

**REPORT ON THE  
SERVICES, OPERATIONS AND POLICIES  
OF  
THE CHICAGO TRANSIT AUTHORITY**

**July 1951**

**DELEUW, CATHER & COMPANY  
ENGINEERS  
150 NORTH WACKER DRIVE  
CHICAGO 6, ILLINOIS**

**R.F. KELKER, JR,  
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CONSULTANT**

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July 1951

**DE LEUW, CATHER & COMPANY**  
ENGINEERS  
150 NORTH WACKER DRIVE  
CHICAGO 6  
FINANCIAL 6-0424

July 23, 1951

Mr. Ralph Budd, Chairman and  
Members of the Board of the  
Chicago Transit Authority  
175 West Jackson Boulevard  
Chicago, Illinois

Gentlemen:

You have asked us to make as complete an examination of your organization, the services provided, and the methods of operation and maintenance as might be accomplished during the two-month period allotted for study. An expert diagnosis was indicated and a prescription for any ills - real or imaginary - was requested. This, in effect, is a wholesome type of self-examination. No limitations as to scope and character of our investigation were imposed. We have been free to examine every phase of your organization and your operations.

The situation which has been revealed by our studies, we believe, requires that every phase of the matter be discussed with utmost clarity and candor, and this we have attempted to do. It is inevitable that we should find numerous instances of failure to effect improvements in service and substantial reductions in operating expenses. It should be clearly understood that no criticism of any individual in the entire organization is made or implied. On the other hand we have found every evidence of a wholesome desire to improve transit service.

It must be remembered that the Authority was faced with a tremendous task when it took over the responsibility for operating, consolidating and improving the two private transit systems in October, 1947. The accomplishment has been substantial. The additional financing through the issuance and sale of equipment trust certificates in the total amount of \$15,000,000 in 1950 was a splendid achievement and has been an important step in the accomplishment of the modernization program.


July 23, 1951

We take this means of expressing our sincere appreciation for the wholehearted cooperation we have had from the members of the Board and the staff. Voluminous data relating to many phases of the operations have been furnished as promptly as requested. The cooperation and assistance of the several departments of the City of Chicago from whom we have secured data is also acknowledged.

This opportunity to serve the Chicago Transit Authority is appreciated, and we sincerely hope that our investigations and report will serve a constructive end.

Respectfully submitted,

DE LEUW, CATHER & COMPANY

  
Charles E. DeLeuw  
President

  
R. F. Kelker, Jr.  
Consultant

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## SUMMARY OF MAJOR RECOMMENDATIONS

The Board should adopt the recommendation of the General Manager that fares be 20 cents straight or six tokens for one dollar. We further recommend that tokens be sold at three for fifty cents. We recommend that the weekly pass be eliminated from the proposed rate schedule before adoption by the Board. The projected increases in fares should be made effective immediately.

No public hearings should be held by the Board except those required by law.

The Board should be relieved of all responsibility for determining operating and engineering problems during the crucial modernization period.

The duties of the Board should be limited to determination of the broad policies in the development and protection of properties in its charge; approval of the extent and character of additions to the property; and approval of extensions and abandonments of operating routes.

Future appointees to the Board should serve without pay, or, at a maximum, compensation should be equivalent to the fees paid to directors of private corporations.

A complete reorganization should be made to reduce the number of individual department heads reporting to the General Manager. Responsibility for operations should be placed in a single department under the direction of an Operations Manager. Other fundamental changes in the chain of authority are recommended.

Consulting engineers should be retained only for specific assignments. This excludes consultants appointed pursuant to the provision of the Trust Agreement, who are not a component part of the organization.

An operating staff should be formed, consisting of the heads of all operating departments and certain others, to study and discuss all important proposals for the betterment of the

service or the property and to prepare recommendations for the General Manager.

The General Manager should have the power to fix salaries, and to dismiss, demote, or transfer department heads and other staff members.

New, large propane buses should be reassigned to more heavily traveled routes when proper distribution of fueling facilities makes this possible.

Except for six street car lines now equipped with P.C.C.-type cars, all remaining street car lines should be converted to diesel or propane buses as fast as new capital is available.

All P.C.C. cars should be equipped for one-man operation and used as such at all times except in rush hours.

Buses should be used immediately for Saturday and Sunday service on four additional major street car routes.

Any shuttle service in the central business district that cannot be placed on a profitable footing by adjustments in schedules or in fares should be discontinued.

The Humboldt Park and Normal Park branches of the rapid transit system should be abandoned.

Consideration should be given to new terminal facilities in Forest Park for the Lake Street branch. A study should also be made to determine the cost of, and potential operating economies from, the elevation of tracks on this branch from Pine Avenue to the west terminus.

The tracks on the westerly section of the Ravenswood branch should be elevated, in time, and an adequate transfer station provided at the Kimball Avenue terminal.

The Garfield Park branch of the rapid transit system west of Central Avenue should be abandoned and bus service substituted therefor. A large convenient bus-to-rail transfer terminal should be provided at Central Avenue.

Reconsideration should be given to the proposed plan for temporary operation of the Garfield Park branch during construction of the Congress Street Expressway.

Rail service on the portion of the Douglas Park branch of the rapid transit system west of 56th Avenue should be suspended and replaced by motor bus service. As soon as financially feasible, the portion of this branch from Kenton Avenue to 56th Avenue should be elevated. The ultimate plan should provide a grade-separated railroad to Oak Park Avenue.

Study should be given to the possibility of a terminal at Howard Street for the Shore Line route of the Chicago, North Shore and Milwaukee Railway, this to be the southerly limit of the operation by the North Shore and the northerly limit of operation by the CTA.

Because of the high unit cost for electrical energy purchased by CTA, no additional electrically-propelled vehicles should be bought, except rapid transit cars, unless they are shown to be more economical than alternate types of equipment available at the time of purchase by detailed analyses of comparative operating and maintenance expenses.

An origin and destination survey of transit passengers should be made in conjunction with the proposed similar study of automobile and truck trips.

Overtime payments to train service personnel, now occasioned by a shortage of manpower, should be eliminated by adopting the recommendations on operating economies and on employment practices contained in this report.

A number of jobs should be discontinued, and the employees assigned to more necessary work. Those who lack qualifications for work that needs to be done should be discharged.

Salaries of office workers should be adjusted upward or downward in individual cases as deemed appropriate after completion of an evaluation study now in process.

Negotiations toward complete consolidation with the Chicago Motor Coach Company should be renewed at an early date. Meanwhile, relevant studies should be made to determine the best means of improving the service and, in addition, improving the earnings of the CTA system.

Capital funds should be made available as required to provide adequate shops, terminals, storage facilities, and tools and equipment.

Only small savings are anticipated over present maintenance costs, and those savings should be spent to improve the cleanliness and appearance of equipment.

Cleaning equipment for all classes of vehicles should be improved, including mechanical washers for buses and street cars, and vacuum cleaning equipment for the interiors.

Subway stations and rapid transit cars should be cleaned more frequently.

## THE PRESENT FINANCIAL PROBLEM

In the present economic situation, the simple facts are that the CTA has to pay its employees enough dollars - whatever they may be worth at the moment - to permit a comfortable standard of living. Conversely, the CTA must collect enough of these same dollars from the transit passengers to meet the expanding payrolls; to purchase supplies and materials; to set aside sufficient reserves to purchase new equipment when cars and buses are worn out; to pay a less than four per cent return to those who have supplied the capital invested in the undertaking; and finally, to pay compensation to the City of Chicago.

It is as simple as that. The struggle to keep up with the declining dollar is going on continuously in every community, every factory, every store, and in every family in the entire country.

During the month of May 1951 the net income, after payment of all operating and maintenance expenses, all interest charges, and providing for depreciation, but without any provision for city compensation, amounted to \$82,078. During the first five months of the year 1951, the Authority experienced a loss on the same basis amounting to \$765,371.

Wage increases which have been tentatively approved are estimated to increase operating expenses starting August 1 at the rate of \$3,500,000 per annum, going to \$5,000,000 per annum on January 1, 1952, and to \$7,000,000 per annum in June 1952. Since wages comprise about two-thirds of operating expenses, it is obvious that revenues must be adjusted.

### Trust Agreement Provisions

The Trust Agreement between the Chicago Transit Authority and the First National Bank of Chicago contains the following covenant under Section 902:

"The Authority covenants that the rates and charges for the services supplied by the transportation system, including transfer rights and privileges, shall be lawfully determined and fixed from time to time by the Board so as to supply efficient and adequate local transportation equipment and service at a cost consistent with the requirements of law and the provisions of this Trust Agreement. The Board

shall fix rates and charges for transportation such that the income and revenue derived from the transportation system shall at all times be sufficient in the aggregate to provide for the payment of all expenses and charges payable from such income and revenue including, without limiting the generality of the foregoing, all operating costs and expenses of the transportation system, including the costs and expenses of establishing a damage reserve fund and a pension and retirement system, the prompt payment of the principal of and the interest on all revenue bonds and other obligations of the Authority, as well as all sinking fund and reserve fund payments required to be made with respect thereto, the payments required to be made to the Municipal Compensation Account and all other charges upon such revenue and income as provided in this Trust Agreement or in any agreement entered into by the Authority with respect to other obligations incurred or assumed by it, the creation and maintenance of an adequate depreciation reserve for the replacement of obsolete and worn out property and for the payment of all other costs, expenses and charges of every kind necessary or appropriate in the maintenance and operation by the Authority of an efficient transportation system, for the payment of which funds are not otherwise provided."

#### PROPOSED FARE INCREASES

Pursuant to his duty under the foregoing legal requirements, the General Manager recently submitted a report to the Board presenting alternate recommendations for an increase in fares sufficient to eliminate estimated deficits which would result from the proposed increases in wages. The General Manager recommends the adoption of his Plan 4 which provides for elimination of the 2-cent differential between the surface and rapid transit divisions; a cash fare of 20 cents; six tokens for \$1.00; and a weekly unlimited transferable pass for \$2.50. The schedule also proposes passes for school children and other special fares which are generally proportional to those now charged.

Weekly Passes

During the past twenty years various inducement fares and other devices have been attempted in numerous cities for the purpose of attracting additional passengers to utilize public transit, particularly during the off-peak hours. A large majority of the transit operators in larger cities throughout the United States adopted some form of weekly pass in the hopes of drawing such desirable additional traffic. After thorough trial, virtually all operators have found the disadvantages of the pass far outweigh the advantages. No measurable increases in traffic have resulted from the adoption of the pass. Its use prevents securing of accurate data on the operating results of individual lines of a system. The possibilities for abuse are unlimited. Of the many large cities where the pass was placed in operation during the thirties, there are but six remaining as shown in the following tabulation:

Rate and Percentage of Use  
of Passes in Six Cities

<u>City</u>	<u>Adult Cash Fare</u>	<u>Cost of Weekly Pass</u>	<u>Percentage of Total Rides on Passes</u>
Washington	15¢	\$2.00	41.39
Cleveland	15¢	2.00	(Not available)
Portland	13¢	2.00	10.74
San Diego	13¢	2.25	6.84
Milwaukee	15¢	2.00-3.00	65.99
Pittsburgh	15¢	1.75-2.10	3.72

The Milwaukee Electric Railway has recently petitioned the Wisconsin Public Service Commission for permission to discontinue the pass. Similar action was taken by the St. Louis Public Service Company a year or two ago with the result that the company was authorized to sell a weekly pass for \$1.00 with a special service charge of five cents for each use.

There is no reason to expect any more satisfactory results in Chicago than have been experienced elsewhere. It is our opinion that the many disadvantages of the weekly pass far outweigh any possible advantages.



### Token Fares

There is ample precedence in the Chicago area for a schedule of fares through which the habitual user of the service gains the advantage of the lowest practicable rate as compared with the infrequent rider. The trunk line railroads providing suburban service in various metropolitan centers have for years established commutation rates through which commuters enjoy a lower fare than the occasional user. These are generally established on the basis of the sale of 10-ride tickets, 25-ride tickets, and monthly tickets. An analysis was made of the rates of fares on three of the railroads furnishing suburban service in the Chicago area, namely, the Illinois Central, the Chicago, Burlington & Quincy and the Chicago & North Western. Examination was made of the differentials between the cost of one-way tickets and 25-ride tickets, from which it was determined that the purchaser of the one-way ticket paid, on the average, 20 per cent more for trips over six miles in length, and about 25 per cent for trips under six miles. This compares with the 20 per cent differential with the proposed schedule on the CTA where the 20-cent fare is exactly 20 per cent more than the 16-2/3 cent rate which would be afforded through the purchase of tokens.

### Need for Sound Credit

The maintenance of a sound financial position is of fundamental importance from all viewpoints. Additional capital will be required for the complete modernization of the property, as indicated later, amounting to a total between 80 and 90 million dollars. Satisfactory earnings must be maintained in order to provide for the sale of additional securities at low interest costs. Even if there were no legal requirements so to do, ordinary business judgment would dictate the establishment of fares to provide necessary increased revenues to meet the higher operating expenses which are now imminent.

The Board has the obligation to provide the most efficient organization and plant possible; and to furnish adequate and convenient transit service throughout Chicago. They have been engaged in an earnest attempt to do this since taking over the properties in 1947. The task has been large, complex, and difficult. Much progress has been made. Much remains to be done. Various means of improving service, reducing operating expenses and streamlining the organization are recommended in this report. In the aggregate, they will effect substantial economies.

None of the proposed economies can be accomplished over night, however, and most of them will require a period ranging from several months to several years for their accomplishment. It is necessary, therefore, that the projected increases in fares be made effective immediately. It is our opinion, however, provided there is no further increase in wages other than those now tentatively planned, that the potential economies in operation recommended herein, if adopted, may permit some reduction in fares by the end of the year 1952.

We recommend, therefore, that Plan 4 as proposed by the General Manager, except for the proposed weekly passes, be adopted by the Board, and suggest that three tokens be sold for 50 cents.

#### THE METROPOLITAN TRANSIT AUTHORITY ACT

The facts which led to the passage of the Metropolitan Transit Authority Act are well known, but perhaps should be summarized briefly for a complete understanding of the situation. The two independent and competing organizations, furnishing some 90 per cent of the local transit service in Chicago, went into receivership years ago - in the case of the Chicago Surface Lines, in 1926, the Chicago Rapid Transit Company, in 1932. During an extended period while these properties were in the custody of the federal courts, numerous attempts were made to effect their reorganization and to create a single unified transportation system to be operated by a privately owned utility corporation. After years of failure to accomplish this desirable objective, it was recognized about ten years ago that such reorganization was impracticable, if not impossible.

It was therefore agreed that a public corporation should acquire, modernize, and extend the existing properties, and that it should be organized as nearly as practicable along the lines of private utility corporations furnishing public transportation in other large metropolitan centers. In the numerous discussions preliminary to the passage of the Act, emphasis was given to the importance of a capable

board of directors with staggered appointments for long terms so as to insure the creation of a strong board entirely divorced from political influence, either direct or indirect. Ownership of the properties by the City of Chicago and their operation under direct political control was considered and rejected at the outset.

The Metropolitan Transit Authority Act, which became effective in 1945, created a municipal corporation for public ownership and operation of a transportation system in the metropolitan area of Cook County. Through an ordinance passed by the City Council of Chicago on April 23, 1945, the Chicago Transit Authority was granted the exclusive right to acquire, construct, reconstruct, maintain and operate facilities for local transportation within the City of Chicago for a term of fifty years and thereafter until terminated, and to use designated streets, city-owned subways and public places therefor.

Section 19 of the Act provides that, "The governing and administrative body of the Authority shall be a board consisting of seven members, to be known as Chicago Transit Board. Members of the Board shall be residents of the metropolitan area and men of recognized business ability. No member of the Board or employee of the Authority shall hold any other office or employment under the Federal, State or any County or any municipal government except an honorary office without compensation. . ." Section 19 further provides that, "The salary of each member of the initial Board shall be \$15,000 per annum, and such salary shall not be increased or diminished during his term of office. The salaries of successor members of the Board shall be fixed by the Board and shall not be increased or diminished during their respective terms of office."

The members of the Board are appointed for seven-year terms, and the Act provides for the appointment of a single member each year. Section 22 of the Act provides that the chairman shall be elected by the Board from time to time and that he shall not be engaged in other business or employment during his term as chairman and that the Board shall fix a compensation in addition to his salary as a member of the Board.

Section 27 provides, "The Board may appoint a general manager who shall be a man of recognized ability and experience in the operation of transportation systems to hold office during the pleasure of the Board. The general manager shall have management of the properties

and business of the Authority and the employees thereof, subject to the general control of the Board, shall direct the enforcement of all ordinances, resolutions, rules and regulations of the Board, and shall perform such other duties as may be prescribed from time to time by the Board."

The success of original financing (\$105 million) to provide for the purchase of the properties and a substantial sum to start the long-needed program of modernization and extensions, was unquestionably due to those provisions of the Act which provided for a completely independent board.

#### THE BOARD

Men of high standing in the community and proven ability in the business and professional world were appointed to and have served on the Board since its creation. Any comments made herein in respect to the organization of the Board and its activities are in no way to be construed as a reflection on any individual member or members of the Board. It must be noted, however, that the original organization of the Board into committees which function more nearly like a municipal council or board of trustees, was a substantial departure from the terms of the Act which provide that the Board shall constitute "the governing and administrative body of the Authority" and that the General Manager "shall have management of the properties and business of the Authority." We are advised that there are currently 14 standing committees of the Board, as follows:

- Budget
- General Legal Matters
- Expenditures and Purchases
- Accounting Matters
- General Finances
- Real Estate
- Insurance
- Employment Matters
- Equipment and Engineering
- Service and Extensions
- Concessions (including advertising)
- Damages and Claims
- Legislation and Franchises
- Public Information

These committees function continuously. In addition, special committees are appointed from time to time. They have, perhaps unintentionally, usurped many of the powers and duties of the General Manager. All of the numerous and complicated problems relating to the tremendous task of consolidating and modernizing these transit facilities are resolved, it appears, by these committees, which function sometimes without the advice of the General Manager. The situation, then, seems to be one where the General Manager carries the responsibilities of the management but has somewhat limited authority. The members have great influence, because of their position as members of the Board, over operating policies and practices. While the members of the Board as individuals are well qualified to perform the functions that should be expected of such a group, they are, for the most part, inexperienced in the details of transit operation and management. They should not be required to assume the responsibilities for determining operating and engineering problems.

Many matters that should have been decided between department heads and the General Manager have been referred to a committee of the Board. These matters have been passed on to the entire Board, in most instances, and the Board has taken appropriate action. In other cases, however, worthwhile suggestions have been tabled by committees, or action has been indefinitely postponed.

The practice has developed of holding public hearings previous to making any service change. We are advised that such hearings are attended by the members of a committee of the Board and only such member or members of the General Manager's staff as may be invited by the committee. Decisions have been made after such hearings, we understand, without affording properly qualified and technical operating staff personnel an opportunity to be heard. Such hearings, it must be recognized, simply afford an opportunity for a small minority of those affected by any proposed change - most frequently a very small minority - to air their grievances. Such hearings are a novelty in the public transportation field, and this includes transit systems owned and operated by private corporations, as well as by public corporations or municipalities.

