arteries will carry much of the heavy haulage to the oil fields and our industrial and agricultural areas. It is our desire that the City of Los Angeles connect these new boulevards onto wide streets free from street car tracks and insofar as practicable provided with traffic control giving us continuous thoroughfares into and across town.

A disappointing feature of the comparatively recent transit report of the Traffic Commission is its lack of provision of connecting thoroughfares to the east. If I were asked the first immediate need of Whittier as regards traffic connection with the metropolitan center of Los Angeles I should answer track elevation for both steam and electric railways. To confirm my judgment in the matter I might ask you to drive out upon East Ninth Street any day between 4:30 and 6:00 P. M. The city of Los Angeles has spent a million dollars or more for a modern viaduct across the Los Angeles River and the two railroads on its banks but only partial relief has come to the traffic congestion due to the railroad tracks crossing Ninth Street at Alameda and points east thereof, some of the tracks being switching lead tracks.

What Whittier needs is the completion of the viaducts across the Los Angeles River, the completion of connecting boulevards into and across Los Angeles and elimination of grade crossings, this for automobile travel. For better rail connections, it needs track elevation of both steam and electric and the adoption of a plan of unified railroad terminal operation which will take the trains off the city streets.

What Kind of Traffic Connections Do Neighboring Cities Need and Want with the Metropolitan Center?

By R. B. TAPLIN
Planning Engineer, City of Long Beach

Probably the only interest that neighboring cities have in a rapid transit plan for Los Angeles City is that adequate provision be made for frequent and fast service to each such community.

Long Beach is connected to Los Angeles by the Long Beach and Newport lines of the Pacific Electric Railway. From the Main Street Station to Dominguez Junction these lines operate over the same tracks as do several other lines and it seems to us that it is to this point that the Los Angeles Rapid Transit Study should concern itself. From Dominguez Junction to Long Beach the problem is more or less a local one in which Long Beach is the city mostly concerned.

At the present time this line is at grade and the running time is fifty-one minutes. There has, for some years, been more or less agitation for a shortening of this running time and it is in this, and in more frequent service as our city grows, that we are most interested. The distance between terminals is twenty-two miles and the average speed maintained is about twenty-five miles per hour. If this average speed could be raised to thirty-five miles per hour, the resulting time between terminals would be thirty-eight minutes, fourteen minutes less than is now possible.

It is obvious that operating conditions are constantly becoming less favorable and that the time between terminals will become longer, rather than shorter, if operation at grade is maintained.

Long Beach, together with the rest of the county, is rapidly growing in population. Today there are close to 165,000 persons living in the city, in ten years there will be 300,000 or more and in twenty years the total will, it is estimated, closely approach half a million. Of the present and future residents, a large proportion do, and will, avail themselves of the facilities offered by the Long Beach lines of the Pacific Electric Railway and that will mean constantly increased service, more trains and shorter headways, and that, in turn, will result in longer running time.

It appears evident that grade separation is inevitable. Whether it be above or below ground is for the investigation now being inaugurated to determine. Which, is not the concern of our city; we are interested in more direct and faster service to the business center of Los Angeles.

The question may be asked, "Will the present Long Beach lines be able to care for the increased traffic that may be expected?" This cannot be answered without extensive study, but this much may be said; the expansion of Long Beach is taking place to the north and east, to a large extent away from the areas served by the two existing interurban lines. Other means of transportation are now, and will be, largely used, namely, private automobiles and motor coaches.

In any study of rapid transit facilities we must take into consideration the newest type of transportation, the air-ship. The Long Beach Airport is so located that it will be favorably situated with reference to the apparent future expansion of the city, both residentially and industrially, and it is very conceivable that a considerable volume of traffic between Long Beach and Los Angeles will be by air. It is not beyond reason to believe that airplane design and development will, in the not far distant future, evolve ships which can both take off and land in a very much more restricted area than is now required and that down town terminals will be entirely feasible.

In brief, it appears to us that any rapid transit development for the future metropolitan Los Angeles should provide interurban trackage for electric trains, on rights of way with which surface traffic will not interfere, supplemented by service on the surface by motor coach, and, in the air, by airship.

