THE PORT OF NEW YORK AUTHORITY
111 EIGHTH AVENUE, NEW YORK, N. Y.

SUBURBAN TRANSIT

FOR

NORTHERN NEW JERSEY

March 1, 1937

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111 Eighth Avenue, New York City

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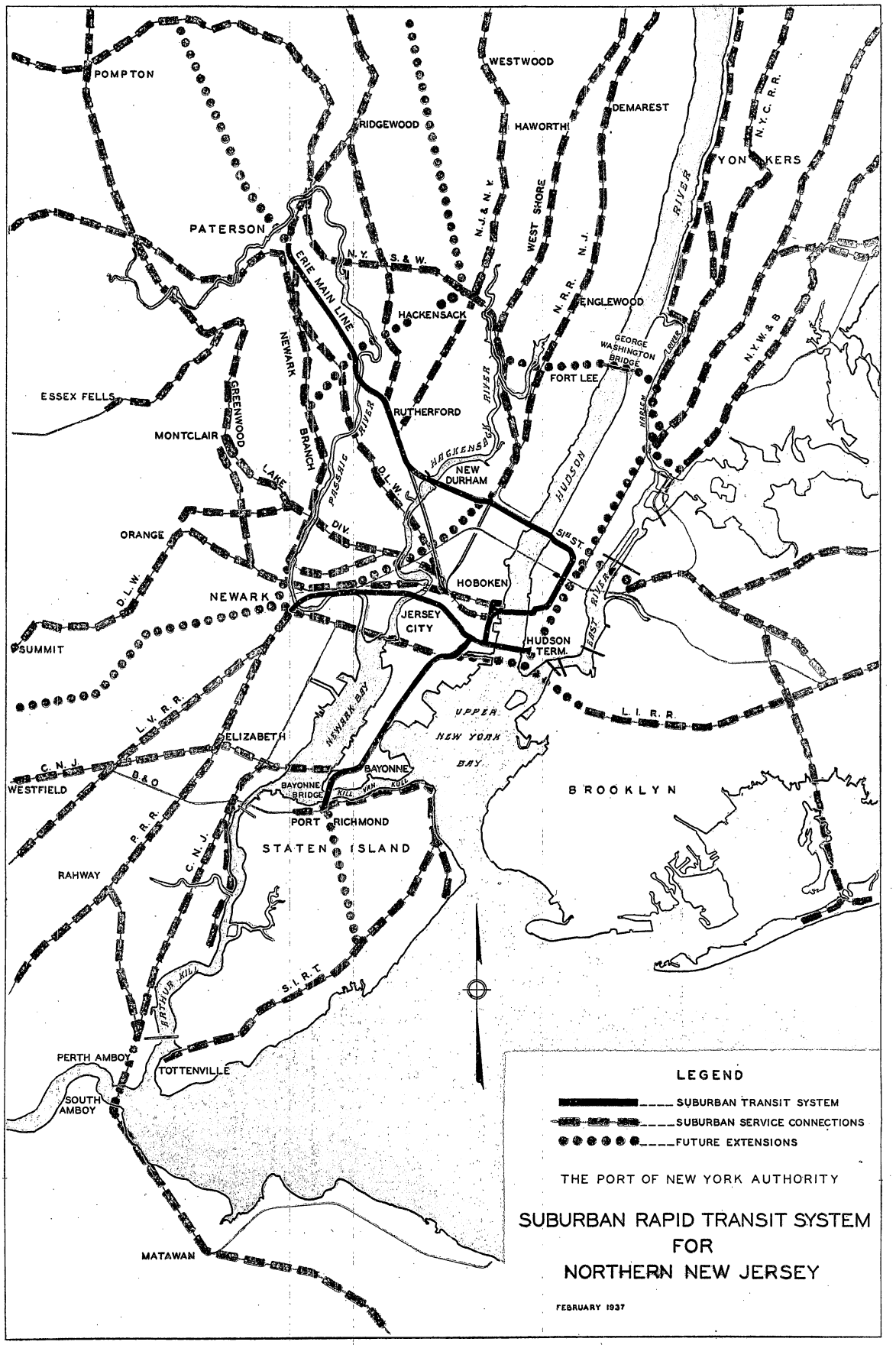
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THE PORT OF NEW YORK AUTHORITY
SUBURBAN RAPID TRANSIT SYSTEM FOR NORTHERN NEW JERSEY
FEBRUARY 1937

NEW YORK, N. Y., March 1, 1937.