Section 42 of the Metropolitan Transit Authority Act states, "The Board may investigate all means of transportation and the management thereof, the enforcement of its ordinances, rules and regulations, and the action, conduct and efficiency of all officers, agents and employees

of the Authority. In the conduct of such investigations the Board may hold public hearings on its own motion, and shall do so on complaint or petition of any municipality which has adopted this Act or which has granted rights to the Authority by ordinance." (underscoring ours.)

There is nothing in the foregoing to indicate that the Board has any duty to conduct hearings on service changes. This view is supported by the fact that a measure which would have forced the Chicago Transit Authority to hold public hearings on rate increases, service changes and property purchases was defeated on June 26 last, receiving only 33 votes in the House of Representatives, less than one-half of the 77 constitutional majority required for passage.

#### Board Overly Sensitive

In many instances, worthwhile improvements have been delayed or discarded by committees of the Board after such public hearings, to the great disadvantage of the majority of the riders. The carrying out of an orderly program has been made almost impossible by this sensitiveness of the Board to the pressure of minority groups with selfish objectives.

There would seem to be no more reason for public hearings to be held by the Chicago Transit Board than there is for the boards of the Illinois Bell Telephone Company, Commonwealth Edison Company, Peoples Gas Light and Coke Company or other companies whose operations are of direct interest to most of the people of the city. Likewise, it would seem appropriate for the Chicago Transit Board to follow the practice of these corporations in confining the actions of the Board to top policy and leaving to the managerial staff the problems of management and operation. We recommend the discontinuance of all hearings except those required by law.

A number of instances have been found in which political considerations were given weight in making important decisions on matters of modernization. This practice can quickly lead to the total demoralization of the managerial staff on which the success of the enterprise rests. It can also lead to piece-meal dislocation of the system, which in time could result in a more confused and less coordinated system than the properties taken over by the Chicago Transit Authority.

While all members of the Board have undoubtedly worked diligently and served faithfully under the present organization, it must be stated that the majority have had no previous experience in the transportation field. They are not qualified, therefore, either by education or experience, to make sound and accurate determinations of the innumerable complicated and technical problems which arise in the planning and operation of a successful public transportation facility. It should be obvious that years of education, training, and practical experience in this highly specialized field are essential prerequisites to the assumption of responsibilities of management. The Chicago Transit Authority has on its staff men with such qualifications, but they have not been permitted at all times to assume their proper responsibilities to make determinations of operating and engineering matters.

It is recommended that the division of responsibility provided in the Metropolitan Transit Authority Act be set up and that the Board should limit its duties in respect to management to:

- (a) Determination of the broad policies in the development and protection of the properties in its charge;
- (b) Approval of the extent and character of additions to the properties; and
- (c) Approval of extensions and abandonments of operating routes.

The chief obligation of the Board is to see that the revenues received from its patrons are equitably expended for service throughout its system. Consequently, in all fairness, it cannot and should not approve the requests for the special service changes made by representatives of local areas which would result in compelling the patrons of the remainder of the system to pay directly or indirectly for the increases in the cost of operation. All suggestions or complaints relating to the services received by the members of the Board should be referred to the General Manager for action and report.

On the other hand, changes in service suggested by the technical staff of the Board should be considered as to their effect on the system as a whole and not conditioned entirely on the assumed needs of local areas.

We should be less than frank if we failed to call attention to the seemingly direct political pressures brought on the Board as presently organized. It seems obvious that such pressures arising from political agencies or from public office holders on individual members of the Board have resulted in waste and in false economies to the detriment of the service of the system as a whole.

The provision for the full time services of the Chairman of the Board is sound. Elsewhere, this arrangement has functioned efficiently and satisfactorily in large corporations, both private and public. In our opinion, however, the remaining members of the Board need devote only a small fraction of their time to their duties, which should be limited to attendance at periodical board meetings.

While there may have been some excuse for the payment of the relatively high compensation of \$15,000 per annum to members during the first two or three years of the Board's operations - and this seems to have been recognized in the phraseology of the Act - there is no apparent justification for such compensation now that much progress has been made in the consolidation and modernization of Chicago's transit facilities. It is our recommendation that future appointees to the Board serve without pay, or at a maximum, that compensation paid to individual members be amounts equivalent to the fees paid to directors of private corporations.

The one public agency in the United States which has functioned with outstanding success in the development and operation of numerous facilities on a large scale is the Port of New York Authority. Through the wise provision in the Acts passed by the State of New York and the State of New Jersey creating this agency, the members of its board serve without compensation. The outstanding success and efficiency of this agency's operations support the view that public spirited citizens of proven ability and experience will serve on such a board with no compensation, considering the time devoted to the undertaking to be a worthwhile contribution to the good of the community.

Financing of all of the capital improvements undertaken by the Port of New York Authority have been through the issuance and sale of revenue bonds, and the low interest costs on its financing provide tangible support for the creation and operation of the type of board recommended herein.



PUBLIC TRANSIT OPERATIONS  
IN OTHER LARGE CITIES

Observations of various public agencies owning and operating transit facilities in other large metropolitan centers have been made by the undersigned during the post-war period and are of interest in this discussion of the organization of the Chicago Transit Authority.

London

The most important such public authority, which owns and operates the largest single metropolitan transit facility in the world, is the London Passenger Transport Board.\* The board was created by Act of Parliament in the year 1933, taking over the properties formerly owned by the London General Omnibus Company and, in addition, those of upwards of fifty independent bus, tramway and railway companies serving various districts in the London metropolitan area. The paid chairman of the board from its inception was the late Lord Ashfield, who devoted his full time to this undertaking. He was a man of long and successful experience in public transportation. All members of the board were men of highest standing in the business or professional world and all but one or two, who were assigned special duties, served with fees comparable to those paid by large corporations in this country.

Without going into detail it might be said that all phases of the operations of the enormous system operated by the board constitute a model for urban transit operations throughout the world. The functions of the London Board and the responsibilities delegated to the staff closely parallel those recommended herein for the Chicago Transit Authority organization. So far as could be ascertained through inspection of operations and conferences with members of the board and staff over a period of five weeks, the London operations were conducted without political influence, either direct or indirect.

\*Inspection was made in the year 1947 and all comments herein are applicable to the London operations as of that date. We have been advised that the board's operations have been consolidated by the present Labour Government with one of the divisions of the transport monopoly and we have no information relating to its operations subsequent to 1947.

### Toronto

The closest approach to the London organization on the American continent is found in Toronto, where the Toronto Transportation Commission took over privately owned transit properties in the year 1921. The commission consists of three members, including a chairman who devotes full time to his duties, and all are paid a modest salary. While the members of the commission are appointed for three-year terms by the City Council, the commission has always functioned as an independent agency, with virtually the same freedom from outside influences as in the case of London.

The Toronto Transportation Commission plans and constructs improvements, makes service changes, operates and maintains the property without reference to the Toronto City Council, the only exception being that council approval is required for the issuance and sale of revenue bonds.

The success of the operations in Toronto may be indicated in part by the fact that there has been no change in fare structure between 1921 and August 1, 1951, when the basic fare will be increased from four for 25 cents to three for 25 cents. Toronto is now constructing a rapid transit subway which is being financed in part from the \$20 million cash surplus accumulated during the years 1940 to 1947.

### Cleveland

In Cleveland, the five-man commission operates the properties taken over from the Cleveland Railway Company in 1942. During the initial period of five years, it operated with marked success and most of the revenue bonds issued to acquire the properties in 1942 were retired, and the commission was virtually without debt. During the past few years great strides have been made in the complete modernization of local transit, and currently a 13-mile rapid transit railroad is planned, arrangements for the financing being virtually complete. Negotiations with the federal Reconstruction Finance Corporation for financing the rapid transit project and other modernization improvements have been under way for more than two years.

It is significant that the Reconstruction Finance Corporation required the Cleveland Transit System to effect a complete divorce from control of the City Council of Cleveland as a necessary prerequisite to the approval of the desired loan. Where the Cleveland Transit System

formerly constituted virtually no more than a department of the city government, it is now, through an amendment to the city charter, approved at referendum in 1949, set up as an independent agency, modeled more or less on the London Passenger Transport Board and the Toronto Transportation Commission. Members of the Cleveland commission are appointed at periodical intervals, but otherwise there is no connection between the Cleveland City Council and the commission except that the council must approve issuance and sale of revenue bonds for the purpose of construction or acquisition of capital improvements as required by the Ohio laws.

### San Francisco

The San Francisco Municipal Railway operates under the immediate supervision of the city Public Utilities Commission. The board is subject to change by each incoming mayor. Virtually every phase of the development and operation of the San Francisco Municipal Railways is under the supervision of the Board of Supervisors of the County of San Francisco, which must approve all expenditures of any character. Full faith and credit bonds of the City and County of San Francisco are issued and sold from time to time to provide necessary funds for additions and betterments to the property. Theoretically, fixed charges on such bonds are paid from net earnings of the Municipal Railways. During the four years 1947-1950 there have been no net earnings. Rather, annual deficits have been incurred ranging from \$1,278,996 to \$1,955,023 after depreciation but before interest charges.

### New York

The City of New York owns and operates the most extensive rapid transit system in the world. The rate of fare on the rapid transit system is 10 cents. New York has experienced increases in operating expenses similar to those in Chicago, and, for that matter, all of the transit systems in the country. As a result, during the fiscal year ended June 30, 1950, the New York system failed to meet operating expenses by \$1,206,043. This, added to the fixed charges on the transit debt, produced a total deficit of \$64,388,773 which was absorbed by the city's taxpayers.

## ORGANIZATION

The present staff consists primarily of department heads formerly employed by the Chicago Surface Lines or the Chicago Rapid Transit Company. These men have shown remarkable loyalty and devotion to duty during the trying period of reorganization. Many of them had to accept assignments differing considerably from their former work, and have been asked to carry out policies with which they were not always fully in accord. The physical accomplishments of the CTA to date are a tribute to the ability of these men.

The staff members come from two organizations which, historically, were competitors for patronage. These men engaged in many contests before the Illinois Commerce Commission and other bodies prior to 1947. It has been difficult for some of them to broaden their viewpoint to that required for the development and operation of an efficient and fully coordinated system. A number of older men have retired, and younger but experienced men have been promoted to the top organization to bring new energy to the completion of the modernization of the system.

The staff has not been formed into the effective and unified organization that is highly essential in such an enterprise, for three further reasons: first, the various offices of the CTA have been scattered between five widely separated buildings, so that consultation and intimate exchange of ideas between department heads and others has not been convenient; second, the departmental organization is not sound; and third, there have been no periodic staff meetings at which important matters affecting many departments could be discussed fully and frankly.

Plans have been developed for the consolidation of offices, now scattered in five locations, into a single office to be located in the Merchandise Mart. It is expected that this consolidation of offices can be accomplished late in the year 1951. It will produce a total annual savings of \$141,000 and should greatly improve the efficiency of the entire organization.

An organization chart of the Chicago Transit Authority dated September 19, 1950 is shown on Exhibit 1. In addition to the General Manager, six individuals or staff groups of individuals report directly to the Board. An amazing total of thirteen department heads report

directly to the General Manager. The organization is also unique in combining the functions of maintenance and planning in a single department with sections having such widely varying functions as Shops & Equipment, Way & Structures, Staff Engineer (in reality the research section) and the Electrical Engineer.

#### New Organization Chart

It is our opinion that a complete reorganization should be made at the earliest practicable date. The recommended organization is shown on Exhibit 2.

The chain of authority in the recommended plan extends directly from the Board to the General Manager and then to the Assistant General Manager. Reporting to the Assistant General Manager would be the staff chiefs - seven departments in all. The Legal Department and the Secretary would also contact the Board. These two departments and also the Financial Department would also contact the General Manager.

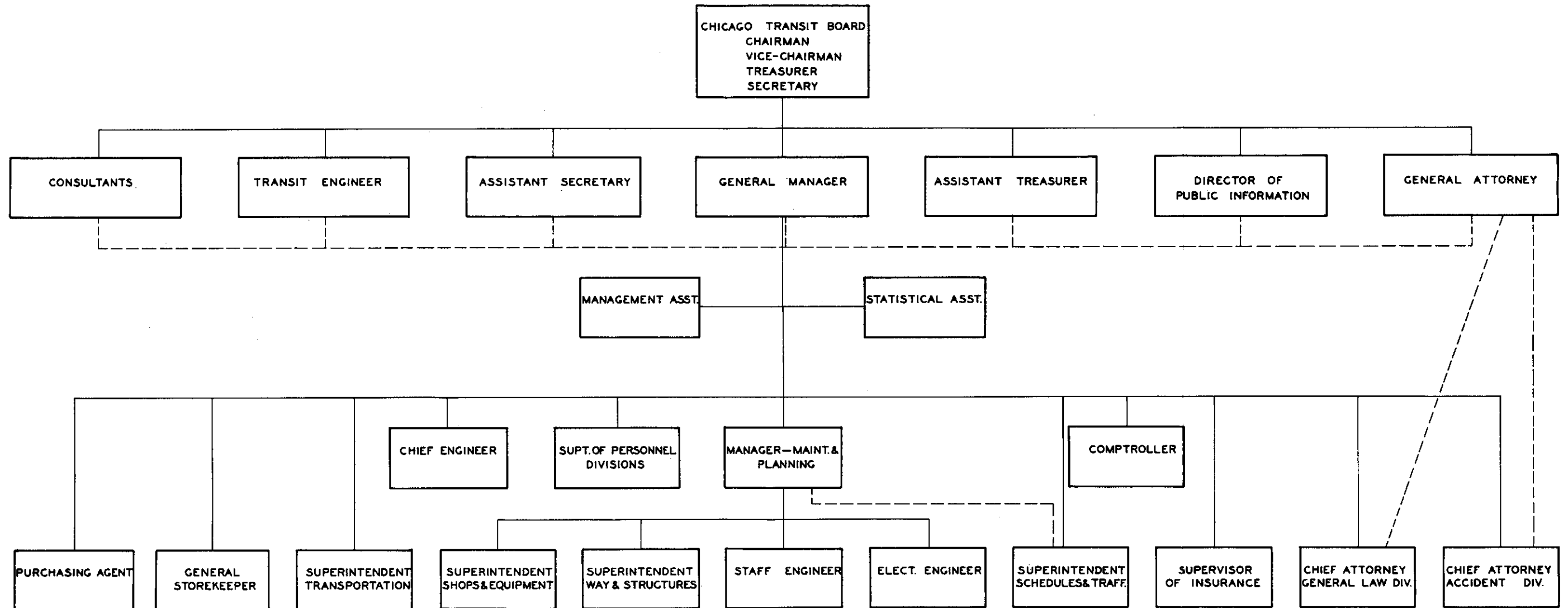
The responsibilities for operations would be placed in a single department under the direction of an Operations Manager. All operating staffs - a total of four - would report to him.

Present departments would be grouped under the recommended organization as follows: The General Attorney, the Chief Attorney of the General Law Division, and the Chief Attorney of the Accident Division would all be grouped in the Legal Department. The Financial Department would include the present functions of the Treasurer, the Comptroller, and the Supervisor of Insurance. The Research Department would combine the present functions of the Staff Engineer, the Transit Engineer, and the Statistical Assistant.

The functions of the present Secretary and of the Director of Public Relations have been combined in a single department. The head of this department should be a man experienced in transit work and acquainted with transit problems, and one who is also capable of directing the activities of the secretarial staff. This combination has been proven especially effective by experience elsewhere.

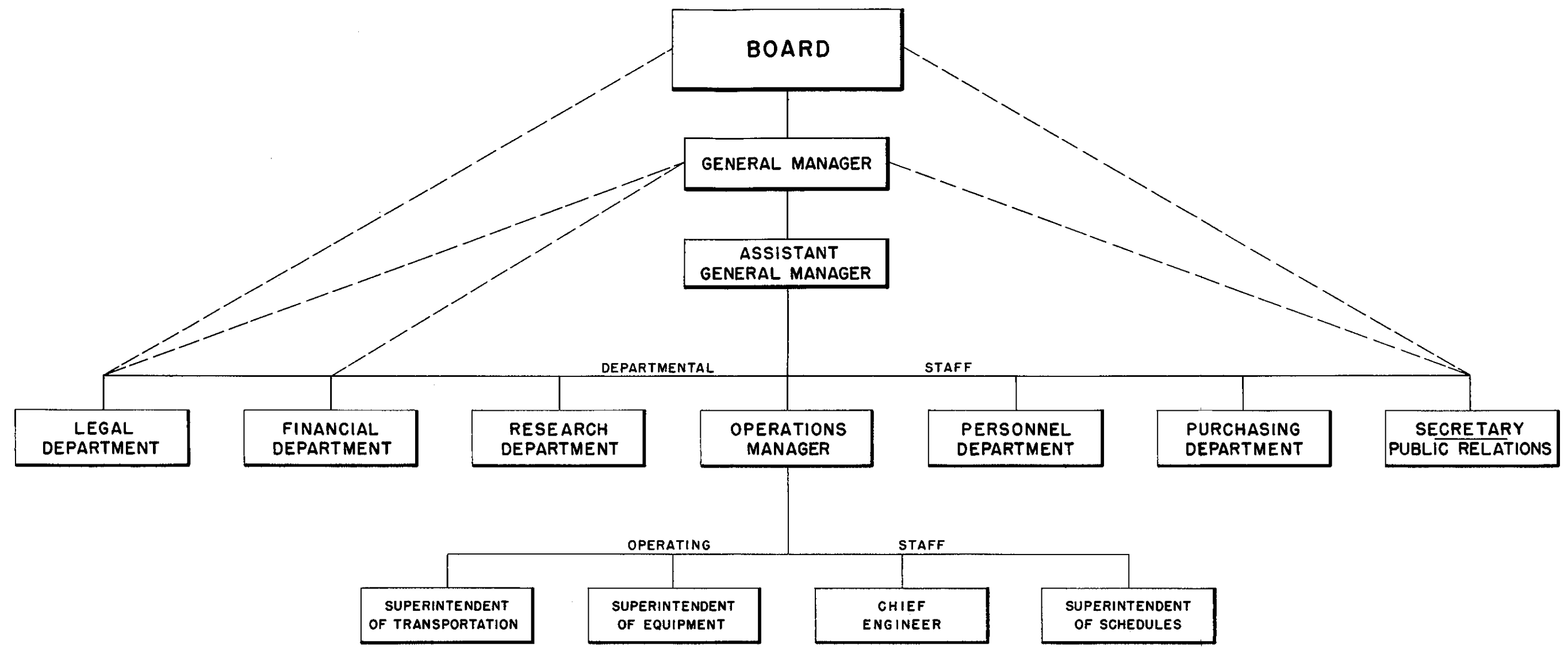
The functions of the General Storekeeper would be assigned to the Superintendent of Equipment. The Superintendent of Way & Structures and the Electrical Engineer should be included in the Chief Engineer's Department.

ORGANIZATION OF CHICAGO TRANSIT AUTHORITY



NOTE:

- INDICATES LINES OF AUTHORITY
- INDICATES CLOSE AND DIRECT WORKING RELATIONSHIP



CHICAGO TRANSIT AUTHORITY  
PROPOSED ORGANIZATION CHART  
JULY 1951  
DE LEUW, CATHER & COMPANY  
ENGINEERS  
CHICAGO

All of the departments or individuals indicated on the present organization chart - Exhibit 1 - are provided for in the recommended organization, except the Management Assistants, the Manager of Maintenance & Planning, and the Consultants.