What Kind of Traffic Connections Do Neighboring Cities Need and Want with the Metropolitan Center?

By C. J. S. WILLIAMSON
Member, Santa Monica Planning Commission

Unfortunately, it has been impossible to obtain any definite figures regarding the increase of population in the Santa Monica Bay district. However, it may be safely assumed that the population has increased during the past few years at least in ratio to that of the rest of the city with a very sharp increase in the Westwood or University district and as far as I am able to gather, the passenger traffic on the P. E. line has fallen off materially and again, without being able to verify the figures, it would appear that in spite of the Venice-Culver City and Santa Monica Municipal bus lines that connect with the Los Angeles Railway lines, there is not that increase in traffic by the transportation companies that the increase in population would suggest—implying that the use of the private automobile has lessened the number of passengers traveling by public conveyance.

The reason for this being undoubtedly that it is not only more convenient but quicker to drive to town in one's private automobile.

The first consideration therefore, is that if rapid transit were available for the beach cities, could it be assumed that the traveling public would use that transportation in place of the private auto? Assuming that a certain percentage would, we then come to the consideration of how rapid transit can be financed without attempting at this time to go into the type of construction that would be used.

A story would of course have to be made showing the added passenger traffic that the rapid transit line might reasonably expect and in figuring this out, it should be borne in mind that if the street car and railroad tracks were removed from the streets, the drivers of private autos would, in turn, be able to travel in more comfort and, in turn, save additional time, owing to additional street area as compared with the present street facilities with the car-tracks on them.

The financing of such a rapid transit system would therefore have to be divided between the amount the railroad should pay that would be equitable in relation to the increase in traffic that it might be assumed they would enjoy, leaving, however, a certain amount to be raised by some method of taxation.

Looking then at the local situation, as far as taxation or bond issue is concerned, particularly the latter, the situation would appear to be that out of the total number of inhabitants there can only be a certain percent that will use the rapid transit system regularly; for a considerable number of people in the Bay district are retired; a considerable number work in the Bay district and, a certain number work at different places in the metropolitan district without being particularly interested in the downtown area, which would mean that in all probability it would be exceedingly difficult to carry a bond issue by the required two-thirds

majority as I think it may be safely assumed that a two-thirds majority of the people in the Bay district would not be vitally interested in rapid transit.

The actual treatment of the rapid transit situation for the bay district would appear to me to be in speeding up the traffic from Vineyard into town and that, in turn, would probably be the most expensive portion to construct.

After comparing various reports on rapid transit, I have formed the conclusion that nowhere has rapid transit been constructed where the density of population is spread as thin as it is in the Los Angeles district as a whole, and believe that as far as the Santa Monica Bay district is concerned, the answer for the time being is to work out a plan of rapid transit starting from the downtown district and extending out as the population increases in the outlying districts, and on that assumption, I am unable to see how it will be possible to obtain the necessary finances from the Santa Monica Bay district in any proportionate amount to take care of the cost of such a downtown subway system.

I realize that this is not a very convincing paper, but I believe that if time could be given for the preparation of a careful report of the increase in population, the decrease in railroad passenger traffic, and the number hauled by buses, the comparative statement over a period of years would point out rather definitely the possibilities of a rapid transit system that would assist the Santa Monica Bay district at that time, it might be possible to create sufficient public sentiment so that the people would be willing to assist the construction financially.

I am of the opinion that owing to the very rapid development of the Santa Monica Bay District, the average property owner has paid at least his share in the highway system that affords, at the present time at least, a very satisfactory mode of transportation to the ciy and other points in the metropolitan district, and therefore that while it is reasonable to make a careful study of rapid transit at this time, the district as a whole has not yet reached the point of actually considering construction.

An Analysis and Statement of the Purpose of Present Legislation Pertaining to Rapid Transit

By DAVID R. FARIES
Attorney-at-Law

Modern contracts between business men frequently contain a clause stating that time is the essence of the contract.