To the Governor and the Legislature of the State of New Jersey:

Pursuant to Chapter Joint Resolution Number 6, Laws of New Jersey 1936, the Port of New York Authority was instructed to study and report upon the development of transportation facilities for northern New Jersey. A survey has been made of the engineering and financial problems involved. Facts have been assembled, correlated and analyzed in the light of the best available technical knowledge and experience, and with due consideration to broad social and economic factors. The findings, conclusions and recommendations are submitted herewith.

I. OBJECTIVES:

The purpose of the study has been first: to determine the extent to which rapid transit facilities for northern New Jersey are necessary and desirable, and second: to formulate a feasible plan for the creation of such facilities.

II. RAPID TRANSIT AND THE COMMUNITY:

In cooperation with the railroads and local public transit agencies the Port of New York Authority has for many years studied the transportation needs of the entire Port District. The requirements of northern New Jersey have long been a subject of consideration, with especial reference to the desirability of improved means of travel between this section and New York City. Existing facilities in northern New Jersey do not provide the commuting population with the convenient, rapid and frequent service available in other sections of the metropolitan area. A real demand now exists for speedier and more convenient access to Manhattan, and there is a growing demand for better intra-state transit. An adequate system of suburban transit would meet the needs of northern New Jersey, and should, at the same time, be capable of expansion which would extend its benefits to areas throughout the state. Experience has shown that the sound development of transit facilities adds millions of dollars in economic value to the communities served. Thus, it is evident that the development of rapid transit facilities for northern New Jersey will meet an existing need for the people of the district, that it will provide the

means of improved communications for the State, and prove of economic benefit to the various communities. These results will contribute to the sound development of the Port District as a whole. The development of rapid transit facilities for northern New Jersey is necessary and desirable.

III. ECONOMIC PROBLEM:

A sound rapid transit program for northern New Jersey can be developed only if the economic factors involved are clearly analyzed and understood. Responsibility for the development of interstate transit facilities will rest with New Jersey since the rapid transit systems of New York will not, in accordance with the policy of the city, be extended beyond state lines.

A major consideration is the cost of developing and operating the required facilities as compared with potential revenues. The engineering problems involved are relatively conventional but any adequate plan will require a large capital investment for the construction of additional Hudson River crossings and for the acquisition and development of existing or new rail facilities and equipment. The new capital required for these purposes is estimated to be $187,500,000 for the first stage of the plan hereinafter described. Annual interest, amortization and operating costs, exclusive of taxes, are estimated at a maximum of $14,290,000.

Passenger fares will be the principal source of revenue. Depending upon whether the transit system receives these fares in part from the railroad, in part from the passenger or in part from some other source in the form of a subsidy, will determine the number of persons using the system. Potential income may be estimated on the premise that the new transit system will receive the same fares as are now being charged by the Hudson & Manhattan Railroad for comparable services. A variety of arrangements may be negotiated between the railroads and the transit system. Based on five possible plans presented in this report, the anticipated revenue from all sources ranges from $8,900,000 to $13,800,000.

On the basis of the foregoing figures, an annual deficit ranging from $5,300,000 to $417,000 is indicated, depending upon the extent to which the deficit of the transit system will be absorbed by the railroads, paid by the passenger or made up from a subsidy. If full federal, state and local taxes must be paid, this deficit will be increased by $2,481,000. If the commuter can be induced to pay higher fares the annual deficit will be proportionately reduced. These estimates are based on 1935 traffic figures with no allowance for future growth.

It is evident that, no matter what fare basis is used, the facilities cannot be self-sustaining. Some form of subsidy must be provided if an adequate rapid transit system is to be developed for northen New Jersey. This principle has been frequently applied in New York City. Possible procedures for securing public aid are discussed in subsequent sections of this report.

IV. ENGINEERING PROBLEM:

A sound rapid transit plan for northern New Jersey must meet certain basic practical requirements. Forty percent of the inbound traffic movement occurs in the morning rush hours, with a similar outbound peak hour in the evening. A rapid transit system, therefore, must be equipped to handle rush-hour loads as well as provide frequent service twenty-four hours a day. Thus, an expanded motorbus service, while highly desirable for collection and distribution purposes and for furnishing service in areas not yet ripe for rail rapid transit, cannot meet a mass transportation need.