The Management Assistant and the Manager, Maintenance & Planning can be assigned to such functions in the new organization as the General Manager may deem advisable. The Consultants, in our opinion, have no place in the permanent staff of the Chicago Transit Authority. The consultants appointed pursuant to the provision of the Trust Agreement exercise a very useful function, which, to a certain extent, is continuous, but they cannot properly be considered a component part of the organization.

Other consultants have been retained from time to time by the Board. It is suggested that, when services are required by the General Manager, they be retained for specific assignments such as the preparation of plans and specifications, and perhaps supervision of construction for capital improvements which are of such size, scope or complexity as cannot be handled efficiently by the regular staff of the Chief Engineer. Other assignments covering investigations of special problems, either those incidental to modernization or otherwise, are proper and suitable assignments for independent consulting engineers or engineering organizations. Any running assignment which gives such outside organizations certain authority without corresponding responsibility is obviously improper.

#### The Operating Staff

There are many problems arising during processes of coordination, modernization and improvement of transit services which have been under way since 1947. Most of these involve a number of staff departments. Almost any single modernization project involves to a greater or lesser degree a majority of the staff sections. It has been found elsewhere that mistakes invariably result where a decision is based on consultation with only a fraction of the departments at interest, and that the best procedure for insuring a full consideration of all questions is to create what is generally known as an operating staff. The function of such a staff is to study and discuss any projected transit improvement, change in operations, assignment of equipment, abandonment of services or stations, in fact, any and all changes in plan and operation of major significance. After such study and discussion a recommendation to the General Manager should be prepared. He, in turn,



would transmit it to the Board with his comments or recommendations. Initiation of such studies may be through the operating staff itself, or through the request of the General Manager or the Board. It is recommended that this staff be created at once under the chairmanship of the Assistant General Manager. The members of the committee should include at a minimum:

Operations Manager,  
Superintendent of Transportation,  
Superintendent of Equipment,  
Chief Engineer,  
Superintendent of Schedules, and  
Director of Research Department.

Constituted and operated as recommended above, this staff will provide full consideration of every aspect of each proposal and constitute insurance against unfortunate and expensive errors.

Finally, the General Manager should have delegated to him the power to fix salaries, and to dismiss, demote, or transfer department heads and other staff members without restriction. Such actions, under the Transit Authority Act, could be overruled by the Board after a public hearing. The legal requirement that such a public hearing be held, if requested, would be sufficient to deter the General Manager from attempting to make any unwarranted changes. No General Manager can be held responsible for the success of the undertaking unless he is given full authority to select and direct the activities of his assistants.

BASIC TRANSPORTATION POLICY  
IN CHICAGO

All of the factors basic to a determination of public transportation requirements and to the development of a sound transit plan in Chicago have been thoroughly canvassed, analyzed and reported on by various experienced engineers during the past 35 years or more.

While these studies necessarily varied in detail, the basic philosophy recommended in all of these reports was the same. Consideration was given to the great spread of the urban area and the relatively light density of population. All of them recognized the fact that the great majority of the public transportation lines serving numerous residential areas, industrial districts and commercial centers, must necessarily be operated as local service at street grade. These surface lines provide for transportation between various local centers and also function as feeders to and distributors from a limited pattern of rapid transit routes. Rapid transit operation was recommended on a small number of trunk lines, designed and adapted for provision of high speed off-street service between the more important outlying sections and the great central business district.

Excerpts from the more important of these reports are of interest at this time. The first is from the REPORT OF THE CHICAGO TRACTION AND SUBWAY COMMISSION ON A UNIFIED SYSTEM OF SURFACE, ELEVATED AND SUBWAY LINES made in 1916. This report was based on one of the most thorough fact-finding studies ever made in any American city and included, among other things, the only complete origin-destination study of the rapid transit traffic ever made in Chicago. The Commission was composed of three eminent engineers: Wm. Barclay Parsons, Bion J. Arnold, and Robert Ridgway. We quote from their recommendations as follows:

"That a single Corporation be organized to take over the surface and elevated lines.

"That the construction of a combined system of subways and elevated railroads be begun at once and co-ordinated with the present and future elevated railroads so developed as to furnish the highest grade of rapid transit service."

In the year 1923 R. F. Kelker, Jr., submitted a REPORT ON A PHYSICAL PLAN FOR A UNIFIED TRANSPORTATION SYSTEM FOR THE CITY OF CHICAGO in which he said:

"The fundamental elements of a plan for an adequate transportation system in a metropolitan city may be stated as follows:

- (a) Long haul traffic should be carried on rapid transit lines,
- (b) Short haul traffic should be carried on surface lines, operated so as to serve as feeders to the rapid transit lines,
- (c) Transfers should be permitted and encouraged between surface and rapid transit lines in order to make rapid transit service accessible to all,
- (d) Independent transportation systems should be unified and operated as a single system, thereby eliminating competition."

The next major investigation culminated in a report on A COMPREHENSIVE LOCAL TRANSPORTATION PLAN FOR THE CITY OF CHICAGO submitted in the year 1937 by the late Philip Harrington, R. F. Kelker, Jr. and Charles E. DeLeuw, which set forth the following statement of fundamentals:

"A city like Chicago must have fast off-grade mass transportation in some form to supplement its local surface transportation facilities.

"This fast transportation may take the form of elevated train operations, elevated bus operation, or subway operation, supplemented by surface express bus and suburban railroad operation, or a combination of any two or more of these methods.

"To achieve maximum efficiency and economy all such rapid transportation facilities should be coordinated with local surface transportation and operated (if not owned) by one unified management. In other words all local transit facilities should be operated in cooperation, and not in competition one with another."

The fourth and most recent comprehensive report was prepared by Charles DeLeuw & Company, with the advice and assistance of the late Philip Harrington and R. F. Kelker, Jr., covering A COMPREHENSIVE PLAN FOR THE EXTENSION OF THE SUBWAY SYSTEM OF THE CITY OF CHICAGO, submitted in the year 1939, which included the following statement in reference to the relation of subways to the modernization of Chicago's local transportation:

"Ever since the investigation and report made by the Traction and Subway Commission in 1916, competent students of the problem have recognized the impossibility of financing a system of rapid transit routes which would provide direct service to Chicago's entire population. However, it has been the aim of transportation planners to provide sufficient rapid transit facilities to furnish adequate routes for long distance riders between various sections of the city which, when coordinated with local railroad service and with distributor and feeder surface lines, would make rapid transit available, either directly or indirectly, to all."

Thus the basic pattern for the development of a public transportation system in Chicago had been developed prior to the creation of the Chicago Transit Authority. Important strides have been made in the improvement of rapid transit facilities during the past ten years through the construction of the State Street Subway and the initial section of the Milwaukee-Dearborn Subway.

THE CONSOLIDATION AND  
MODERNIZATION PROGRAM

That the consolidation of two large competing transportation companies into a single efficient unit was an enormous task needs no extended proof. The problem was more difficult by reason of the lengthy receivership which both companies had endured. During the period when most large transportation systems throughout the country were undergoing modernization, little was accomplished in Chicago because of the financial and legal morass dating back to the late twenties. There is much to the credit of the Board and the management in the accomplishments since 1947.

The Surface Division

Between June 1945 and January 1950, the Chicago Transit Authority acquired or approved the purchase by predecessor companies, of the following pieces of new equipment:

600 P.C.C. street cars  
210 trolley buses  
906 motor buses  
4 rapid transit cars

During 1950, orders were placed for 551 propane motor buses, 349 trolley buses and 200 rapid transit cars. As of June 1, 1951, 452 of the propane buses, 12 of the trolley buses and 130 of the rapid transit cars had been delivered.

During the period December 1945 to June 1951 the surface system expanded from 1,242 to 1,507 single-way miles of rail and bus routes. On June 1, 1951 the modernization program had advanced to the point where 76 per cent of the route mileage was equipped and operated with modern street cars, trolley buses and motor buses. The operation on the entire 1,507-mile system at that date is summarized in the following tabulation:

Single-Way Miles of Route

Street Railway - Modern Cars	190
Street Railway - Old Cars	358
Motor Bus Routes	816
Trolley Bus Routes	<u>143</u>
Total System	1,507\$

Balance of Modernization Program

By the end of 1951, old one-man and two-man street cars will have been replaced on all routes except those listed in the following table. Six major routes have been equipped with P.C.C. type street cars which are scheduled to remain in use. The balance of the modernization program will consist of conversion to rubber-tired vehicles.

Proposed Bus Substitutions  
For Street Car Lines After 1951

<u>Lines</u>	<u>Approximate Number of Buses Required</u>
Ashland	170
Blue Island	43
Cermak	39*
Cottage Grove	90
Indiana	30
Kedzie-California	87
Lake	31
Milwaukee	135
Van Buren	80
Wallace-Racine	30**
43rd-Root	15
67th-69th	<u>45</u>
	795

\$-Includes 55 miles of overlaps by motor bus operation.

\*-Currently being considered for 1951 Program.

\*\* -Present schedule requirements. New length and routing not determined.

Assignment of Propane Buses

During the first half of 1951 the CTA received 503 of the large 51-seat propane buses ordered in 1950. The management failed to prepare for the arrival of these buses to the very serious extent that fueling facilities were made available at only two garages, namely North Park Garage and North Avenue Station. None of the routes operated out of these two terminals were of the type that would justify these large vehicles, with the possible exception of Grand Avenue and this was one of the last of the lines to be converted. Harrison Street was served with these vehicles only at the cost of greatly extending the distance to and from the operating station, this line formerly having been served by the Kedzie-Van Buren car house. The list of lines on which propane buses have been placed include some of the lightest lines in the system such as Austin, Laramie, North Western and Skokie.

At the present time, only 398 of the 503 buses on hand are required to fill schedules on the routes to which they are assigned. Even so, if these 398 buses had been used to replace two-man street cars rather than the gas buses they displaced in most instances, it is estimated that savings of approximately \$150,000 per month would have been realized. It is impossible for us to estimate the actual savings that have resulted from the acquisition of the propane buses, due to the complex chain of substitutions made affecting a large number of routes. It is reasonably certain, however, that only a portion of the potential economies have been realized. The operation of large propane buses in place of small gasoline buses on lightly traveled routes has probably resulted in a net operating loss.

Propane fueling facilities are now being installed at Lawndale Depot at Cermak Road near Ogden Avenue and Pulaski Road, and at the 77th Street Station on Wentworth Avenue at 77th Street. These two installations will permit the use of propane buses on somewhat heavier lines.

The gasoline buses displaced by the propane buses were used to convert street car lines to rubber-tired vehicles. In several instances, however, they were used to replace one-man cars on which the out-of-pocket cost for trainmen's wages was already low rather than to replace two-man cars which would have effected substantial economies.

This situation should be corrected as rapidly as installation of propane fueling facilities at additional garages permits.

P.C.C. Street Car Operation

Selection of size and type of transit vehicle for a particular route is based primarily on the number of passengers to be carried through the point of heaviest loading during rush hours. Modern rubber-tired vehicles can economically handle at least 4,500 passengers per hour in one direction. Actually, the trolley buses on Central Avenue, which have twelve (23 per cent) fewer seats than the latest motor buses, regularly carried as many as 4,100 passengers per hour in 1936.

The operation of modern P.C.C. cars is planned to continue in the long-term modernization program on the Broadway-State, Clark-Wentworth, Halsted, Madison, Western and 63rd Street lines. Of these, the Clark-Wentworth line is the only one carrying more than 4,500 passengers per hour in one direction at the present time.

Six hundred new P.C.C. cars have been purchased as a part of the modernization program. The 83 P.C.C. cars now operated on 63rd Street, bought in 1936, are still in serviceable condition, but their high maintenance costs - an average of more than 9 cents per car-mile in 1950 - makes their early retirement advisable, after which the 63rd Street route should be operated with buses. The five remaining routes named require a total of 564 cars to fill schedules at the present time. Track work and electrical overhead on these routes has been maintained in good condition in anticipation of use for an indefinite period into the future. Likewise, shop and car house facilities have been provided for the maintenance of this fleet of modern street cars.

Under the circumstances, the most economical plan is to retain the six rail lines as programmed for the immediate future, and the five lines indefinitely. The cars for this service should be fitted for one-man operation, however, at the earliest possible moment. It is estimated by the CTA staff that this work will require a capital expenditure of \$200,000.

The practicality of converting these cars for one-man operation and the economies that would result from their limited use for various portions of the week were called to the attention of the General Manager in memoranda dated November 2, 1949, May 16, 1950 and November 28, 1950. It was pointed out in these reports that the six lines in the group accounted for 28 per cent of the total revenue collected on the surface system in September 1950.



These memoranda showed that the use of one-man cars on the six lines for Owl service only would produce a saving in trainmen's wages of \$277,000 per year. A further saving of \$120,000 per year would be realized in the contribution this step would make toward relieving the existing manpower shortage.

If these one-man cars were also used for Saturday and Sunday service on these six routes, an additional saving in trainmen's wages of \$657,000 per year would be realized. A further benefit would be the saving of approximately \$450,000 per year in overtime wages now paid on account of the manpower shortage.

If these one-man cars were further used to provide all service during the week, except during rush hours on weekdays, the total reduction in trainmen's wages is estimated to be \$1,816,000 per year. This step would also completely offset the manpower shortage, which is currently costing \$60,000 per month or \$720,000 per year in overtime wages.

There can be no question of the feasibility of operating one-man service on these six routes during at least 75 per cent of the hours of the week. Estimated annual savings by operating P.C.C. cars as one-man cars are as follows:

<u>Class of Service</u>	<u>Potential Savings</u>		
	<u>Wages</u>	<u>Overtime</u>	<u>Total</u>
Owl Cars	\$ 277,000	\$120,000	\$ 397,000
Saturdays and Sundays	657,000	450,000	1,107,000
Base and Evening	<u>1,816,000</u>	<u>390,000</u>	<u>2,206,000</u>
Total	\$ 2,750,000		
Maximum Under Current Degree of Manpower Shortage		\$720,000	\$3,470,000

Part-Time Use of Buses on Street Car Routes

The low level of riding on Saturdays, Sundays and holidays has made it feasible to operate buses on those days on a number of routes which operate as rail lines on Mondays through Fridays. To date this practice has affected only routes operating out of depots serving as combination car houses and garages, namely, Lawndale, 77th Street and North Avenue. The routes affected include Blue Island, Douglas Park feeder bus, 79th, Wallace-Racine, Pulaski and Cicero.

A memorandum from the Superintendent of Schedules to the General Manager, dated March 7, 1951, calls attention to economies that could be effected by extending this practice to the North Park and Archer garages which have a large number of idle buses on Saturdays and Sundays. The report points out that this plan would require a transfer of men from other points to these two garages each weekend, but this should raise no objections from the operating personnel.

The lines on which this Saturday and Sunday operation by bus appears to be feasible immediately are shown in the following table. The table also shows the number of buses that would be required and the economies as estimated by the CTA staff.

<u>Route</u>	<u>Number of Buses</u>	<u>Reduction in Wages</u>	<u>Added Operating Costs</u>	<u>Annual Net Saving</u>
Ashland	62	\$119,000	\$ 40,000	\$ 79,000
Cottage Grove	58	126,000	41,000	85,000
Kedzie	35	73,000	24,000	49,000
Milwaukee	<u>55</u>	<u>100,000</u>	<u>37,000</u>	<u>63,000</u>
Total	210	\$418,000	\$142,000	\$276,000

These changes will reduce the number of men who will be required to work on Saturdays and Sundays, and thereby make the jobs more attractive to young men who have raised an objection to week-end work when offered employment.

Experiments with Reduced Fares

Coincident with a fare increase from 13 cents to 15 cents on October 15, 1949, a number of special 10-cent services were established in the central business district. These consisted of the following:

<u>Route</u>	<u>Period</u>
Canal-Wacker	All day
Archer-Adams-State	7:30--9:30 A.M.
Clybourn-Adams-Jackson	7:30--9:30 A.M.

Eastbound on Adams

Archer Shuttle	
Van Buren Cars	
Harrison Buses	
Harrison Shuttle	7:30--9:30 A.M.
Madison-Monroe Shuttle	
Madison thru on Madison	7:30--9:30 A.M.
Madison- Washington Shuttle	
Milwaukee thru on Madison	3:30--6:30 P.M.

In January 1951, after the services had been in operation for more than one year, a study was made by the Superintendent of Schedules at the request of the General Manager. This study revealed that the special services were producing a net loss of more than \$35,000 per year due to the difference between the additional operating costs and the reduced fare receipts. The Superintendent of Schedules made recommendations which would have reduced the loss to approximately \$15,000 per year, but these have not yet been adopted.

The general purpose of the reduced fare shuttle services is to provide transportation between the various railroad stations and the Loop area. The theory is that, since the railroad commuters travel only a short distance on the CTA, the service can be provided profitably at less than the standard adult fare. Some of this service can be provided by transit vehicles before or after they make through trips on other routes, and in these instances any new patronage generated is apt to be profitable.

The more important shuttle lines are not so favorably placed, however. The operation takes place in the area of greatest congestion so that speeds are approximately one-half as great as the average for the system. The demand is in one direction, moreover, with no reverse riding except that for which there is already more than adequate service.

It was a justifiable experiment to attempt to attract riders by inducement fares with the expectation that they could be served profitably. No recent checks of riding have been taken by the Schedule Department, however, indicating that the service was installed and forgotten. Our observations are that much more service is being furnished than patronage requires. Analyses of these operations should be started immediately. Any shuttle route that cannot be placed on a profitable footing by adjustments in schedules or in fares should be discontinued.

Effect of Traffic Congestion on  
Surface Operating Expenses

The number of automobiles registered in the City of Chicago increased 28.4 per cent between 1940 and 1950. The impact of this increase in automobile ownership has not been proportionate in respect to important routes radiating from the central business district. Cordon counts of traffic entering and leaving this district made annually in the month of May show that the number of automobiles entering the central business district during a 12-hour day in the years of 1940 and 1951, were as follows:

	<u>Cabs and Private Autos</u>	<u>Service Vehicles</u>	<u>Total</u>
1940	291,565	49,841	341,406
1951	332,303	44,094	376,397
Change	+40,738	-5,747	+34,991
Per Cent of Change	+13.9%	-11.5%	+10.2%

During this period, police enforcement was concentrated on violations by moving vehicles in a commendable effort to combat the rising trend in traffic accidents. Less emphasis, comparatively, was given to parking violations and other direct causes of congestion.

A study made by the Schedule Department of the CTA in December 1950 estimated that the system-wide increase in costs during the four-year period 1946-50 in trainmen's wages alone, due to increase in traffic congestion, was approximately one-half million dollars.

During this period, parking was prohibited on such important transit routes as Foster Avenue, Madison Street, Milwaukee Avenue, Montrose Avenue and Ogden Avenue in the heavier direction in the rush hours. This change has been fairly well enforced, and has had beneficial effect. This program, however, has affected only 55 miles of route which is less than four per cent of the 1,507 miles which compose the present system. The need has been for rigid enforcement of prohibitions of double parking, parking in car and bus stops and parking in "NO PARKING" zones.