Time is the essence of all modern business, and, indeed, not only of our economic life but of recreational, social, educational, moral and cultural phases of our existence. Time is the most valuable thing in the world and if only half of the things that we tell the world about the pleasures of living in Los Angeles and in Southern California are true, then time is more valuable in Los Angeles than anywhere else in the world, for into each hour of life in Los Angeles can be packed more of business and more pleasure than anywhere else.

Time spent in commuting between our residences and our places of business or between various sections of the city is largely wasted time. We in Los Angeles realize the value of sunshine, of space and of individual homes as against crowded house conditions and tenements without proper provision for light, air, yards, lawns, trees, shrubs, flowers and individual home units. These advantages, however, automatically spell increased distances between our homes and those of our friends and relatives and between our homes and our places of business and between various business sections of the city. So great have these distances become that transportation has become a serious problem. Transportation, however, is not a matter of distance alone. It is primarily a matter of time. The principal economic and social question is not how many miles do we travel a day but how many minutes and how many hours do we take a day from time that might be gainfully or pleasurably employed. The man who spends an hour each way each day in getting from his home to his work in order that his family may have a pleasant place to live in is giving approximately one-eight of his waking hours to being transported from one place to another. This is entirely too great a proportion of his time to spend for this purpose. How much better it would be if one-half or three-quarters of it might be devoted to useful work or healthful pleasure.

Let us assume the truth of the statement that time is money. What, then, would it be worth to the City of Los Angeles if one-half million of its people could be saved one-half hour a day in transportation time, as could be done if fifteen minutes could be cut off the average person's transportation from home to office or place of business. If the average time were worth only fifty cents per hour, the saving to the City of Los Angeles, basing the estimate on a six-day week, would be $39,000,000.00 annually.

Of course, Los Angeles is not alone in its necessity for finding a solution for the ever increasing concentration of population and consistent traffic congestion. The tremendous pedestrian and vehicular traffic that congests the streets of every modern city is, however, especially noticeable in Los Angeles where climatic conditions and distances have built up the use of the automobile to such an extent that the surface of the streets cannot be used for mass transportation except for car lines whose speed if limited by the conditions of traffic to a speed too slow for modern necessities. In some American cities, and a few European cities, elevated railroads have been constructed to furnish means of travel upon which mass transportation, freed from surface interruptions, can move rapidly. Such railroads, although successful in

achieving rapid transportation for the mass of commuting citizens, are sometimes so unsightly as to be objectionable.

With the surface of the streets impossible for use for rapid transit purposes, and with the super-surface undesirable for such use, engineers have necessarily turned to subway lines. Thus necessity has become the mother of the subway as well as all other forms of invention.

The first subway was built in London, being begun in 1853. Since then extensive subways have been built in London, New York, Boston, Paris, Berlin and Budapest. It was in the last named city that the latest type of subway was developed, upon which the construction of all later subways have been modeled.

Most Americans, in thinking of subways, immediately visualize the New York subways. These were begun in 1900. At that time the number of paying passengers on the street railroads of New York slightly exceeded one hundred million per year. It is interesting to us, as citizens of Los Angeles, to note in this connection that the number of paying passengers carried annually by the Los Angeles Railway and the local lines of the Pacific Electric now exceed 225,000,000, or at least two and one-quarter times the number of passengers carried on the New York surface lines when the subways were first built.

When the first New York subway was undertaken, it was to be twenty and eight-tenths miles long, of which 6.3 miles was of four-track subway, 6.7 miles of three-track subway, and 7.8 miles of two-track subway. It began in front of the City Hall and extended northerly to Kingsbridge in the northwestern part of the city, and to the Zoological Gardens in Bronx Park in the northeastern part of the city, the plan being shaped somewhat like the letter Y. When this subway was about half completed, a second subway was laid out and contracted for, to extend the subway then under construction southerly along Broadway from the City Hall and under the East River into Brooklyn. This extension consisted of 2.8 miles of two-track and 0.7 miles of three-track subway, making a total subway mileage of 24.3 miles, with 86.6 miles of track, exclusive of side tracks.