Second, the facilities should provide direct access to convenient destinations on Manhattan Island. Merely to carry passengers across the Hudson River to points on the east shore would add little if anything in convenience of service to existing facilities and would aggravate the already heavy rush hour congestion on Manhattan transit lines to an intolerable degree. Thus, a transit line across the George Washington Bridge would not permanently meet the requirement of distributing passengers at well placed terminal points, although such a line might have a function in a comprehensive system.

Third, in the interest of economy and efficiency, maximum use must be made of existing facilities. To duplicate available facilities would be an obvious economic waste. Furthermore, available traffic is insufficient to support competing interstate transit facilities.

V. PHYSICAL PLAN:

These economic and engineering factors have been carefully weighed in the development of a rapid transit plan which is believed to meet the basic requirements above set forth. In its initial step the plan will provide rail delivery to midtown Manhattan for passengers from all the New Jersey railroads, in many cases without transfer. It will make the maximum possible use of existing facilities. It will meet the mass transportation needs of peak hours and will provide frequent interval service at all times.

Concretely it is proposed:—

1. To make use of the existing Hudson and Manhattan Railroad.
2. To extend the Hudson and Manhattan Railroad from its present terminal at 33rd Street, Manhattan, to 51st Street, and through new tubes under the Hudson to New Durham, N. J., connecting there with the West Shore, the Northern (Erie) and the New York, Susquehanna & Western (Erie) Railroads.
3. To construct a station at 51st Street, Manhattan, in the neighborhood of Rockefeller Center.

4. To electrify the main line of the Erie Railroad east of Paterson and extend its operations through the new tubes to the 51st Street station.

5. To extend the operations of the Hudson and Manhattan Railroad in New Jersey on the New Jersey Central tracks through Jersey City to Bayonne and thence via the Bayonne Bridge to Port Richmond, Staten Island.

6. To electrify the main line of the New Jersey Central Railroad as far west as West Eighth Street, Bayonne.

7. To extend this entire plan, after completion of the first steps, by electrification of other branches of the New Jersey railroads and by construction of additional tunnels, when the demand justifies.

VI. EXECUTION OF PLAN:

To carry out a suburban rapid transit plan for northern New Jersey, existing and new facilities must be acquired, coordinated and developed. For these purposes an agency with broad financial and administrative powers is required. While these functions are within the scope of the Port of New York Authority, it is, however, debarred from pledging any of its present revenues to new enterprises. It has no power to levy taxes or to assess for benefits and can therefore undertake only self-liquidating projects.

The economic aspect of the proposed rapid transit plan is therefore the same, whether the Port Authority or another public or private agency is selected for its execution. Naturally if a private agency is selected expenses will be increased by adding a profit necessary to attract private capital and the amount of the required fares or subsidy will be proportionately increased. In any event, some form of public aid is a fundamental need. The required subsidy could be derived from:—

(a) A federal grant to supplement a state or other transit bond issue.

(b) A state transit bond issue.

(c) A state guarantee of interest and amortization charges on a transit agency bond issue.

(d) The creation of a transit benefit assessment district to issue bonds or to guarantee interest and amortization charges on a transit agency bond issue.

(e) A transportation fare tax.

(f) A combination of two or more of the foregoing.

The following sections of this report set forth the technical and economic data upon which the foregoing statements are based. The plan therein outlined is believed to be one which would result in great benefits to the people of northern

New Jersey and to the State as a whole. The execution of this, or any other plan, however, depends upon its financial soundness which can only be assured through public aid to a project which cannot, at present, be self-sustaining.

VII. RECOMMENDATIONS:

The Port of New York Authority, on the basis of its findings as herein reported, respectfully recommends:

First: That a plan for public aid or subsidy for rapid transit be given consideration and, if found practical adopted by the Legislature.

Second: When and if an appropriate plan of public aid is approved, the transit plan set forth in this report, with such modifications as may be determined upon, be committed by the Legislature for execution to an appropriate public agency.

Respectfully submitted,

THE PORT OF NEW YORK AUTHORITY

Frank C. Ferguson, *Chairman,*
Howard S. Cullman, *Vice Chairman,*
George deB. Keim,
Ira R. Crouse,
John Milton,
Joseph M. Byrne, Jr.,
Joseph A. Bower,
John F. Murray,
John J. Pulleyn,
Alexander J. Shamberg,
Rudolph Reimer,
Charles S. Whitman,
Commissioners.

ENGINEERING STUDIES

THE SUBURBAN TRANSIT PROBLEM:

For the purpose of this report, suburban transit means the mass transportation of passengers by rail, rather than by bus or private automobile, between New Jersey and New York City, as distinct from the intra-state movement between the larger population centers in New Jersey.