The time-saving potentials of the modernization program have been more than nullified by the increases in running time which have had to be made to compensate for growing traffic congestion. On some routes, roughness of paving and conversion from two-man to one-man operation have been factors. See Table I. Two-man car lines have become much slower, however, despite the use of potentially faster cars.

The following table gives the comparative scheduled running time allowances on Madison Street per round trip on fall weekdays between 1936 and 1950:

<u>Season and Year</u>	<u>Type of Equipment</u>	<u>Scheduled Round Trip Running Time in Minutes</u>		
		<u>A.M. Rush</u>	<u>Base</u>	<u>P.M. Rush</u>
Fall of 1936	Old Cars	79.0	78.0	83.0
Fall of 1938	P.C.C. (1936)	73.0	71.0	76.5
Fall of 1940	P.C.C. (1936)	73.0	71.0	76.5
Fall of 1948	P.C.C. (1946)	80.0	76.5	85.0
Fall of 1949	P.C.C. (1946)	80.5	76.0	87.0
Fall of 1950	P.C.C. (1946)	82.5	79.0	92.0

The decrease in running time between 1936 and 1938 indicates the faster service which can be offered by modern street cars under similar traffic conditions. Recent checks showed that the average actual running time during the P.M. rush period on the portion of this route east of the Chicago River was three minutes above that

scheduled. On the average, these cars could be paced by pedestrians on a brisk walk.

Table II shows that running time has had to be increased substantially on both car and bus lines on which the same type of equipment has been operated continuously since 1946.

Growing traffic congestion appears to be the most valid explanation for this costly addition to running time. Longer running time requires more buses and cars to be used to render the service, adds to wages paid, and discourages patronage.

The City Council has embarked on a program to purchase 15,000 parking meters for widespread installation throughout Chicago. This program should be so administered that it will result in more stringent enforcement of parking abuses which hamper the operation of the public transportation services. Likewise, lane lines should be painted on State Street and other thoroughfares where disorganized traffic movements are delaying transit vehicles. Traffic signal timing should be adjusted on an equitable basis with full consideration given to the needs of transit vehicles. At many intersections they are carrying a majority of street users. "NO PARKING" signs should be maintained in much better condition than at present, particularly at car and bus stops. Briefly, it will be in the public interest if transit operations are given primary consideration in all engineering and enforcement activities of the city dealing with traffic control.

Many of the irregularities in transit service which result in complaints are due to street traffic conditions beyond the control of CTA. Most of these conditions arise directly or indirectly from traffic violations which the city administration has failed to correct. In a recent parking survey covering an important segment of Chicago, less than one per cent of observed violators were ticketed by police officers. The quickest way to improve regularity of transit service, and thereby reduce complaints on this account, would be to enforce all of the existing traffic ordinances. If they have any desire to do so, the elected officials of the City of Chicago can make a real contribution to the convenience of public transit and at the same time reduce its cost.

TABLE I

TYPICAL CHANGES IN RUNNING TIME  
DURING MODERNIZATION PERIOD

<u>Route</u>	<u>Type of Vehicle</u>		<u>1946 Round Trip Running Time</u>			<u>1951 Round Trip Running Time</u>			<u>Percentage Change in Running Time 1946 to 1950</u>		
	<u>1946</u>	<u>1950</u>	<u>A.M.</u>	<u>Base</u>	<u>P.M.</u>	<u>A.M.</u>	<u>Base</u>	<u>P.M.</u>	<u>A.M.</u>	<u>Base</u>	<u>P.M.</u>
Belmont	Two-Man Car	Trolley Bus	62.0	58.5	64.0	68.0	64.0	72.5	+ 9.7	+ 9.4	+13.3
Irving Park	Two-Man Car	Trolley Bus	73.0	70.5	75.0	76.5	73.5	82.0	+ 4.8	+ 4.3	+ 9.3
North	Two-Man Car	Trolley Bus	86.0	79.5	87.5	90.0	85.5	96.5	+ 4.7	+ 7.6	+10.3
Broadway-State	Two-Man Car	P.C.C. Car	259.0	245.5	268.0	251.0	240.5	275.0	- 3.1	- 2.0	+ 2.6
Clark-Wentworth	Two-Man Car	P.C.C. Car	203.5	189.5	214.5	193.5	185.0	206.0	- 4.9	- 2.4	- 4.0
63rd	Two-Man Car	1936 P.C.C. Car	103.5	103.0	107.5	103.0	98.5	111.5	- 0.5	- 4.4	+ 3.7
Archer	Two-Man Car	Local Bus	103.5	96.0	107.0	102.0	94.5	108.0	- 1.5	- 1.6	+ 0.9
		Express Bus	103.5	96.0	107.0	81.0	73.5	88.0	-21.8	-23.4	-17.8
Harrison	Two-Man Car	Motor Bus	81.0	74.0	82.0	92.0	84.5	99.0	+13.6	+14.2	+20.8
31st	Two-Man Car	Motor Bus	33.0	30.0	32.0	34.0	29.5	34.0	+ 3.0	- 1.7	+ 6.3
59th - 61st	One-Man Car	Motor Bus	73.0	66.5	72.5	78.5	80.0	80.5	+ 7.5	+20.3	+11.1

TABLE II

TYPICAL INCREASES IN RUNNING TIME  
 DURING MODERNIZATION PERIOD  
 ON LINES ON WHICH TYPE OF EQUIPMENT  
HAS NOT CHANGED

<u>Route</u>	<u>Type of Vehicle</u> <u>Both Years</u>	<u>1946</u> <u>Round Trip</u> <u>Running Time</u>			<u>1951</u> <u>Round Trip</u> <u>Running Time</u>			<u>Percentage Change in</u> <u>Running Time</u> <u>1946 to 1950</u>		
		<u>A.M.</u>	<u>Base</u>	<u>P.M.</u>	<u>A.M.</u>	<u>Base</u>	<u>P.M.</u>	<u>A.M.</u>	<u>Base</u>	<u>P.M.</u>
Peterson	Motor Bus	45.0	42.0	46.5	50	43.5	51.5	+11.1	+ 3.6	+10.8
Chicago	Two-Man Car	92.0	84.5	93.5	97.0	86.5	97.5	+ 5.4	+ 2.4	+ 4.3
Roosevelt	Two-Man Car	90.5	84.5	91.0	96.0	87.0	99.0	+ 6.1	+ 3.0	+ 8.8
Central	Trolley Bus	69.0	64.0	69.0	73.0	69.0	77.5	+ 5.8	+ 7.8	+12.3
S. California	Motor Bus	81.0	75.0	84.0	90.0	83	94.0	+11.1	+10.7	+11.9
Ashland	Two-Man Car	172.5	165.5	180.5	188.5	174.0	198.5	+ 9.3	+ 5.2	+10.0



Rapid Transit Division

Under proper conditions, mass transportation can be furnished most economically by operation of rapid transit trains on private rights-of-way. Such service was established in Chicago in 1892. The far-flung population of Chicago has not been served as economically by rapid transit, however, as the more concentrated populations of such cities as Philadelphia and Boston.

The following table gives a comparison of these three cities which illustrates in broad terms the problems faced in Chicago in operating a rail rapid transit system.

Comparison of Traffic on  
Rapid Transit Facilities in  
Chicago, Philadelphia and Boston

<u>Traffic and Service</u> <u>Densities for March 1949</u>	<u>Chicago</u>	<u>Philadelphia</u>	<u>Boston</u>
Average daily			
Revenue passengers boarding per station	2,500	11,870	16,199
Revenue passengers boarding per mile of structure*	5,898	24,263	26,656
Revenue passengers boarding per revenue car-mile	3.67	5.95#	12.52
Revenue car-miles per mile of structure*	1,606	2,453	2,128

\*-Basis - subway or elevated structures used in revenue service.

#-Basis - year 1947.

Boston has had a most practical and effective development of the principle of delivering passengers originating in outlying sections of the metropolitan area to conveniently located rail rapid transit terminals through the operation of a carefully planned system of feeder bus routes. Efficient transfer stations, which provide for the convenient movement of passengers between rapid transit platforms and feeder or distributor buses, account for the heavy use of the Boston rapid transit system noted in the foregoing tabulation. At some of the more important of these transfer stations, daily one-way weekday traffic

totals 60,000 passengers or more. The same principle has been developed in the basic pattern of the Philadelphia transit system to a lesser extent.

While some attempts have been made in Chicago in recent years to deliver long distance riders to rapid transit stations, there is much more to be accomplished. This phase of Chicago's transit development has been neglected, and certainly it has been handicapped by fare differentials, inconvenient transfer facilities and other obstacles. This may be attributed in part to the lack of factual data upon which to project estimates of the number of passengers who would be inconvenienced and the additional number who might be attracted by such service.

The rail rapid transit facilities in Chicago have had to compete for a number of years with both private automobiles and express buses using high-speed limited-access highways along the lake front. This system of expressways is now being expanded to reach to other parts of the metropolitan area. Opportunities will be afforded, therefore, for further competition with the rapid transit system for long-haul passengers destined for the central business district.

Under these conditions, the Chicago Transit Authority has properly been attempting to revamp the service on the elevated-subway system, and is currently studying further improvements.

#### North-South

Improvements were proposed for the north-south rapid transit operation on August 3, 1948. There were delays in instituting this change and the modifications were not made until July 31, 1949. The recommendation was that thirty-one of the less important stations be closed, but due to the protests of local groups, five of these stations were removed from the program before its inauguration. Estimates made in advance of the change predicted that net annual savings would be between \$916,000 and \$978,000. No studies have been made to compare actual results with these estimates, but it is believed that the savings are of approximately this amount.

### Logan Square

A plan for the improvement of the transfer facilities at the Logan Square terminal has been developed in the office of the CTA Chief Engineer in March 1951 which will provide much greater convenience for passengers transferring between buses and rapid transit trains at that important terminal. It is proposed to open a new driveway from Milwaukee Avenue to North Linden Place so as to provide a new entrance to the Logan Square Terminal Station. It is recommended that an escalator be added to the present plans and that this improvement be authorized at once.

Transit service for passengers originating beyond the Logan Square Terminal and with destinations in the central business district was vastly improved when service in the new subway was started early this year. The running time between the Logan Square Terminal and downtown was cut almost in half. The proposed improvement in transfer arrangements will effect another substantial improvement in the service. When the work is completed, it is recommended that Milwaukee Avenue local service be cut at the Logan Square Terminal. One bus route will start at the proposed new terminal and operate northwesterly along Milwaukee Avenue to the city limits. Another bus service along Milwaukee Avenue between the Logan Square Terminal and the central business district will then provide adequately for all local riding in this area.

### Humboldt Park

For years the Humboldt Park Branch of the Metropolitan Rapid Transit Division has been one of the weaker rapid transit operations in Chicago. One important factor was the circuitous route between the terminal and the loop district. This route was also in direct competition with a frequent street car, and more lately trolley bus, service extending along North Avenue from a point near the west city limits to Lincoln Park. With the opening of the Milwaukee-Dearborn subway, the Board proposed to abandon this line, which had been operating at a loss for a considerable period. The idea was that service could best be rendered by trolley buses operating along North Avenue to a transfer station at the Logan Square Elevated. Due to local objections, however, a shuttle car operation was inaugurated, extending from the Humboldt Park Terminal at Lawndale Avenue to Damen Junction, where passengers transferred to Logan Square trains by an extremely long and inconvenient passageway. The week-day traffic on this branch has decreased about 75 per cent, and

operating costs are currently almost \$100,000 per annum. This duplicate service could be discontinued entirely with but little inconvenience to the public, and this discontinuance is recommended.

### Lake Street

Among the improvements already accomplished is the inauguration of "All Express" service on Lake Street elevated line on April 5, 1948. Some of the changes made were opposed by individuals who believed they would be inconvenienced by the closing of stations or the discontinuance of stops at certain stations by some trains. The overall effect, however, has been to bring about an increase in riding, only a small portion of which has been drawn from parallel street car and bus lines.

The increase in speed of operation, together with better frequency of trains, provided riders with reductions in trip time ranging from 20 to 33 per cent. The increased patronage had amounted to approximately seven per cent after six months of operation, representing a gross increase in income at a rate of approximately \$100,000 annually. Nevertheless, the cost of providing service was reduced by approximately \$200,000, effecting a net improvement from the operation at the rate of approximately \$300,000 per year. No new capital investment was required to produce this betterment.

The operation of Lake Street rapid transit at street grade from Pine Avenue to the west city limits and through the suburban communities beyond is hazardous, inconvenient and unsatisfactory. Street traffic congestion is approaching a critical stage at grade crossings at Harlem, Oak Park, Ridgeland, Austin and Central Avenues. This congestion, which is at its worst during rainy weather and during the winter periods when the streets are covered with snow and slush, causes traffic accumulations extending some distance both north and south of the rapid transit line. Platform congestion at the Central and Austin stations is also critical during the evening rush hours when the gates cannot be raised for long periods because of the heavy movement of trains in both directions.

The CTA staff has recommended the purchase of property now occupied by a Chicago and North Western Railway team track yard, adjacent to the present west terminal of the Lake Street line in Forest Park, for the purpose of establishing a suitable train storage yard. Such a development would produce economies; it would relieve present

traffic congestion by eliminating crossing interferences of pull-out and pull-in trains during rush hours; and would alleviate to a degree the rush hour traffic congestion at the rapid transit stations along this section of the Lake Street route. This proposal has considerable merit and we suggest its serious consideration after an engineering study is completed.

The service will never be fully satisfactory, however, until the tracks are elevated in the section between Pine Avenue and the west terminal. The urgency of this situation is such that we suggest an engineering study be made in the near future to determine the cost of such track elevation and the operating economies which would result therefrom. The plan to be considered should also include the building of an adequate and convenient bus-rail transfer station at or near the west terminal of the route.

#### Ravenswood

The elevation of the tracks on the westerly section of the Ravenswood Branch is also a necessary improvement. While this situation is less urgent than in the case of the Lake Street rapid transit, we consider it an essential part of the overall modernization and improvement program. The improvement should include the elevation of the tracks now at grade in the section west of the North Branch of the Chicago River, and at the same time the development of an adequate transfer station at the Kimball Avenue terminal to provide convenient transfer between bus and rapid transit trains.

#### Garfield Park

The Congress Street Expressway project complicates the determination of a suitable operation on this two-track rapid transit route both from the viewpoint of immediate development and from the viewpoint of long range planning. A further complicating feature is its joint operation with the Chicago, Aurora & Elgin Railroad.

West of Laramie Avenue, the Garfield Park route operates at street grade over the tracks of the CA&E RR. The CA&E trains use the Garfield Park tracks east of Laramie Avenue to a stub terminal at Wells Street owned by the Chicago Transit Authority. The amount received from the CA&E for rental of tracks and the Wells Street terminal and for other miscellaneous items amounts to some \$265,000 per year as compared with payments to the CA&E by the

CTA of approximately \$239,000, the foregoing figures being for the calendar year 1950.

The CA&E has a difficult, if not impossible, financial problem in meeting its portion of the cost of the construction of a joint rapid transit-expressway project along the Congress Street route between Laramie Avenue and the Des Plaines River. The railroad is now seeking permission to suspend rail operations. The operating results during the post-war years indicate clearly that the service now rendered by this carrier might be more economically and efficiently operated by buses.

The CTA now operates rail service to sparsely settled Westchester as well as to the main terminal at Des Plaines Avenue. These rail operations are unprofitable, and in a number of respects unsatisfactory. The logical solution to this problem appears to be the construction of a commodious and convenient bus-rail transfer station at or near Central Avenue. The rapid transit service would then terminate at that point which is conveniently located with respect to a terminal yard. Such a terminal could accommodate CTA buses as well as the buses proposed to be operated by the CA&E RR or other carriers.

The gross saving of out-of-pocket costs as a result of discontinuing rail operation west of Central Avenue would be approximately \$500,000 per annum. The substitute CTA bus service would cost approximately \$300,000 per annum, leaving a net saving of \$200,000. The cost of new buses to furnish the service would be less than the cost of rapid transit cars which would be required for this portion of the route if the line were to be modernized as a rail rapid transit route. The net savings would be greatly in excess of the capital charges on necessary revisions at Central Avenue, including the construction of an attractive and convenient transfer terminal.

Service to the public in the Westchester-Bellwood area would be improved through shorter headways with smaller units; pickup and delivery of passengers at more closely spaced and more conveniently located stops; more economical operation which ultimately should be reflected in lower fares; and less traffic interference by elimination of more than forty grade crossings. It is recommended that this modernization be effected at the earliest possible moment.

In the development of specific plans for Garfield Park rapid transit service, consideration should be given to the provision of an unusually high-speed service between Central Avenue and the Milwaukee-Dearborn Subway by the location of stations and service stops at section line streets only. Should this be done, the running time between Central Avenue Terminal and Canal Street would be reduced to 14 minutes and to the Clark-Congress Station of the Milwaukee-Dearborn Subway to less than 16 minutes. Closing of twelve of the present twenty stations between Franklin Street and Central Avenue, coupled with the reduction in running time, would produce further operating economies upwards of \$100,000 per year.

This high-speed service, coupled with the satisfactory delivery provided on the Milwaukee-Dearborn Subway, should prove a substantial inducement for the CA&E RR as well as other operators of suburban bus service to terminate their routes at Central Avenue. It may be noted that the buses operated from the west and southwest suburban areas to downtown Chicago now aggregate as many as twenty-four buses per hour, operating over congested boulevards and the downtown street system. The transfer of this traffic to the high-speed rapid transit service proposed at the Central Avenue Terminal, it seems, not only would improve the service to the patrons of these lines but would also improve traffic conditions on Chicago's congested thoroughfares.

Field observations of the service furnished by Bluebird Coach Lines were made on the afternoon of Monday, July 9, to determine the actual running time on normal weekdays. The weather was fair and conditions were normal. Buses were checked westbound on Washington at State Street and at Ogden Avenue, giving a span of 1.9 miles. Speeds observed over this distance during the period from 4:30 to 5:30 P.M. ranged from a high of 11.4 miles per hour to a low of 6.7 miles per hour. The average running time of 24 buses during this period was more than 16 minutes. Thus it appears that passengers to west and southwest suburban points could reach the proposed Central Avenue transfer terminal in the same time as now required to travel less than two miles to Ogden Avenue.

A more immediate and pressing problem is that of maintaining suitable rapid transit service on the Garfield Park route during the construction of the Congress Street Expressway. The existing elevated structure is located within the right-of-way of the expressway project in the entire section between Sacramento Boulevard and Aberdeen

Street. We are advised that a contract has been consummated between the City of Chicago through its Department of Subways and Superhighways and the Chicago Transit Authority providing for the removal of the existing street car tracks in Van Buren Street throughout this section and the installation of tracks and other fixed equipment necessary for the temporary operation of this rapid transit service. This contract plan would produce the following results:

- (1) A substantial increase in running time of the rapid transit trains;
- (2) Constitute a danger to all traffic both along Van Buren Street and, more important, at intersecting streets;
- (3) Delay traffic along principal north-south thoroughfares on the West Side;
- (4) Necessitate the abandonment of the present Van Buren street car route and its replacement by a bus route, probably operating in Adams Street, as Jackson Boulevard is already congested with vehicular traffic;
- (5) Interfere with the rapid transit service on the Lake Street rapid transit route, by adding the Douglas Park trains in the section east of Paulina Street;
- (6) Cause a redistribution of surface traffic in the west side of the city between Madison Street and Harrison Street; and
- (7) These unsatisfactory conditions would prevail until such indefinite date in the future as the city would find itself in a position to pay for the installation of rapid transit tracks and other fixed equipment in the center median strip in the Congress Street Expressway.