Since then the subways of New York have been extended several times until now there are more than 330 miles of single track rapid transit line, made up of 260 miles of subway, 45 miles of elevated, and 25 miles of surface lines or private rights of way.

The subways of New York have cost nearly $600,000,000. Of this amount the city has contributed approximately 60 to 65% and the Interborough and Brooklyn-Manhattan systems have contributed the balance.

New York is by no means through constructing subways. Recent speakers in Los Angeles, discussing the subject of Rapid Transit, have suggested that possibly in view of the modern development of the airplane and motor car the construction of subways is a thing of the past, but New York is today constructing additional subways in the heart of its downtown congested district.

The type of subways now being constructed in New York is what is known as the "flat-roof shallow type", which brings the rail and platform level of the subway as close to the surface of the street as possible. This makes for the convenience of passengers who have only a single short flight of stairs to travel between the subway platform and the sidewalk level. The practice of subway construction is to excavate the street from the surface to the full width of the proposed subway, then to board over the surface of the street with a temporary wooden bridge, beneath which the subway is constructed. The result is that only one block of a street is put out of use at any one time, and thus business on the street is disturbed as little as possible. So great is the pressure of business necessities in downtown New York that subway excavation

with three crews of men to keep the steam shovel going for 24 hours of the day is the accepted practice. Sometimes, however, the pressure of business is so great that the excavation work is done only at night, and each morning the wooden temporary bridge is put in place, only to be torn down again at night for excavation purposes, so that there is no interruption to street traffic during business hours.

The New York subways are constructed with the complete roof made of steel girders set at intervals of 5 feet apart. The roof of the subway is only 30 inches below the surface of the paving, unless topographical conditions render a greater depth necessary. Bringing the subway so close to the surface of the street has necessitated the permanent readjustment of the sub-surface structures in the streets, sewers, conduits and pipe lines being carried in small tunnels along the sides of the subway.

The old subways of three and four tracks were all laid in one tube larger than the usual two-track tube. The more modern practice, however, is to operate the subway so as to have not more than two tracks in one tube. Many improvements as to drainage, ventilation, temperature regulation and the like have also been introduced.

The New York subway stations are of two classes—one for local and the other for express trains. The local stations are about a quarter of a mile apart, and the express stations are about one mile and a half apart. The more important of these stations have access to several different streets and serve a very considerable territory about them.

The subways of New York, despite their discomforts and inconveniences, have done more than any one other factor to make New York the great city that it is today. What, then, can Los Angeles learn from these subways? Can we, eliminating as many of the features as we may find undesirable, adopt and adapt to our needs a subway system which will make our city grow as New York has grown?

Any answer to this question must take into consideration many phases of the question, as, for example, the legal, financial, engineering and social problems involved. In this paper there will be presented to you a discussion solely of the legal problems involved. It will be assumed that engineering talent can readily be found to accomplish the planning and construction of any rapid transit system that may be desired and it will be assumed that no rapid system will be undertaken which the people concerned with are not both desirous and capable of paying for.

Assuming then that a subway system or any other form of rapid transit system is desired, by what legal and economic processes shall it be constructed and paid for? The most superficial consideration of the subject reveals that it must be constructed and paid for either by—

(a) Private capital, or
(b) At public cost, or
(c) A combination of public and private expenditure.

It is universally recognized that we must promptly discard the first of these methods. Modern rapid transit system construction is so expensive to construct that private capital cannot possibly bear the burden with any hope of securing an adequate return from the fares to be collected for transportation. A fare adequate to pay interest on the investment and to gradually amortize and repay the capital expended would bankrupt the system because it would be so high as to drive away patronage. The result is that we may safely say that the car rider cannot be expected to pay the entire cost of constructing subways in Los Angeles.