The contract plan is so entirely unsatisfactory from all viewpoints that alternate methods for providing temporary service have been reviewed in an attempt to determine a plan and program which would be more satisfactory to all parties concerned, both from the viewpoint of overall economy and the viewpoint of satisfactory operation and convenience of the public.



The contract plan proposed by the Department of Subways and Superhighways and accepted by the CTA requires the construction of temporary inclines from the elevated structure to the surface of Van Buren Street at Aberdeen Street on the east and Francisco Avenue on the west. It also requires temporary tracks to be laid on the surface in the center of Van Buren Street for operation at grade of Chicago, Aurora & Elgin and Garfield Park rapid transit trains between the two inclines. It also involves the construction of elevated structure and trackage to extend the Douglas Park structure across Marshfield junction to connect with the elevated structure formerly serving the Logan Square elevated line as well as a connection between that structure and the Lake Street elevated near Paulina and Lake Streets.

Vehicular traffic would also be permitted on Van Buren Street along both sides of the temporary track, and the trains would be crossing such important streets as Racine Avenue, Ashland Boulevard, Paulina Street, Ogden Avenue, Damen Avenue, Oakley Boulevard and Western Avenue. The disadvantages of this plan are enumerated above.

The CTA plan which was prepared by the Chief Engineer's office of the Chicago Transit Authority provides for relocation of the structure supporting two of the four existing elevated tracks along the south property line of Van Buren Street between Aberdeen Street and Wolcott Avenue. This relocation would provide a temporary run-around during construction of the superhighway between the above limits, and the existing alignment of the elevated structure west of Wolcott Avenue would permit construction of one temporary and one permanent track in the superhighway median strip. The Chicago, Aurora & Elgin and rapid transit trains would operate on the elevated structure during the construction period, and the crossing protection necessary under the contract plan would not have to be provided.

The Chicago, Aurora & Elgin has already raised objections to the operation at grade on Van Buren Street as required in the contract plan. These objections have to do with obvious delays in running time and hazards of operation, and these objections are well founded.

Provisions would also have to be made to equip the rapid transit cars with trolleys and to install disconnect switches to de-energize the third rail shoes as well as to rearrange the motormen's cabs. While this item of cost is not particularly large, delays in running time will result from changing over from third rail to trolley operation and back again in both directions of travel.

No attempt has been made to break down the estimates of cost included in the report prepared by the Chief Engineer's office of the CTA. A review indicates that the estimates have been prepared on a comparable basis without trying to favor the CTA plan. The estimates show that the CTA plan will cost approximately \$700,000 less than the contract plan. In addition, the operating features of the CTA plan are far more desirable from the standpoints of safety, public convenience, and cost of operation.

On the basis of the foregoing statements, it is our opinion that the Chicago Transit Authority should reconsider its adoption of the contract plan and reopen negotiations promptly with the City of Chicago to reach an agreement on the adoption of the CTA plan.

#### Douglas Park

The Board is currently considering a proposal for the abandonment of the rail service through the Town of Cicero and the City of Berwyn, now operated on the Douglas Park line. Substitution of buses on this portion of the route would produce net economies estimated at approximately \$350,000 per annum. These savings would result largely from closing nine stations and eliminating twenty-eight grade crossings with watchmen and gates west of Cicero Avenue. It is also proposed to eliminate ten stations east of Cicero Avenue and make minor revisions in certain other stations.

At Cicero Avenue, a new terminal for buses would be built on the west side of the street and a terminal for rail service would be constructed on the east side with a pedestrian overpass connecting the two terminals. It is estimated that the capital cost of these improvements would be largely offset by the sale of real estate at 55th Avenue now used for a storage yard.

Some improvement in service would result from the greater frequency of vehicles and the closer spacing of stops on the bus extension replacing the rail service west of Cicero Avenue, and by the inauguration of a skip-stop plan east of Cicero which would save several minutes per trip for the great majority of passengers. We have reviewed the report and supporting data developed by the CTA staff and consider that the improvements to service east of Cicero Avenue are sound and should be made effective at the earliest practicable date.

We would not consider the balance of the plan, however, as a satisfactory permanent solution to the problem of providing adequate rapid transit to this important sector of the metropolitan district. There has been vigorous growth during the past generation in all of the southwest suburban area, which might be considered as logical feeder areas to this rapid transit route. There is every indication that this activity, both in Cook County and DuPage County to the west, will continue and that there will be additional and vigorous development of residential districts, industrial areas and commercial centers. It is logical, therefore, that long-range plans for this rapid transit operation should provide for the utilization of the existing private right-of-way with a terminal at Oak Park Avenue in Berwyn. It is recommended, therefore, that ownership of both the right-of-way and the existing terminal yard in the vicinity of 55th Avenue be retained.

The ultimate plan should provide for the construction of a fully grade-separated modern two-track electric railroad between the Chicago city limits and Oak Park Avenue. Such an improvement would involve a capital outlay of about \$6,000,000. Such expenditure is not warranted now in view of the more urgent need for other capital improvements on the system.

We are in full agreement with the proposal to curtail dangerous and costly operation at street grade through Cicero and Berwyn as a temporary expedient. We question the advisability, however, of terminating the services in the vicinity of Cicero Avenue. It should be noted that there are numerous large industrial establishments between Cicero Avenue and 56th Avenue and that there are new noteworthy industrial plants along 54th Avenue. It is our opinion that the Douglas Park rapid transit operations would be much more serviceable if extended to a terminal at 56th Avenue. This would require the maintenance of crossing protection at but six grade crossings as compared with the 28 now existing. While this would reduce the total economies as estimated by the CTA staff, it would permit the retention of the yard at 55th Avenue which would produce certain economies, thereby partially offsetting such loss. The tracks could be elevated between Cicero Avenue and 54th Avenue at a reduced cost through the utilization of some of the elevated structure to be removed during the construction of the Congress Street Expressway. The CTA Chief Engineer's office has estimated this cost at approximately \$2,000,000. It is our recommendation that the alternate terminal location at 56th Avenue be adopted.

### Normal Park

The Normal Park Branch costs almost \$70,000 per year in direct operating costs. The small area tapped by this elevated route is well served by a number of surface routes, as well as by suburban trains operated by the Rock Island Railroad.

The wastefulness of the service is illustrated by the results of a recent study. On a typical weekday 4,680 seats were provided to accommodate 1,097 passengers. On a Saturday, seats outnumbered passengers approximately twelve to one, and on a Sunday, approximately twenty-seven to one. This service could more properly be placed where it is actually needed for the movement of substantial numbers of people. Opportunities for improvement in service are lacking here. The abandonment of the Normal Park Branch without provision of a substitute bus service is, therefore, recommended.

### FEEDER SERVICE TO RAPID TRANSIT STATIONS

The importance of planning and providing feeder service by local bus routes to rapid transit transfer stations located in the outer section of the city has been mentioned in the earlier part of this report. Suggestions for improving service now rendered on the Douglas Park and Garfield Park rapid transit lines have also been covered. There may be an additional opportunity for improvement of service on the north side rapid transit line, and this will be discussed subsequently.

### Surface Division

The Chicago Transit Authority has instituted a number of changes in operation since 1947 which were intended primarily to encourage long-haul passengers to transfer to the rapid transit system. Other changes of this type are currently being considered and some will be inaugurated in the very near future.

The Western Avenue car line, for example, has been terminated on the north at Berwyn. A new bus route has been installed between Howard Street (the former street car terminal) and the Western Avenue Station on the Ravenswood rapid transit line. At this latter point an

off-street loop has been established for convenient interchange of passengers between buses and trains. It is recommended that studies be undertaken to determine the best manner of providing improved transfer facilities at the terminals of the Ravenswood, the Jackson Park, the Englewood, and the Lake Street rapid transit routes.

Several feeder lines serve the northerly section of the north-south rapid transit route. The Touhy-Rogers and the Skokie bus lines terminate at the Howard Street Station. The Devon Avenue feeder bus route should terminate at Loyola Station where all trains stop, but on account of the objections of property owners along the proposed route this has not been done. As an alternate, the route is now operated south on Broadway to the CTA property at Ardmore, facilitating transfers to both Granville and Thorndale Stations on the rapid transit line and overlapping the Broadway street car service.

The Lawrence Avenue bus line was routed so that the terminal loop on the east end would be within one block of the Wilson Avenue rapid transit terminal at which point transfers to the rapid transit lines are accepted.

On June 24 the Armitage-Downtown two-man street car line and the Armitage Crosstown one-man car line were discontinued and new bus service inaugurated on Armitage from Grand to Clark. The through bus service is supplemented in the rush hours by a service from Grand to Western Avenue station on the Logan Square branch of the rapid transit line.

Shuttle services are operated in the A.M. rush hour both on Chicago Avenue and on Grand Avenue from the east terminals to connections with the Milwaukee Avenue subway on the west.

Service is provided on the west side for the people who formerly used the Paulina elevated by the Morgan-Racine bus route between Van Buren and Racine and a new terminal at Grand-Halsted-Milwaukee to provide a transfer to and from the Milwaukee-Dearborn subway.

A new car line terminal was installed at 79th and Halsted Streets for the Halsted service, and from that point a new motor bus extension is now operated to 111th Street.

In order to accommodate passengers transferring from the Racine Station on the Englewood rapid transit line, a special service

has been installed in the evening rush hour operating from that station to the southern terminal of the line.

On July 1, the Stony Island two-man car line was converted to a bus line and a new terminal established at the 51st Street station on the north-south rapid transit route. This provides transfer connections to the rapid transit line and to the 51st Street, Indiana Avenue, and Cottage Grove Avenue surface routes.

These changes have been effective in shifting additional passengers to the rapid transit system of the CTA, and a gain in rapid transit traffic was achieved in spite of the two-cent differential in fares which has prevailed since 1947.

It is expected that the operation of 200 modern rapid transit cars and improved service provided by the Milwaukee-Dearborn Subway will attract more traffic to the high speed, low cost, rapid transit system. The trend toward greater use of rapid transit facilities since inception of CTA, as shown on the following statement, has taken place despite great expansion of the surface system and some curtailment of rapid transit services.

Division of Total Revenue Passengers  
Between Surface and Rapid Transit Services

<u>Year</u>	<u>All Local Surface Operations</u>	<u>Rapid Transit</u>
1945	82.78	17.22%
1946	83.95	16.05%
1947	84.80#	15.20%
1948	84.10#	15.90%
1949	83.89#	16.11%
1950	83.48#	16.52%

#-Does not include rapid transit-to-surface division passengers after October 1, 1947, accounting for about 0.26 points of reductions indicated in each full year after that time.

Evanston and North Suburban Service

Various agreements between the CTA and its predecessors provide for joint operation between Wilmette and the Roosevelt Road terminal on the elevated system. The North Shore trains are permitted to stop at four stations in Evanston for the purpose of receiving or discharging passengers from or to points north of Laurel Avenue in Wilmette. These trains are also permitted to stop at Wilson Avenue, Belmont Avenue, North Water Street and various stations on the elevated loop. Passengers may transfer at these stations and ride at no charge to any point within the single fare zone of the rapid transit system.

Thus there is a duplication of service on the entire north side system extending from the Union Loop to Wilmette. In addition, there are frequent delays due to conflicts between North Shore trains, which are operated at somewhat irregular intervals, and the Chicago Transit Authority trains. Rapid transit service should be operated with clock-like regularity and the present joint use of facilities interferes with such smooth and efficient operation.

A petition was filed by the Chicago, North Shore & Milwaukee Railroad Company with the Illinois Commerce Commission in December 1948, requesting authority for the abandonment of its Shore Line Route. After extended hearings the Commission entered an order on February 21, 1951 which is quoted in part, as follows:

"that Chicago, North Shore and Milwaukee Railway Company develop and present to the Commission, at a hearing to be held within ninety (90) days from the date of this order, a statement showing what arrangements can be made with C.T.A. to effect (a) a transfer of passengers at the Howard Street Station, (b) the introduction of joint through rates between Shore Line and C.T.A. points, and (c) the turning back of Shore Line trains at Howard Street; and what the estimated effect of such arrangements on Shore Line operating results and on system operating results, separately, would be."

We are advised that an extension of the period for submitting the required statement was later granted. This order was based on testimony submitted at the hearings to the effect that the services of

the North Shore Railroad might be improved and that there would be a reduction in operating expenses if the Shore Line could be terminated at Howard Street.

The question arises as to whether the best arrangement from all viewpoints might be to provide a satisfactory transfer terminal at Howard Street which would constitute the north terminal for the operation of the CTA rapid transit service and the south terminal of the CNS&M RR services. Adequate and convenient facilities could be provided for transferring passengers at this point, which is at the north limits of the City of Chicago, and it seems reasonable to presume that satisfactory arrangements could be perfected for transfer charges between the two carriers. It is recommended that a careful study be made of this by the staff of the Chicago Transit Authority at the earliest practicable date.

#### OTHER COMMENTS ON RAPID TRANSIT OPERATIONS

The importance of proceeding energetically with the improvement and modernization of the entire rapid transit system has been emphasized in the foregoing discussion. A necessary part of this program is the purchase of the additional modern rapid transit cars to fully equip all rapid transit lines. The system should be completely signaled when and as additional capital funds are available.

The prevailing view held by some members of the Board as well as by the staff has been that the rapid transit system operates at a substantial loss, and hence the service should be curtailed in every way. It should be obvious, however, that a satisfactory solution to the problem of providing adequate transit to the central business district will never be found through the curtailment of service on existing off-street facilities and continued additions of rubber-tired vehicles which must of necessity operate on the congested loop streets. Travel on these vehicles, now operating at less than walking speeds in the heart of the central district, will become increasingly difficult and slower as more automobiles are owned and operated by Chicagoans.

The Auditor's report for the calendar year 1950 has been reviewed for the purpose of determining the results of the rapid transit operations in that year. This report shows that, without adjustments



of any character, the rapid transit operations cost \$1,874,473 more than the revenues during 1950. This deficit would be reduced to \$1,055,691, however, by making suitable adjustments in the proportion of the general and overhead expenditures charged to rapid transit operations, and by apportioning the revenues from passengers transferring between rapid transit and surface divisions on the division of joint revenues prescribed by the Illinois Commerce Commission some years ago. Inasmuch as those transfer passengers ride at least three times as far on rapid transit trains as on street cars or buses, we are of the opinion that a division of joint revenues on the basis of 70 per cent to rapid transit and 30 per cent to surface would be somewhat more equitable distribution. Should such adjustment of the joint revenue be made, the rapid transit division would have had an operating income of \$108,835 in the year 1950. The cost of station attendants and other items of rapid transit operating costs are fixed, but, with modern equipment, only two men are required for the operation of trains of any length from two to ten cars. It is apparent, therefore, that there are abundant opportunities for improving the operating income of the rapid transit division by increasing the use of this class of service.

#### Mechanical Vending Equipment

The coin-operated turnstiles which have been installed in the State Street and Dearborn Street subways have had almost no use due to the absence of a schedule of fares which would invite the use of tokens. As a result, virtually all passengers pass the cashiers' booths. Manual collection of fares delays the movement of passengers through stations. There are a number of stations, both in the subway and on the elevated, but principally in the central business district, where more than one agent is required in rush hours. Nevertheless, long queues extending from the cashiers' booths to the stairways of downtown subway stations are not unusual during the P.M. rush hour periods.

Such delays and unnecessary operating expense could be eliminated through the installation of modern token vending equipment in rapid transit stations. Token vending and change making machines could be installed in the entrances to various stations and transfer issuing machines installed in suitable locations in the prepaid areas beyond the turnstiles.

A preliminary estimate has been made of the economies that might be effected by the use of such token-vending and transfer-issuing machines. If used to the fullest feasible extent, savings upwards of \$150,000 per annum could be effected. Convenience would be improved through the elimination of delays to passengers at rapid transit stations. Your consultants recommend that efforts toward this objective be continued.

That such equipment is efficient and practical is evidenced by its installation throughout the London subway system more than fifteen years ago. In London, these machines vend tickets on a zone-fare system, with a variety of fares ranging from 4 cents to more than 20 cents. The machines take any coin up to the English equivalent of a half dollar, issue the ticket and return the proper coin to the passenger.

#### POWER COSTS

The cost of power is an important factor in the determination of the character of equipment. During 1950, the Authority expended \$9,359,479 for purchase of power and the operation and maintenance of A.C. to D.C. conversion equipment. Almost all power is purchased from the Commonwealth Edison Company in the form of alternating current. The contracts run to May 1, 1959.

Significant cost figures for 1950 are stated in the accompanying table:

Summary of 1950 Power Costs

	<u>Amount</u>	<u>Cost per D.C. KWH</u>
<u>For A.C. Energy Purchased and Converted</u>		
Within Chicago:		
Total Edison A.C. Charges	\$ 7,220,218	1.1591¢
Conversion Charges	<u>1,583,166</u>	<u>0.2541</u>
	<u>\$ 8,803,384</u>	<u>1.4132¢</u>
Outside Chicago:		
Total Public Service A.C. Charges	\$ 298,944	1.3636¢
Conversion Charges	<u>91,081</u>	<u>0.4154</u>
	<u>\$ 390,025</u>	1.7790¢
Combined	\$ 9,193,409	1.4257¢
<u>For D.C. Energy Purchased as Such</u>		
Total Public Service D.C. Charges (All Outside Chicago)	<u>166,071</u>	<u>1.9394¢</u>
System Total	\$ 9,359,480	1.4324¢

The combined A.C. power purchases, after conversion, average 1.4257 cents per D.C. kilowatt-hour. This high unit cost for electrical energy used by the CTA does not invite extensions of the use of electrical equipment. Before the purchase of any new street cars or trolley buses for replacements, we recommend a detailed analysis of the comparative operating and maintenance expenses of the alternate types of equipment then available.

## ORIGIN-DESTINATION SURVEY

No comprehensive origin-destination counts have been made in Chicago for more than thirty years. In the absence of such essential data, development of plans for fixed rapid transit terminals, transfer stations and feeder bus services must be based largely on judgment.

Such a survey would provide accurate and invaluable data for planning service additions and betterments, as well as for any and all changes in routing. The cost of the undertaking is extremely small as compared with the potential benefits. An origin-destination survey was made for the Cleveland Transit System in the year 1945, with the assistance of Boy Scouts, at a total cost of less than \$10,000. It is estimated that a similar survey could be conducted by the Chicago Transit Authority at a cost of less than \$30,000. We recommend that such survey be planned and conducted at an early date, preferably during next October. It is noted that there is a current proposal for an origin-destination survey covering drivers of motor vehicles in the Chicago metropolitan area. Such motor vehicle survey would provide useful data, and it would be advantageous from all viewpoints if the two surveys could be coordinated.

## MANPOWER SHORTAGES AND EMPLOYMENT PRACTICES

The Chicago Transit Authority has maintained full staffs in all departments, despite the rapid retirement of older employees under a liberalized pension system, except in the Transportation Department. This department is by far the largest, normally employing approximately two-thirds of the 19,000 total workers. The largest portion of this group consists of the motormen, conductors, guards and bus operators, numbering more than 10,000 men.

In April 1951 there was a shortage of approximately 400 employees in these classifications. As a result, service suffered to the extent that during that month 102 runs were held in on the surface system due to the shortage of operating personnel. During this same month, 13,000 or 34 per cent of the 38,000 man-runs worked on the surface system were operated wholly or in part with

hours paid for at overtime rates. This overtime was above that called for by the schedules. Similarly, in the rapid transit division, nearly 1,600 man-runs, of a total of 5,000 operated in April, were filled wholly or in part with hours paid for at overtime rates. The total cost in overtime pay, due entirely to the shortage of transportation employees, is currently running at the rate of approximately \$60,000 per month.

Despite an intensive advertising campaign to attract applicants, the average number of men employed for platform jobs in the 27 weeks starting November 3, 1950 was only 35. During this same period an average of 54 men per week left the service for various reasons, including those going into retirement. The net loss during the period was 516 men.

The most serious part of this situation is that the majority of those leaving the service are highly desirable men who should be retained, if possible. On the other hand, those being employed are somewhat below the standards that have obtained until recent months. For example, the maximum age limit has been increased from 39 to 44 years, medical standards have been lowered, the "Motorability Test" as a prerequisite to employment has been eliminated, and other portions of previously required qualifications have been waived.

No consistent and well-planned efforts are being made at the present time to dissuade men who announce their intention to resign. It is recommended that a highly qualified individual be assigned to interview every train service employee before his resignation is accepted. Experience elsewhere has been that this practice reduces the number of resignations among those announcing their intention to leave. At the same time, if the interviews are properly conducted, information can be gathered to guide changes in working conditions so that fewer men will be dissatisfied. Also, new applicants will become more numerous and of higher calibre to the extent that unfavorable conditions can be detected and overcome.

The men who should produce the most recruits for the transportation department are those already employed. If they are sold on their jobs, it should be easy for them to sell their friends on the desirability of working for CTA. It is recommended that a concerted program be carried out to put into the hands of the present transportation employees, all of the sales arguments that can be mustered for use by trainmen and operators to induce their friends to apply for

jobs. Those who are successful in bringing in acceptable applicants should be suitably awarded, as the practice has been on other properties.

A comparison of pay hours in various months indicates that the number of employees has not been reduced in keeping with shrinking traffic, considering the reductions in staff which should have been possible with conversion from two-man cars to one-man buses on many routes. This factor is clouded, however, by the steadily increasing amounts paid for bonuses and premiums. In April 1951, for example, almost nine per cent of the pay hours represented bonus, premium, sick leave or other time paid for but not worked.

#### Expendable Jobs

A number of wasteful personnel practices have been brought to our attention, however, which indicate need for general review of manpower requirements and potential reductions. There appear to be a number of economies possible through elimination of unnecessary employees. For instance, there is one small department of five people with no duties other than to buy and deliver U.S. Savings Bonds for the employees. The combined salaries of these five exceed \$20,000 per annum. The Federal Reserve Bank has advised the CTA that it will issue and deliver these bonds to the employees at no cost, if given the necessary information. Such information is now being furnished to the five-man department.

An even more wasteful situation exists in that thirteen people on the pay roll are so unfitted for the type of work to be done that no assignments have been found that they are capable of performing. All of these employees are hold-overs from previous administrations. They could be dispensed with at a saving in salaries of approximately \$48,000 per year.

Likewise, the Track Department maintains seven traveling time-keepers and a supervisor whose only duties are to double check on the records of the various track foremen and to hand out the bi-monthly pay checks. Track crews working on the rapid transit division are not under this system, however, and operate efficiently without this apparently unnecessary overhead cost. Abolition of this force of time-keepers would save over \$28,000 per year.

The Transit Authority Act calls for an evaluation of all jobs excepting that of the Chairman of the Board, the General Manager, Secretary, Treasurer, General Attorney, and Chief Engineer. On the basis of the evaluation to date, there are many employees being overpaid anywhere from \$14.54 to \$189.00 a month. On a "sample" of 59 employees, this amounts to some \$35,000 a year. As soon as this evaluation is completed, these salaries should be adjusted.

#### Employment Not Guaranteed

There seems to be a misunderstanding on the part of some employees that their employment by one of the underlying companies prior to October 1, 1947, guarantees them employment by the CTA until they reach retirement age. The Chairman of the Board was advised by the then General Attorney, Mr. Werner W. Schroeder, on February 27, 1951, that this is by no means true. In essence, it is a legal opinion that the Chicago Transit Authority has full power to reclassify employees, discharge them for lack of work or funds, abolish an entire classification of employee, or reduce salaries as it sees fit, regardless of the classification or salary of any individual employee at the time the CTA commenced operations.

An examination of the detail of the general office payroll for May 1951 indicates that the progress to date in reduction of supervisory personnel has fallen short of the results anticipated at the time of the consolidation. The total number of general office employees as of October 1, 1947 was 714, as compared with the figure for the month of May 1951 of 693. Excellent progress was shown in the Accounting Department, where the number of employees was reduced during this period from 283 to 199. It appears that, except for the Accounting Department, general office employees have increased since the properties were taken over by the CTA from 431 to 494 employees.

Comparison of the records of employees in active service during May 1951 with the figures for earlier years reveals a similar situation with respect to other departments, as shown in the following tabulation:

CTA Employees in May 1948 and May 1951

	<u>1948</u>	<u>1951</u>
Trainmen - Surface	10,508	8,613
- Rapid Transit	<u>1,962</u>	<u>1,646</u>
	12,470	10,259
Total Active Employees	21,703	18,724
Less Trainmen	<u>12,470</u>	<u>10,259</u>
Other than Trainmen	9,233	8,465

During the three-year period, May 1948 to May 1951, the number of trainmen was reduced by 2,211, or 17.8 per cent. The reduction in the total of all of the other employees of the Authority amounted to 768, or 8.3 per cent of the total. In this same three-year period, revenue passengers originating on the entire system during the month of May decreased 25.2 per cent. The present situation calls for a vigorous program of elimination of non-essential personnel.

PUBLIC RELATIONS

The opinion seems to be widely held that the transit service in Chicago is of a lower quality than it is in other large cities. Strangely enough, this same opinion is held by bus riders in each of these cities concerning their transit service in comparison with others. The fact is that very few people have had an opportunity to use the service under comparable conditions in each of the cities, and it is likely that very few of the critics use transit service regularly even in their own towns.

The public can be made to believe that a transit system is the best in the world by the same influences that lead them to believe it is the worst. In Chicago, it would be more realistic for the molders of public opinion to educate the public to the fact that while the service is not perfect, intelligent and strenuous efforts are being made to improve it. Numerous recommendations for betterment of the service have been made herein. One of the most important is relief from traffic congestion.



This congestion is created, in large measure, by motorists, many of whom would be better served by public vehicles than they are by their own automobiles.

The CTA has 2,100,000 daily customers. Few major industries depend so completely for their public good will on the momentary contacts between their customers and a group of employees. Largely because of the adverse publicity the transit industry has received, CTA trainmen have become essentially defensive individuals.

Great strides have been made in training motormen, conductors and operators to run the new vehicles on the modernized transit system. It is recommended that this work be expanded as rapidly as possible to include training in salesmanship and courteous dealing with the customers whose fares pay the trainmen's wages.

#### RELATIONS WITH THE CHICAGO MOTOR COACH COMPANY

The Metropolitan Transit Authority Act and the Chicago Transit Authority Ordinance contemplated that the CTA would provide substantially all local transportation service within the metropolitan area. That objective has not as yet been realized, however, in that the contemplated acquisition of Chicago Motor Coach system has not been consummated.

The Chicago Transit Authority has the obligation to provide adequate and convenient transit service to all sections of the more than 200 square miles within the limits of the City of Chicago. During the past six years 48 individual extensions of routes and entirely new routes have been added to the system. Most of these serve sparsely settled sections in the outlying areas. All of these additional services, aggregating 210 single-way route miles, are operated at a loss.

Many other routes operated by the Authority, largely those in the more thinly populated sections of the city, are also unprofitable. The significance of this may be appreciated from the fact that, should the Authority eliminate all of its unprofitable routes, about one-third of the total, the remainder of the system could be operated profitably on a 13-cent fare.

Superimposed on the vast network of surface routes operated by the Authority, 1,507 single-way route-miles in all, is the system of bus lines operated by the Chicago Motor Coach Company consisting of 227 route-miles. As is well known, these routes are operated largely along boulevards and through parks from the several more important residential sections in the city to the central business district. What is not so well known is that these routes serve directly the residential areas where density of population of persons employed in the great central district is the greatest. The Chicago Motor Coach Company has certain advantages, therefore, which permit it to operate at a lower cost per passenger carried than could the operators of any city-wide system, no matter how efficiently operated.

In this connection it should be noted that the management of the Chicago Motor Coach Company is exceptionally efficient. Modern, well maintained equipment is owned and operated. Employee selection and training has been excellent and the morale of the personnel is high.

The continued operation of Chicago Motor Coach system in competition with Chicago Transit Authority has had and continues to have several important consequences. Practically all of the Motor Coach routes are in direct competition with somewhat comparable services of Chicago Transit Authority and are operated at times and in places where traffic densities are high. Consequently, the Chicago Motor Coach system has diverted revenues from the major system.

Illinois Commerce Commission orders of 1935 required exchange of transfers between the Chicago Surface Lines and Chicago Rapid Transit Company, and between Chicago Motor Coach and Rapid Transit, but not between Surface Lines and Motor Coach. There were limitations on the zones tributary to rapid transit stations and the points at which transfers could be made so that use of the privilege was small.

In 1943, however, the Illinois Commerce Commission issued orders which greatly expanded the privileges and also required an exchange of transfers between the Surface Lines and Motor Coach. The volume of transfer passengers between CTA and Motor Coach is now approximately 36 million per year, which is only three per cent of the CTA revenue passenger total, but close to 35 per cent of the total passengers handled by the Chicago Motor Coach Company.

Elimination of competition with attendant relief from duplicating services and expenses, would be highly beneficial to the public and would enable Chicago Transit Authority to improve its ability to provide satisfactory service throughout the metropolitan area at reasonable rates of fare. Negotiations for acquisition of Chicago Motor Coach system have so far been unproductive. It is recommended that they be renewed and the systems consolidated at the earliest possible date.

### PRESENT SERVICE

Standards of service rendered by the Chicago Transit Authority have followed the practices developed over a period of twenty years prior to establishment of the CTA. The avowed standards on various types of cars and buses are as follows:

<u>Type of Equipment</u>	<u>Standard of Passenger Loading in Rush Hours</u>
Motor and Trolley Buses	150% of seats plus 3 to 5 passengers (i.e. standard for 50-seat vehicle would be $50 \times 1.5 + 5 = 80$ )
Two-Man Street Cars	90-95
One-Man Cars	60-65
P.C.C. Cars	100-105
Old Rapid Transit Cars	85-90
New Rapid Transit Cars	100

Service rendered is based on a combination of two factors. In rush hours the number of cars or buses operated on a given line is determined by the number of passengers to be carried through the point of heaviest riding in each 15-minute period. On heavy routes this is also the criterion for the base period schedules. In off-peak hours and on Sundays, however, the service is sometimes based on "policy headways" which are established at the managerial level as being the widest headways desirable regardless of the volume of passengers to be served.

Traffic

Total revenue traffic on the CTA system during the month of May 1950 amounted to 68,824,963 passengers. During May 1951, 64,996,005 passengers were carried on the system. This is a decrease of 5.6 per cent.

Figures just released by the American Transit Association for May show that passengers carried by the transit industry of the United States for that month are as follows:

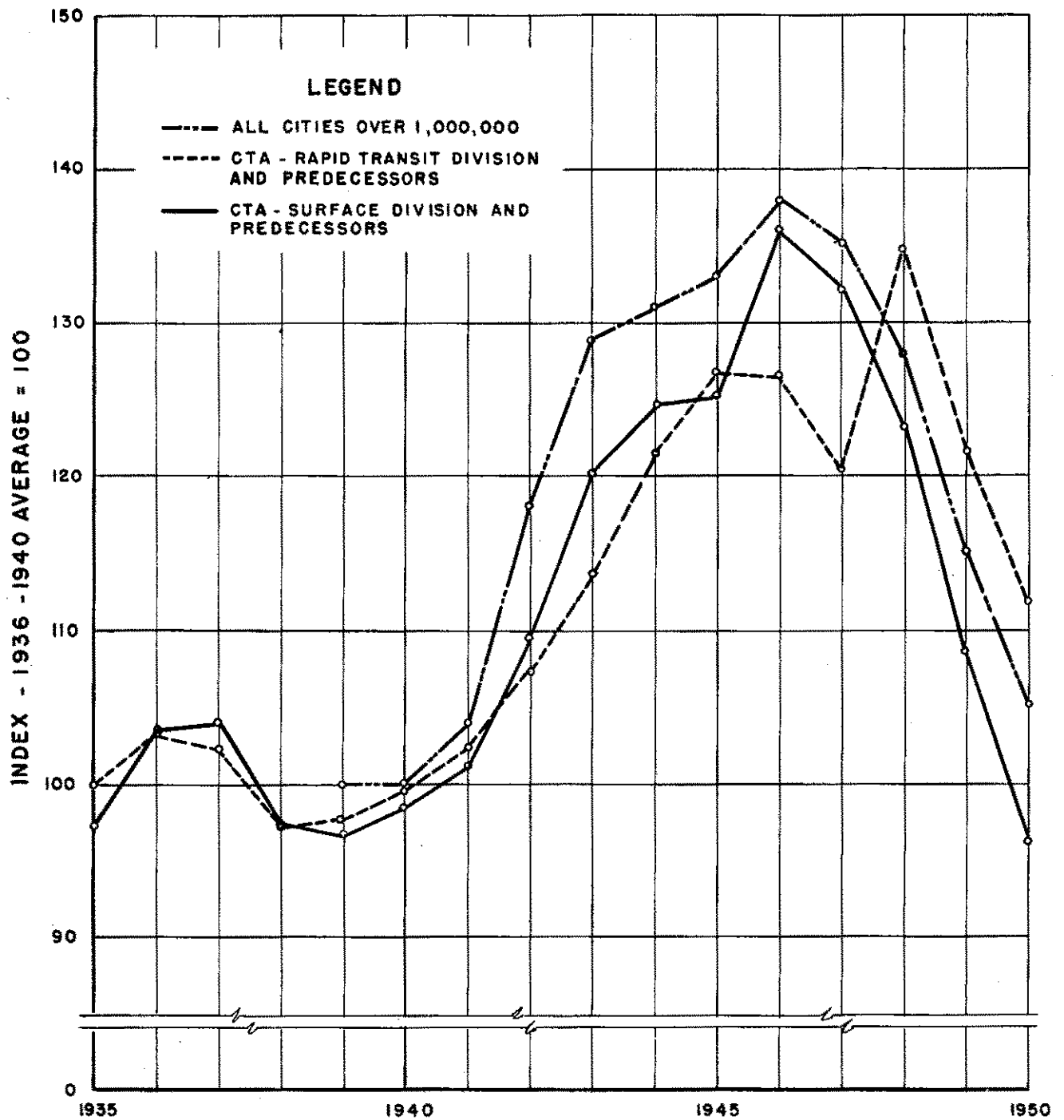
Month	Passengers (Thousands)
May 1951	1,386,508
May 1950	1,512,015
Decrease	8.30%

The release pointed out, however, that "The strike on the Detroit Department of Street Railways, which has been in effect since April 20, seriously affected the industry total. Excluding Detroit, the traffic for the balance of the industry declined only 6.50 per cent in May". It is interesting to note that the decline in traffic on the Chicago system is 14 per cent less than that throughout the entire United States.

The number of revenue passengers carried by the surface and rapid transit divisions, nevertheless, is now at approximately the same level that was reached in the lowest year of the depression (1932) and is still declining. See Exhibit 3.

Patronage has declined much more drastically in all of the off-peak periods of the week and during the weekend than it has during the morning and afternoon rush hours on the five weekdays. The number of revenue rides on an average Saturday in April 1951, for example, was 76 per cent of average weekday rides on the surface division, and 68.7 per cent on the rapid transit division. In contrast, in April 1945, Saturday riding was 97.5 per cent and 94 per cent of that on weekdays on the surface and rapid transit divisions, respectively.

The number of patrons on an average Sunday in April 1951 was 48.3 per cent of weekday patrons on the surface division and 30.7 per cent on the rapid transit division of the volume of riding on the respective systems on average weekdays during the same period. In April of 1945 these ratios stood at 68 per cent and 57 per cent, respectively.



REVENUE PASSENGERS CARRIED ON RAPID TRANSIT AND SURFACE DIVISIONS OF CHICAGO TRANSIT AUTHORITY COMPARED WITH TOTAL FOR ALL CITIES OVER 1,000,000 POPULATION ON BASIS OF INDEX TO 1936-1940 AVERAGE

DE LEUW, CATHER & COMPANY  
ENGINEERS  
CHICAGO

A study was made in March 1951 of the decline in riding in the base period from 10:00 A.M. to 2:00 P.M. and in the evening period from 7:00 P.M. to 10:00 P.M., as contrasted to the decline in total originating rides on certain selected routes. No weighted averages are available but the following statistics for selected lines illustrates the change that took place between 1948 and 1950. This trend has continued into 1951.

On the Ashland Avenue line, for example, the number of originating rides decreased 20.4 per cent between 1948 and 1950, but the base period riding declined 25.7 per cent and evening riding 38.9 per cent. On the Milwaukee Avenue line the decreases in riding for total, base, and evening periods were 11.5, 30.2 and 38.4 per cent, respectively.

#### Wasteful Service Policies

When the properties were taken over by the Chicago Transit Authority in October 1947, the Board adopted the policy of providing additional service throughout the system. The extent of the added service during the first few months was at the rate of approximately one million dollars per annum in trainmen's wages and other out-of-pocket costs. This high rate of service continued at least until the summer of 1948. From our investigation it becomes apparent that this unusual and somewhat wasteful policy has been carried through on many sections of the system during the entire four-year period.

The Schedule Department has attempted to keep abreast of changing conditions, including the modernization of individual lines, by writing 425 to 475 schedules per year since inauguration of the CTA. For the most part, these schedules have maintained much better service than the standard of loading during rush hours prevailing prior to 1947. Service has not been reduced during off-peak periods, including evenings and nights, nor on Saturdays and Sundays, to compensate for the great drop in riding that has occurred during these periods.

A large portion of the modernization on the surface division occurred between March 1947 and March 1951. During this time, number of revenue passengers carried on the surface division declined 30.9 per cent. Schedules were changed frequently during the period to adjust the service to fit the new vehicles, including changes in running time and the gradual re-training of operators, many of whom were transferred from street cars. It would seem that these

schedules would also have been adjusted closely to the declining volumes of traffic so that the quality of service would be retained at approximately the level of 1947.