But the car rider is not the only person who would benefit by the construction of subways in Los Angeles. Pedestrians and motorists would profit very materially by having street cars removed from the surface of the street into subways. Property owners and merchants

should likewise profit through the bringing to their places of business of the increased number of persons which reasonably priced rapid transit would bring to their doors. The only way in which these interested parties could be required to pay their equitable share of constructing a subway system in Los Angeles is through the medium of a public body which would construct a subway system either alone or in conjunction with private capital and apportion the cost on all interested parties. It cannot be expected that a transportation system can be acquired without cost to the citizens of the city any more than an automobile can be acquired by the individual family without cost. The question, however, is not only how much will it cost, but will it be a good investment for the public? Will it pay dividends in dollars and cents and an increased prosperity, health, happiness and pleasure for our citizens? If not, let us forget the project; if it will, let us proceed to plan the best way of bringing it into existence as promptly as possible.

Assuming, then, that some form of public financing is necessary, what form shall this public financing take?

Statewide financing of a rapid transit system in Los Angeles is, of course, impossible. The people of San Francisco, Oakland, Alameda, San Jose and San Diego have their own transportation problems. The city of Los Angeles must look to itself along for help in the solution of its transit problem. Shall we turn, then, to a citywide bond issue to pay that portion of the cost of a subway system which cannot be economically or equitably charged to the car rider? If so, we must look at the practical problems involved in the legal limitation of our bonded indebtedness, the necessity for scattering subways all over the city in order to get votes for the bond issue, even though subways might not be needed all over the city, and the fact that it would obviously be impossible to build subways all over the vast area of Los Angeles and it would be inequitable to tax both those benefited by the construction of subways near them and those whose property would be located miles from the nearest subway.

It was for these reasons that the people considering this subject suggested to the California Legislature at its 1929 session the passage of an act giving to any district desiring a rapid transit system permission to construct such a system. The result of this suggestion was the adoption by both houses of the Legislature and the signing by the Governor of Senate Bill No. 748, which became and now is Chapter 880 of the laws of California, adopted in 1929.

Under the provision of this act the property owners of any section may petition the Board of Supervisors or the City Council to create a transportation district. Such a petition must be signed by the owners of not less than ten per cent (10%) in area of the property in the proposed transportation district and not less than ten per cent (10%) of the assessed valuation of land in the proposed transportation district. The City Council or the Board of Supervisors do not have to consider any petition filed by less than ten per cent (10%) of the property owners but they must consider any petition signed by ten per cent (10%) or more. After they have considered it they may either grant it or deny it. They are under no compulsion to create the district if in their judgment it does not satisfy a public need. Before the Board of Supervisors or the City Council can create such a district they must give notice to the public of the time and place of a hearing on the petition which has been filed. This notice must be published and written notice must be sent to all persons owning property in the district who may sign the petition or sign any protest against its being granted and who may file a written request for such a notice.

At the time and place fixed for the hearing the Council or Board of Supervisors must examine into the practicability, feasibility and utility of the proposed project and may cause any and all studies, examinations,

surveys, plans and estimates of cost to be made in connection therewith which they deem necessary or advisable.

At the conclusion of the hearing the Council or Board of Supervisors may deny the petition or may grant it and order the district formed. The formation of the district, however, is but the first step. It does not of itself authorize the acquisition or construction of any transportation system. It simply provides an instrumentality through which a transportation may be acquired or constructed.

Let us assume, however, that a very substantial number of the property owners in a given district have petitioned the City Council to organize a transportation district, including the area in which the interested property owners have their property, or the purpose of constructing a subway, and let us assume that the City Council has granted this petition and created the transportation disrict and ordered the creation of Los Angeles City Transportation District No. One. What, then, is the situation and what is the next step to be taken in an effort to bring about the construction of a subway? The answer is as follows:

The City Council would then have power and authority to cause detailed plans and specifications to be prepared for the construction of the proposed subway. None of this expense, however, and no tax or assessment could be levied against any property in the district unless and until a proceeding was had for the assessing of such cost to the property owners in the district. This proceeding would be similar in form to the various street proceedings now on our statute books and could be initiated either through another petition of the property owners in the district or could be submitted to the property owners by the City Council after the plans and specifications were completed. Every property owner in the district would have an opportunity to protest to the Council against the proposed improvement if he thought it to his best interest to do so, and the Council would have the right to either grant or deny such protests. Undoubtedly, the Council would require proof that a substantial majority of the interested property owners were actually in favor of the proposed improvement.