This was not done. Table III shows that on numerous routes the number of revenue car or bus-miles in 1951 was nearly the same as in 1947, despite a sharp decrease during that time in volume of revenue passengers carried on these specific routes. This failure to adjust schedules in keeping with the changing volumes of traffic produced a loss in revenue passengers per car-mile or bus-mile equal in many cases to the corresponding decrease in total number of revenue passengers.

Smaller vehicles were substituted for two-man cars in some instances. There were almost an equal number of cases, however, in which the vehicle replaced had a lower rush hour capacity than the type of bus installed. The weekday rush hours, moreover, account for only a very small portion of the total period of the week. The new vehicles, in almost all cases, were capable of seating as many or more people as the vehicles replaced. This criterion should govern the making of schedules for all of the base period, the evening hours, the Owl service, and the service on weekends. These periods, in the aggregate, account for a very large portion of the car-miles or bus-miles operated during a week.

In summary, the right-hand column in Table III would have indicated little or no change between 1947 and 1951 in revenue passengers per car or bus-mile if schedules had been adjusted on a realistic basis to conditions of declining traffic. Instead, miles were held relatively constant and revenue passengers per car or bus-mile allowed to decline. This is a matter which should have been of primary concern to the management.

Table IV shows the results of recent actual load checks on a number of representative lines, reduced to the excess of service (deficiencies in a very few instances) over the avowed standards of loading in various periods of the day.

Opportunities for Economies

It is obvious that there is abundant opportunity for substantial reductions in operating expenses. The only conceivable policy in this situation is to re-schedule the numerous routes in the system so as to produce, as nearly as practicable, the accepted standards of loading during all periods of the day and all days of the week. Even in rush hours, service should be reduced in most cases, but on a few lines it might well be improved to correct the causes of complaints of overcrowding during peak periods.

This policy has been successfully applied by most transit companies during the period of rapidly declining business since the end of World War II. These companies have minimized inconvenience to the public due to widened off-peak headways by distributing time tables on the vehicles or by posting schedules at car and bus stops.

That these greatly widened headways have not caused any significant loss in business for the companies which have installed them is illustrated by an experiment in St. Louis. After a period of reduced off-peak service, the headways on two bus routes and two street car routes were established at very attractive frequencies by approximately doubling the service. This improvement was accompanied by advertising through several mediums. After a reasonable time to permit the public to become acquainted with the added service, detailed traffic checks were made. These showed, however, that the increased patronage on these routes was sufficient to pay only about 25 per cent of the out-of-pocket operating costs, or 15 per cent of the total costs, that had been incurred in doubling the base service. This supports our opinion that much wider off-peak headways on a number of surface routes in Chicago would produce substantial savings in operating costs without serious loss in revenue.



TABLE III

CHICAGO TRANSIT AUTHORITY - SURFACE DIVISION

COMPARISON OF TOTAL REVENUE PASSENGERS AND REVENUE PASSENGERS  
PER MILE ON TYPICAL ROUTES IN MARCH 1947 AND MARCH 1951

Vehicle in Use as of <u>June 1, 1951</u>	<u>Substitution in Type of Vehicle</u>	<u>Conversion#</u>	<u>Date</u>	<u>March 1947</u>			<u>March 1951</u>			<u>Per Cent Change Between 1947 and 1951</u>	
				<u>Total Revenue Pass. Add 000</u>	<u>Car or Bus Miles Add 000</u>	<u>Revenue Pass. per Mile</u>	<u>Total Revenue Pass. Add 000</u>	<u>Car or Bus Miles Add 000</u>	<u>Revenue Pass. per Mile</u>	<u>Revenue Pass. per Mile</u>	<u>Revenue Pass. per Mile</u>
<u>Trolley Buses</u>											
Belmont	TMC & TB to TB		January 9, 1949	1,120	142	7.9	794	147	5.4	-29	-32
Central	-		-	862	191	4.5	556	143	3.9	-36	-13
Diversey	-		-	614	109	5.6	389	86.4	4.5	-37	-20
Fullerton	TMC to TB		December 4, 1949	891	99.3	9.0	518	92.6	5.6	-42	-38
Irving Park	TMC to TB		November 7, 1948	1,006	124.9	8.1	625	115	5.4	-36	-33
Montrose	MB to TB		April 19, 1948	659	105.3	6.3	455	97.5	4.6	-31	-27
Narragansett	-		-	88.4	27.0	3.3	54.1	24.8	2.2	-39	-33
North	TMC to TB		July 3, 1949	1,117	126	8.9	792	127	6.2	-29	-30
51st	OMC & MB to TB		June-August 1948	897	114	7.9	664	96.7	6.9	-26	-13
Lawrence	OMC to TB		April 1, 1951	936	101.9	9.2	592	93.3	6.3	-37	-32
<u>One-Man Cars</u>											
Armitage	-		-	548	81.3	6.7	232	50.3	4.6	-58	-31
Lake	TMC to OMC		October 1949	784	118.9	6.6	387	85.6	4.5	-51	-32
43rd	-		-	460	37.7	12.2	359	35.9	10.0	-22	-18
67th-69th	-		-	764	105.7	7.2	492	86.6	5.7	-36	-21
79th**	TMC to OMC		October 1949	987	116.0	8.5	487	77.6	6.3	-51	-26
87th	-		-	149	45.2	3.3	115	45.8	2.5	-23	-24
Ogden	TMC to OMC		December 1949	551	93.8	5.9	307	82.3	3.7	-44	-37
Cicero**	TMC to OMC		August 1950	1,108	142.6	7.8	539	101.5	5.3	-51	-32

TABLE III--Continued

Vehicle in Use as of <u>June 1, 1951</u>	Substitution in Type of Vehicle <u>Conversion#</u>	<u>Date</u>	<u>March 1947</u>			<u>March 1951</u>			Per Cent Change Between 1947 and 1951	
			Total	Car or	Revenue	Total	Car or	Revenue	Revenue	Revenue
			<u>Pass.</u> Add	<u>Miles</u> Add	<u>per</u> <u>Mile</u>	<u>Pass.</u> Add	<u>Miles</u> Add	<u>per</u> <u>Mile</u>	<u>Pass.</u>	<u>per</u> <u>Mile</u>
<u>Two-Man Cars</u>										
Ashland	-	-	2,962	464	6.4	1,821	321	5.7	-38	-11
Blue Island**	-	-	921	109	8.5	483	69	7.0	-48	-18
Broadway-State	-	-	4,865	630	7.7	3,817	531	7.2	-22	- 6
Cermak	-	-	913	103	8.9	429	57	7.5	-53	-16
Chicago*	-	-	1,714	190	9.0	922	122	7.6	-46	-16
Clark-Wentworth	-	-	4,371	579	7.5	3,341	512	6.5	-23	-13
Cottage Grove	-	-	3,032	474	6.4	1,689	282	6.0	-44	- 6
Halsted	-	-	3,962	575	6.9	2,467	356	6.9	-38	0
Kedzie	-	-	2,131	325	6.6	1,166	198	5.9	-45	-11
Lincoln-Indiana	-	-	2,649	331	8.0	360	56	6.4	-86	-20
Madison*	-	-	3,128	315	9.9	2,207	245	9.0	-29	- 9
Milwaukee	-	-	2,743	436	6.3	1,774	346	5.1	-35	-19
Pulaski**	-	-	1,631	230	7.1	848	140	6.1	-48	-14
Roosevelt	-	-	1,634	194	8.4	1,197	167	7.2	-27	-14
Stony Island	-	-	1,290	173	7.5	666	111	6.0	-48	-20
Wallace-Racine*&**	-	-	899	140	6.4	460	94	4.9	-49	-23
Western	-	-	2,499	522	4.8	1,662	341	4.9	-33	+ 2
63rd	-	-	2,678	319	8.4	1,824	229	8.0	-32	- 5
<u>Motor Buses</u>										
Archer and Archer Express	TMC & MB to MB	May 30, 1948	1,176	275	4.3	942	325.4	2.9	-20	-33
Austin	-	-	213	61.0	3.5	137	60.0	2.3	-36	-34
S. California	-	-	594	113	5.3	551	133.3	4.1	- 7	-23
Clybourn	TMC to MB	May 4, 1947	441	62.1	7.1	277	68.6	4.0	-37	-44
S. Damen	OMC & MB to MB	January 26, 1948	116	30.1	3.1	101	33.9	3.0	-13	-23

TABLE III--Continued

Vehicle in Use as of <u>June 1, 1951</u>	Substitution in Type of Vehicle <u>Conversion#</u>	<u>Date</u>	<u>March 1947</u>			<u>March 1951</u>			Per Cent Change Between 1947 and 1951	
			Total	Car or	Revenue	Total	Car or	Revenue	Revenue	Revenue
			<u>Pass.</u> Add	<u>Miles</u> Add	<u>per</u> <u>Mile</u>	<u>Pass.</u> Add	<u>Miles</u> Add	<u>per</u> <u>Mile</u>	<u>Pass.</u>	<u>per</u> <u>Mile</u>
<u>Motor Buses</u> (Cont'd)										
S. Deering- Windsor Park	OMC to MB	April 25, 1948	792	135	5.9	586	124.1	4.7	-26	-20
Foster-Northwest Highway	-	-	487	123	4.0	309	112.4	2.7	-36	-33
Harrison	TMC to MB	February 29, 1948	1,040	117	8.9	793	133.2	6.0	-24	-33
Hegewisch- South Chicago	-	-	385	130	3.0	483	162.7	3.0	+25	0
Higgins	-	-	142	42.0	3.4	87.6	36.3	2.4	-38	-29
Kimball	-	-	277	49.7	5.6	179	46.1	3.9	-35	-30
Kedzie-Homan	MB extended to include part of Kedzie TMC Line	December 4, 1949	715	97.1	7.4	843	160.8	5.2	+18	-30
Laramie	-	-	178	32.5	5.5	118	28.4	4.2	-34	-24
Morgan-Racine	OMC to MB	July 25, 1948	224	48.7	4.6	166	48.3	3.4	-26	-26
Pershing	OMC & MB to MB	January 26, 1948	303	42.8	7.1	374	73.3	5.1	+23	-28
Peterson	-	-	169	53.3	3.2	126	48.5	2.6	-25	-19
S. Pulaski	-	-	133	54.1	2.5	110	51.6	2.1	-17	-16
Taylor-Sheffield	TMC to MB	August 31, 1947	643.9	86.4	7.5	547.1	99.2	5.5	-15	-27
31st	TMC to MB	February 29, 1948	244.1	25.8	9.5	172.2	28.2	6.1	-29	-36
59th-61st	OMC & MB to MB	February 16, 1948	652.9	93.0	7.0	476.3	96.0	5.0	-27	-28
63rd-65th	TMC to MB	April 11, 1948	42.4	6.6	6.4	66.1	22.6	2.9	+56	-55
71st	OMC & MB to MB	May 22, 1947	178.8	28.9	6.2	167.7	32.2	5.2	- 6	-16
74th-75th	-	-	444.6	83.6	5.3	291.3	64.3	4.5	-35	-15
103rd-106th	-	-	372.7	100.2	3.7	241.3	87.4	2.8	-35	-24
111th East	-	-	250.8	38.0	6.6	171.9	33.4	5.1	-31	-23

TABLE III--Continued

Vehicle in Use as of <u>June 1, 1951</u>	Substitution in Type of Vehicle <u>Conversion#</u>	<u>Date</u>	<u>March 1947</u>			<u>March 1951</u>			Per Cent Change Between 1947 and 1951	
			Total Revenue	Car or Bus	Revenue	Total Revenue	Car or Bus	Revenue	Revenue	Revenue
			<u>Pass.</u> Add 000	<u>Miles</u> Add 000	Pass. per <u>Mile</u>	<u>Pass.</u> Add 000	<u>Miles</u> Add 000	Pass. per <u>Mile</u>	<u>Pass.</u>	per <u>Mile</u>
Motor Buses (Cont'd)										
Elston	TMC & TB to MB	January 22, 1951	587.4	141.2	4.2	321.7	110.9	2.9	-45	-31
N. Damen	OMC to MB	May 13, 1951	671	75.1	8.9	437	66.6	6.6	-35	-26
93rd-95th	OMC to MB	May 27, 1951	223	38.3	5.8	151	38.4	3.9	-32	-33
Grand	TMC to MB	April 1, 1951	1,172	200	5.9	660	128	5.2	-43	-12
47th	TMC to MB	April 15, 1951	1,206	107	11.3	835	81	10.3	-31	-9
System-Wide Average									30.9	

\*-Includes partial one-man car service at present.

\*\*--Motor bus operation on weekends - not shown here.

#-T.M.C. = two-man car; O.M.C. = one-man car; T.B. = trolley bus; M.B. = motor bus.

TABLE IV

STANDARDS OF SERVICE RELATED TO ACTUAL LOADS  
BEING CARRIED IN THE SPRING OF 1951  
ON REPRESENTATIVE SURFACE ROUTES

<u>Route</u>	<u>Type of Equipment*</u>	<u>Average Excess of Service Over Avowed Standards of Loading</u>			
		<u>A.M. Rush</u>	<u>Base</u>	<u>P.M. Rush</u>	<u>Evening</u>
Armitage X	OMC	1.71	2.80	1.55	2.58
Ashland **	TMC				
Southbound		1.22	1.28	1.23	1.24
Northbound		.92	1.09	1.20	1.44
Austin **	GB	1.32	-#	1.20	-
Belmont	TB	.97	.95	1.10	1.80
Blue Island	TMC	1.30	-	1.53	-
Cermak	TMC	1.30	1.80	1.23	1.50
Chicago	TMC-OMC	1.30	-	1.06	-
Cicero-South	GB	1.14	1.45	1.24	4.57
Clybourn**	GB	1.42	-	1.27	-
Cottage Grove	TMC	1.21	-	1.07	-
Damen-South	GB	1.72	-	1.55	-
Diversey	TB	1.12	1.16	1.16	1.80
Division	GB	1.11	-	1.19	-
Elston	GB	1.34	3.83	1.37	4.60
Foster-Northwest Highway **	GB	1.58	1.45	1.39	1.14
Fullerton **	TB	1.20	3.33	-	1.05
Grand	GB	1.24	-	1.30	-
Irving Park	TB	1.23	-	1.23	-
Kedzie	TMC	1.40	2.57	1.32	1.80
Kedzie-Homan	GB	1.25	-	.97	-
Lake **	OMC	1.44	2.86	1.23	3.58
Laramie	GB	1.31	1.83	1.44	3.36
Lawrence **	OMC	1.18	1.43	-	1.87
Madison	PCC	1.35	1.04	1.43	1.45
Milwaukee	TMC	1.17	-	1.25	-
Montrose	TB	1.32	1.48	1.30	1.18
Narragansett	TB	1.24	-	1.28	-
North	TB	1.19	1.54	1.37	1.48
Ogden **	OMC	1.20	1.95	1.25	2.53
Peterson	GB	1.58	1.39	1.68	1.88
Roosevelt **	TMC	1.17	.84	1.18	1.00
South Chicago-Ewing	GB	1.29	-	1.54	-
Taylor-Sedgwick	GB	1.56	-	1.43	-
Van Buren	TMC	1.48	-	1.70	-
31st**	GB	1.35	3.33	1.59	4.00
43rd	OMC	1.12	-	1.12	-

TABLE IV--Continued

<u>Route</u>	<u>Type of Equipment*</u>	<u>Average Excess of Service Over Avowed Standards of Loading</u>			
		<u>A.M. Rush</u>	<u>Base</u>	<u>P.M. Rush</u>	<u>Evening</u>
51st-55th	GB	1.40	1.14	1.23	1.05
59th-61st	GB	1.40	-	1.27	-
63rd	PCC	1.25	-	1.19	-
87th	GB	4.75	4.57	3.00	8.00
93rd-95th**	OMC	2.32	3.69	1.71	4.36
103rd-106th	GB	1.37	-	1.48	-

\* TMC - Two-Man Street Car  
 OMC - One-Man Street Car  
 PCC - PCC Street Car  
 TB - Trolley Bus  
 GB - Motor Bus

\*\* Fall of 1950.

# Blank indicates no recent checks available.

X Converted to motor buses since checks shown.

Note: The above figures are for purposes of illustration rather than for computation of potential savings. As a practical matter, service could not be reduced as greatly as the figures indicate, in most instances, because of the mechanical problems of schedule making, or because the residue service would approach the vanishing point. The proper relation between schedules and loading is represented by 1.00. Numbers over 1.00 indicate an excess of service.

## MAINTENANCE OF EQUIPMENT AND STRUCTURES

The CTA surface division has approximately 1,900 street cars, 1,500 motor buses (diesel, gasoline, propane) and 372 trolley buses. The rapid transit division has 1,473 motor cars and trailers. In addition the CTA is awaiting delivery of 349 trolley buses, 99 propane buses and 70 rapid transit cars.

There are 13 car barns and garages located throughout the city for storage of the CTA surface equipment. In addition, inspections, fueling, greasing, minor repairs and washing are made at these locations. Major repairs on engines, motors, bodies, transmissions and drives are made at two places, West and 77th Street Shops. Painting is also done at these shops.

With the exception of the Beverly and North Park garages, buses are stored in existing street car barns and yards. These car barns have been or will be remodeled to accommodate buses. The street cars are stored in barns and yards that have been in existence for some time.

### Bus Maintenance

Maintenance procedure on buses is the same at all garages. This consists of tire repairs, brake adjustment and overhaul, minor body work, ignition work, washing, oiling, fueling and so forth. An "A" inspection is made every 2,000 miles consisting of a visual inspection of such items as transmissions, brakes, and carburetors. At 6,000 miles the engine is removed and tested on a block, and all parts of the bus are given a thorough check. Although the engines could run longer than 6,000 miles without causing trouble, the risk of breakdown must be minimized in transit operations. Each engine is given a major overhaul when inspections reveal that it is necessary.

Records indicate that mileage between engine overhauls is much greater for diesel buses than for gasoline buses. No records are available as yet for propane engines, but it is anticipated that they will require less maintenance than diesel engines.

Maintenance procedure for trolley coaches is similar to that for gas buses.

### Garage Buildings

Two garages, Beverly and North Park, have been especially built for buses and are modern and well equipped.

Car barns now being used as garages vary in degree of remodeling to fit them to handle buses efficiently. Generally, these garages lack proper cleaning facilities as well as adequate heating and ventilating equipment. The CTA is aware of this and has future plans to correct the situation.

According to records, maintenance man-hours per bus are affected by the size and degree of modernization of the garages. The smaller garages and those not entirely modernized have somewhat higher maintenance man-hours per 1,000 miles - in some instances, twice as much.

With a tendency toward propane buses, the use of car barns as garages raises a problem of fuel storage. Space at some barns is not adequate for storage of propane fuel in compliance with the building code. This limits the use of propane buses at present to certain routes, not all of which are appropriate for this large type of vehicle.

### Street Car Maintenance

Maintenance procedures are the same at all car barns. This consists of "A" and "B" inspections, electrical repairs, motor replacements and other minor repairs. Cars are swept out every night and are washed as needed, generally about every one to two weeks.

### Car Barns

The car barns are all old, some dating from horse car days. Generally, they are suitable for the purpose intended, although additional equipment such as car washers and door operators should be installed and maintenance repairs should be made.

### Shops (Surface Division)

West Shop. This shop performs all major overhaul and repair work on the north and west side trolley buses, motor buses, and street cars that cannot be done at the garages or car barns. This includes all body work and painting of buses and street cars. In addition, all repair work on parts such as motors, drives, converters, engines, transmissions and clutches are made at this shop.



The shop is well equipped with modern machine tools, all purchased since the end of the war. In addition, there are sheet metal, carpenter, electrical, blacksmith, welding, painting, and body repair shops.

Only a limited space is provided for storage of parts at the West Shop, and most spare engines and parts or engines to be repaired are stored at Division and Western car barn. This causes additional handling and cross-hauling that could be avoided if space were available at the West Shop.

The building and equipment is clean and well maintained.

77th Street Shop. This shop when finally remodeled and equipped will function in the same manner as the West Shop. At the present time, remodeling of the building is in progress. New modern work benches, hoists, work blocks and machine tools are being installed. Additional machinery is on order.

The paint shop has no sandblast equipment or other mechanical means for removing paint. Because there is no paint spray booth, nor adequate ventilation, it is necessary to do painting on overtime, if spray guns are used. This has not been a serious problem as yet, but will be shortly when the steel P.C.C. cars require painting.

#### Shops (Rapid Transit Division)

There are eight shops at the present time serving the rapid transit system. Of these, the Throop Street Shop will soon be abandoned and the work transferred to Skokie. The Skokie Shop will then handle all major repairs for the entire system.

The remaining six shops make minor running repairs, such as replacing windows, bell cords, motors and the like. These shops also keep the equipment swept and the windows washed. The exteriors of the coaches are seldom washed.

The shops are all old buildings and are generally not as suitable as the car barns. The operation of jacking up a car at the Laramie Shop is difficult, for example, due to the low head-room under the roof trusses, and cars have to be positioned between two trusses so that the end being jacked will have clearance.

Due to space limitations at the shops, spare parts are stored in old cars adjacent to the buildings. This has been criticized by the Board of Fire Underwriters.

The Skokie Shop consists of two main buildings and a boiler house. An extension to the South Shop is now under construction with provisions for another future extension. The shop is provided with paint, machine, and general repair and overhaul shops.

The paint shop has a large Mahon spray booth and a drying oven. This shop would be adequate except for the fact that there is no forced ventilation. For this reason, air flow is inadequate in the winter time when the doors are closed.

The machine shop is newly equipped with first class machines; however, there are not enough. Additional machines will be moved to Skokie from Wilson Avenue, including a wheel lathe.

All the work in the general repair and overhaul shop is rather slow. This is due to the age and poor condition of the equipment rather than to any lack of organization.

The main faults of this plant, which should be corrected, are the inadequacies of both working space and storage space.

#### Car Maintenance

Rapid transit service in Chicago could be made substantially more attractive with relatively small expenditures for improved maintenance of equipment and stations. Except for the new cars recently delivered, the exteriors of most rapid transit cars are unsightly. A program of more frequent washing should be adopted at once. It is also recommended that this program include periodical painting of all rapid transit cars (except those scheduled for early retirement) so as to provide eventually a complete fleet of cars painted in attractive colors. We are advised that schedules for cleaning car interiors have been changed under CTA operation, and it is our recommendation that former schedules be restored so as to lessen the accumulations of dirt and trash now commonplace.

### Station Maintenance

The unsightly condition of the rapid transit stations, particularly those in the State Street subway, is due to, in our judgment, an inadequate cleaning schedule. Currently, platforms and mezzanine floors are scrubbed at intervals of about three weeks. Their appearance would be vastly improved if this were cut to a much shorter interval. We are advised that new scrubbing machines have been requested. This equipment should be made available to the maintenance crews at once.

Present arrangements for removal of trash are unsatisfactory. We are advised that private scavenger removal service is scheduled to remove trash collected by janitors twice a week. Under the present arrangement a half dozen or more unsightly and unpainted trash cans occupy a prominent place in each of the State Street subway stations. There is ample room in the janitors' closets to store these cans. It is suggested that arrangements might better be made for the collection of rubbish by CTA maintenance crews during the early hours of the morning. If trash cans must remain in public places, they should, at a minimum, be in presentable condition and placed in an inconspicuous place.

### Conclusions--Maintenance of Equipment

Over the period during which the CTA has been in operation, the man-hours per vehicle-mile for maintenance and repair has shown a steady decrease, but costs per vehicle-mile have increased due to wage increases. Not much can be anticipated, however, in the way of savings on maintenance. Although the completion of the present shop improvement program will doubtless result in some saving, that saving could well be spent in improving the cleanliness and appearance of equipment.

Under recent operations (1949-50) costs per vehicle-mile were as follows:

<u>Type of Vehicle</u>	<u>Cost in Cents per Vehicle-Mile</u>	
	<u>1949</u>	<u>1950</u>
Red Street Cars	6.4	6.7
1936 P.C.C. Cars	8.5	9.9*
1947-48 P.C.C. Cars	3.1	3.7
All Street Cars	5.7	5.9
Old Trolley Buses	14.5	15.1*
New Trolley Buses	2.5	2.6
All Trolley Buses	5.5	6.0
1700 Series Gasoline Buses (1948)	7.8	7.2
2500 Series Gasoline Buses (1947-48)	6.0	6.9
3400 Series Gasoline Buses (1944-45-46-47)	6.1	6.5
4300 Series Gasoline Buses (1945-47)	6.6	9.7
6500 Series Diesel Buses (1946-47-48)	4.3	5.1
All Motor Buses	7.2	7.2

\*-Should be retired from service on account of high cost of maintenance.

In the street car group, the newer type P.C.C. cars show a lower maintenance cost than the other two street car classifications. A portion of this low cost can be credited to their newness. It can be seen that costs for 1936 P.C.C. cars are much higher than for the old red cars. It can be anticipated that costs on the newer P.C.C. cars will increase as they become older.

The old wooden "red" cars were cheaper to maintain, as their wooden bodies could be ripped up and rebuilt with relative ease compared to the steel bodies on the new cars. Likewise, the chassis and propulsion were simpler and more accessible, much as their contemporary, the model "T" Ford was much cheaper to maintain than a modern automobile. The riding public can hardly be induced to accept any longer either the "red" street cars or the model "T" Fords.

Some improvement in car maintenance can be expected as the shop personnel becomes more familiar with the newer types of equipment. Large segments of the car shop force are only now being switched from "red" car work to P.C.C. car work. The body men in particular are unfamiliar with the new work as they are mostly carpenters who must acquire new skills. For many reasons, it is necessary to retrain the existing personnel, rather than to hire new mechanics.

For motor bus operations, the lowest costs are shown for diesel buses, but once again these are the newer pieces of equipment. It is safe to predict on the basis of the experience of others, however, that diesel maintenance costs will always be lower than gasoline bus costs. This is at least partially offset by the higher initial cost of the diesel equipment.

Little actual data is available on the maintenance costs of the propane buses which are being purchased in large numbers, but on the basis of such experience as is available, it is reasonable to predict as low a maintenance cost as well as a lower initial cost than diesel.

It can be noted that maintenance costs for buses do not seem to increase as rapidly with age as with other types of equipment. Trolley buses, when new, show the lowest maintenance cost of all, but with age rise to the highest level.

Rapid transit cars show a lower maintenance cost per mile than most surface equipment; however, because of differences in shop practices and in accounting, we are not positive that figures of 6.84 cents per car-mile for the first four months of 1951 and 5.64 cents for the same period in 1950 are truly comparable with surface division figures. Also, many of the rapid transit cars are trailers, which are rather simple to maintain.

Throughout the entire shops set up, the greatest loss of man-hours is chargeable to cross-hauling. This is a situation which cannot be remedied short of a major investment in new buildings. Even the new major bus overhaul shop at 77th Street, which is located in an existing building, will be handicapped by having the assembly department on the ground floor and the parts overhaul department and stock room on the second floor. Some saving could be effected by closer consolidation of surface and rapid transit operations.

One minor place where savings could be realized is in the printing of transfers and documents. The surface division maintains a very efficient, low cost printing shop. Rapid transit printing is done under contract at costs approximating 75 per cent greater than surface division printing. A slight expansion of the present print shop should enable it to handle all CTA printing.

Incidentally, it was found that the surface division is printing the same number of transfers now as in the years when traffic was 50 per cent heavier. This apparent waste should be studied and corrected.

In most bus garages and shops, new ventilating equipment will have to be installed. Only the new North Park and Beverly garages are satisfactorily ventilated.

Cleaning equipment for all classes of vehicles should be improved. Mechanical washers should be installed for buses and trolley cars. This will not result in any savings to the CTA, but will increase customer appeal at little additional cost. Vacuum cleaning equipment could be used to great advantage on car interiors.

The modernization program has presented a most difficult problem to the maintenance staff. During the past four years, 1,800 units of new modern equipment have been acquired. The capital funds available have been far short of those required to provide adequate shops, terminals, storage facilities, and tools and equipment. On the whole, the management has performed a creditable job on this phase of its responsibilities.

#### ESTIMATED COST OF THE BALANCE OF THE MODERNIZATION PROGRAM

The modernization program was planned, for the most part, during the latter years of World War II when passenger riding was at a very high level. It was hoped at that time that provision of modern transit vehicles would be successful in retaining a large share of the war-engendered riding. Plans were made accordingly, therefore, to equip each route with a size and type of vehicle appropriate for the anticipated volumes of traffic. In recent years, transit riding has dropped to unprecedented low levels, not only in Chicago, but in all other large cities (see Figure 3 following page 60). This has been due to a dramatic increase in the use of automobiles, widespread decentralization not only of homes but also of industries, the popularity of television, and successive fare increases necessitated by higher wages and other costs.

During this period, also, the propane bus has become available for the first time, with promises of substantial reductions in operating and maintenance costs. Rapid strides have also been made in the improvement of motor vehicles using other types of fuel.

Under these circumstances, it would seem appropriate to make a thorough review of the remaining portions of the modernization program. Tentative selections of type of vehicle for each route should be made on the basis of the best information currently available. These studies should be brought to date in each instance prior to the actual purchase of vehicles. In the meantime, however, careful analyses based on 1951 conditions will guide the thinking on shop and garage requirements, the maintenance of track and electrical overhead, and other current matters.

The new P.C.C. cars purchased during the modernization period, as well as the older P.C.C. cars, should be converted inexpensively for one-man operation in non-rush hours. This will permit a large annual saving in operating costs, as discussed elsewhere in this report. All other two-man car lines should be re-equipped with buses as rapidly as equipment can be made available and men trained, or with one-man cars if it is not possible to finance immediately the purchase of all of the buses required.

Specific recommendations on the modernization program are beyond the scope of this report. This is a matter which can be determined intelligently only after complete engineering studies and economic analyses. It is a matter for determination by management. It is estimated, however, that approximately \$90,000,000 will be required to complete the modernization program. This is based on the assumptions: (1) that equipment can be purchased when required at prices prevailing at the present time; and (2) that improvements in equipment and betterments of the system will hold the level of riding at current volumes. An approximate estimate of number of pieces of equipment remaining to be acquired and other capital expenditures yet to be made is shown in the following table:

Summary of Equipment Requirements

Motor Buses Required for Complete Modernization	2,298
Motor Buses on Hand or on Order	<u>1,598</u>
Additional Motor Buses Required	700
Trolley Buses on Hand or on Order	721
Additional Trolley Buses Required	0
Street Cars (P.C.C.-type) on Hand	682
Additional Street Cars Required	0
Rapid Transit Cars Required, including Spares, to Fill Schedules on System as Recommended to be Revised	1,136
New Rapid Transit Cars on Hand or on Order	<u>256</u>
New Rapid Transit Cars Required	880

During the next eight years, modern-type cars or bus equipment will require replacement, as follows:

Replacements

Motor Buses	171
Trolley Buses	151
Street Cars	<u>82</u>
	404

It is presumed that these replacements, aggregating some \$9,000,000 in total cost, will be through purchase of buses from funds in the depreciation reserve.

Capital required to complete the modernization program can be determined rather closely insofar as car and bus equipment is concerned. It is not possible, in advance of the completion of specific studies and plans, to prepare exact estimates for other capital improvements, train control signals for the rapid transit system, and other



items. It seems desirable, however, to develop approximate figures based on best information now available so as to evaluate the overall financial problem ahead of the Chicago Transit Authority.

<u>Item</u>	<u>Estimated Cost</u>
Motor Buses, including Taxes, Delivery and Fitting - 700 @ \$22,000	\$15,400,000
Rapid Transit Cars - 880 @ \$ 50,000	44,000,000
Installation of Modern Train Control Signals throughout the entire Rapid Transit System	11,000,000
Garages, Shops, Terminal Facilities and Other Miscellaneous Improvements for the Rapid Transit and Surface Divisions	<u>19,600,000</u>
	\$90,000,000

#### RELATIONS WITH THE CITY OF CHICAGO

The financial problem involved in the completion of rapid transit facilities in connection with the Congress Street expressway project has been mentioned elsewhere. The present contract between the City of Chicago and the CTA provides that the city will install the track and other equipment in the center mall of the Congress Street expressway from a connection to the subway at Congress Street and the west bank of the south branch of the Chicago River, to a connection with the Garfield Park elevated line near Lotus Avenue, with a further connection to the Douglas Park rapid transit route near Marshfield Avenue. The cost of this two-track rapid transit railroad was estimated by the Department of Subways and Superhighways, as of April 2, 1951, at \$22,158, 000. This, in our opinion, is properly an obligation of the City of Chicago.

Reference is made to the report submitted to the city on July 20, 1948 by a Citizens Committee composed of Messrs. Frank A. Rathje, Chairman, Frank A. Hecht and Phillip F. W. Peck. The committee had previously been charged with studying ways and means of financing the construction of a desirable west side rapid transit subway. It

recommended the issuance and sale of full faith and credit bonds by the City of Chicago in the amount of \$25,000,000 to cover the construction and equipment of a subway built substantially in accord with that now contemplated. The committee further recommended the retirement of these bonds through the use of transit revenues (municipal compensation required to be paid to the city by the CTA) for debt service on the bonds. No action has been taken to date on this recommendation.

#### Traction Fund and Municipal Compensation

There are many cogent reasons why the City of Chicago should bear a portion of the cost of providing capital for public transit improvements and expansion. The most important of these reasons, in our opinion, is that the city has a moral debt to the street car riders of Chicago because of the unfortunate investment of moneys of the Traction Fund during previous years. The Traction Fund, it will be recalled, was created through the provisions of the 1907 Traction Ordinances which provided for a division of the net revenues of the street car companies over and above a five per cent return on the city purchase price in the ratio of 55 per cent to the City of Chicago and 45 per cent to the companies. Through these provisions, the street car riders paid to the city nearly 50 million dollars, and this fund, together with the interest earned, was in cash or in completely liquid assets as of the year 1927.

The funds were to be used, under the ordinances, for the acquisition of the properties by the municipality; or for improvement of the service; or for reduction in fares. Any one of these three purposes was presumed to be for the benefit of the transit passengers. The funds were so used until 1928. In 1928 and succeeding years, when the financial affairs of the city were in deplorable shape, the city used the Traction Fund as a bank, taking the cash in exchange for tax anticipation warrants and city bonds, many of which have proven to be entirely worthless. The investment of Traction Fund moneys in anticipation warrants and bonds as of June 28, 1951 was as follows:

<u>Type of Security</u>	<u>Year Issued</u>	<u>Amount</u>
City Corporate	1928	\$2,315,300
School Building	1928	1,094,900
School Educational	1929	10,000
School Building	1929	50,000
City Corporate	1929	134,300
City Corporate	1930	809,100
City Corporate	1931	2,646,900
School Building	1931	650
Municipal Tuberculosis Sanitarium	1931	92,700
Municipal Tuberculosis Sanitarium	1932	160,300
School Building	1932	114,300
School Playground	1932	15,000
City Corporate	1933	3,354,200
School Educational	1933	3,188,575
Municipal Tuberculosis Sanitarium	1933	70,000
City Corporate	1934	1,162,800
Municipal Tuberculosis Sanitarium	1934	121,900
Poor Relief	1938	9,200
Public Library	1950	<u>200,000</u>
Total		\$15,550,125

We are advised, that, except for the Public Library bonds of 1950 in the amount of \$200,000, there is little hope that any appreciable amount can be realized from these investments. More than 15 million dollars was taken from this fund during the period 1928-1938. If this amount had been invested in sound securities, it would now provide most of the funds required for the completion of the west side rapid transit project.

Adequate and convenient public transit is a prime necessity in any large city. In order of importance, it probably ranks next to an adequate water supply. In some cities, notably New York, Boston and Philadelphia, substantial contributions have been made out of public funds, either by commitment of large amounts of capital for subway construction, or by meeting annual operating deficits. This has permitted somewhat lower fares than would be required if the entire cost were paid by the car riders.

There are many reasons why all of the citizens of Chicago, likewise, should assist in the financing of public transportation. For example, the burden of maintaining and operating an efficient public transit system is carried by the regular users of the service, who constitute some 90 per cent of its traffic. During inclement weather, however, and particularly during periods of heavy winter snows, these facilities are utilized by many thousands who, in pleasant weather, drive their own automobiles.

It should not be regarded as a hardship by any citizen of Chicago, and certainly not by industry and commerce, if the city now relieves the car riders of their century-old burdens of providing and paving their own rights-of-way. The street repaving program has not kept abreast of transit modernization in Chicago, so that in many instances modern rubber-tired vehicles do not have suitable pavements on which to operate. Passengers have found that the quality of their ride in new buses on old pavements is no better than on old street cars operating on reasonably smooth rails.

San Francisco made a realistic approach to this entire problem in 1948. In addition to the \$20,000,000 bond issue voted to modernize the Municipal Railways, the voters approved an additional \$20,000,000 to remove rails and repave the streets on routes where bus operation was planned to replace street cars.

The present compensation required to be paid by the CTA is presumably for the use of the streets and for the use of the two subways built by the city during the period 1939-1951. It is noted that the city's portion of the cost of the subway project was paid out of the Traction Fund and, therefore, without expenditure of a dollar of general tax funds. The city might well adopt a policy of utilizing municipal compensation funds accruing to it through the provision of the 1945 ordinance for the removal of tracks and the repaving of thoroughfares where street car operation has been converted to service by rubber-tired vehicles. Certainly it would be in order to pledge such funds to pay fixed charges on bond issues for the capital improvements required for the progressive extension and modernization of the transit system of Chicago.

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In conclusion, while we are mindful that some matters in this report may be found to be critical in character, yet they represent our best judgment based on such facts as have been available. Our investigation revealed many physical improvements, operating practices and organizational features for which the Chicago Transit Authority Board and individual members of the staff should be commended. Our assignment, however, was not to eulogize the CTA, but to find ways in which it could be improved. In the interest of brevity, therefore, we have not stressed on the features we deem praiseworthy. Our sincere wish is that the report as a whole will be constructive in respect to matters discussed and that it will assist the CTA in bettering its service to the people of Chicago.

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