The statute provides than any subway or other rapid transit system constructed under the provisions of this act could be leased to a private carrier or operated for the public by a private carrier under some operating agreement or sold to a private carrier or operated by the public, provided, however, that no subway constructed at public expense can be sold or leased to a private carrier without a vote of the people in the district unless the proposed contract is submitted to the property owners at the same time that the original proposal is submitted to them for the expenditure of the funds necessary to construct the transportation facility and the levying of an assessment to meet such cost. Once a transportation district is formed its affairs are to be managed by the City Council or the Board of Supervisors creating it, but they may, and upon the request of a majority of the property owners must, appoint an advisory board of not less than three or more than fifteen members composed of property owners in the district. This advisory board could not constitutionally be made the governing board of the district, but if its proceedings are well thought out and its members capable citizens, their advice will doubtless be heeded by the Council legally and nominally in charge of the district.

The transportation district act is necessarily a long one and I have herein endeavored only to sketch its most important provisions. It should be remembered, however, that it is only a permissive statute. It does not create any transportation districts. It merely provides a means whereby the property owners of a given district may, if they wish to do so, bring about the creation of a transportation district. Thus far no group of property owners has undertaken to form any such district. It may be that none will be formed or adopted. There is everywhere

throughout California a recognition of the need for more rapid transportation. San Francisco is talking about a subway in Market Street. Oakland is desirous of securing some more rapid form of transportation and Los Angeles has more need for rapid transit than either of them. Just what form of organization will be used we cannot yet say, but if any district in Los Angeles, such as the downtown district or the San Fernando Valley section, desires to secure a rapid transit system, the property owners interested should form an organization with an executive committee or board of directors which would bring about—

(1) The preparation of a definite plan of rapid transit construction;

(2) The adoption by the City Council of a rapid transit plan for the City of Los Angeles general in its terms and flexible in its nature, authorizing the construction of local rapid transit systems in such areas as desire them;

(3) The circulation among the property owners of a petition clearly setting forth the boundaries of the proposed district, the nature of the work to be done and the approximate cost thereof, together with as many details as possible as to the plan of construction, maintenance and operation as can possibly be secured and given to the property owners.

It would be my suggestion in this connection that an accurate estimate of costs be secured and a plan of assessment outlined which would make clear to each property owner the principal amount of his assessment and explain the method in which this assessment might be paid. The location and form of the proposed subways should be as clearly indicated as possible, and if possible a proposed agreement with some responsible operating company should be attached. It might, for example, be possible in this manner to ascertain quite accurately what proportion of the investment could be paid for by the car rider through the medium of an operating company. Probably, for example, the operating company should install the road bed, ties, tracks and trolley wires in any subway which the transportation district might construct, and some arrangement might be entered into whereby the operating company would pay a certain amount per passenger carried through the subway or a certain amount per car per mile traveled through the subway. Any such agreement would, of course, have to be subject to the approval of the City Council and of the State Railroad Commission, but some definite plan should be worked out in advance in order that the public might know as definitely as possible what to expect for the future.

Mark Twain is reported to have said of the weather that everybody did a lot of talking about it but nobody actually did anything about it. There has recently been in Los Angeles a lot of talk on the subject of rapid transit but thus far the only thing that has actually been done is the securing of the passage of the Transportation District Act which provides one means by which such property owners as may desire to have rapid transportation can secure it. Until some district undertakes to utilize the provisions of the act there is really nothing further to be said on the subject, and when some district does undertake to utilize its provisions the property owners in the district concerned should gather all the information they can in order to determine whether or not they should make the investment contemplated and the rest of us should keep our counsel unless asked to assist them, in which event we should endeavor to assist them in solving the social, economic, engineering and legal questions involved with the hope that thereby we will be helping to solve the traffic problems of Los Angeles and help to make it a more prosperous and happier place in which to live.