This interstate suburban passenger traffic, more frequently referred to as commuter traffic, is composed principally of those who travel daily, morning and evening, at commutation rates which are considerably less than the one-way railroad fare between home and business on suburban trains. These suburban trains discharge their passengers at terminals on the New Jersey waterfront, where the railroad companies provide and finance, as a part of the rail operation, free ferryage for their railroad patrons across the Hudson River to New York City. About half of the Erie and Lackawanna and all the West Shore and New Jersey Central railroad passengers use their respective railroad ferries. Slightly less than 50 per cent of these ferry riders pay 5c or more for additional transportation to business destination in New York City after arriving at the New York City ferry terminals. The remainder of the Erie and Lackawanna Railroad passengers use the Hudson & Manhattan Railroad tubes to cross the Hudson River, paying either 6 or 10c, depending upon destination, for this service.

The number of railroad passengers entering New York City from New Jersey on a typical business day in 1935 was 215,000. In addition, there were 160,000 passengers—local pedestrians using the ferries, passengers in buses and passengers in private automobiles—making a total of 375,000 passengers entering New York City and a similar number returning to New Jersey daily. The facilities used by these New Jersey people to cross the Hudson River are:

	Per Cent	Daily Passengers Inbound (1935)
Railroad passengers:		
Via Pennsylvania Tube	3.2	12,000
Via Ferries	23.2	87,000
Via Hudson & Manhattan Railroad	30.9	116,000
Local pedestrians on ferries	10.7	40,000
Passengers in buses	8.0	30,000
Passengers in private automobiles	24.0	90,000
	100.0	375,000

In volume, New Jersey's portion of the railroad passenger traffic converging on New York City each day is larger than that from the other sectors comprising

the New York Metropolitan District. For every passenger from Westchester, there are two from Long Island and four from New Jersey. The total passengers in the New York Metropolitan District, of which New Jersey is the largest sector, comprise more than 58 per cent of all the railroad passengers in the United States.

Another factor which must be considered in transit planning for this area is that nearly 40 per cent of New York-bound passenger movement in any 24-hour period occurs at all terminals within a single hour in the morning with a corresponding situation existing on the homeward movement at the close of the business day.

Railroad passenger traffic to and from New York City has grown steadily, nearly doubling in the 20-year period 1911 to 1930. In the next three years, it dropped to the 1919 level, remaining stationary until 1936 when preliminary reports indicate a slight upturn.

The North Jersey Transit Commission and the Suburban Transit Engineering Board, in their reports to your honorable body, reached the conclusion that the problem for providing improved transportation facilities for the New Jersey commuters is not merely the building of additional Hudson River crossings but is the coordination of such a crossing with the feeder lines in New Jersey and north and south distribution on Manhattan Island. The Port Authority agrees with this view.

A suburban transit network for the New Jersey territory connecting the larger population centers with an intra-state system and at the same time coordinating with the interstate transit lines, relieving the trunk line railroads of the short distance commuter business, is probably the ultimate solution toward which transit planning should be directed. An interstate transit system terminating at a single New York City station and requiring all passengers to transfer to already crowded City subways at one point would be totally inadequate as a solution for Northern New Jersey.

Proposals have been made from time to time to extend the transit system of the City of New York across the Hudson River into suburban New Jersey. From an engineering standpoint, such a proposal offers no great obstacles. New York City constructs its transit systems from funds secured through local taxes and the policy of the City of New York has been not to permit extension of any of its rapid transit lines beyond the City limits, whether it be wholly within New York State or across the river into New Jersey. The City does not wish its transit lines to engage in interstate operations.

It is believed that a transit system from New Jersey projected across the Hudson River into New York should be centered around the Hudson & Manhattan Railroad, which is already engaged in interstate operations. There are also traffic and operating reasons, as well as financial and legal ones why this line should be incorporated in any transit line for Northern New Jersey.

INTRA-STATE TRANSIT:

In addition to interstate suburban transit, there is another phase of this problem which must not be overlooked and that is intra-state transit, or transportation between the larger trade, industrial and population centers in Northern New Jersey. The largest of these centers is Newark, with its environs. It is a focal point for business and finance just as Manhattan Island is the center of New York City's adjacent communities. Newark is served by several railroads but these railroads, like all of them traversing Northern New Jersey, are directed toward New York City. There does not exist, at the present time, any direct rail connection between those sections north of Newark and those on the south. It is now more convenient for train travelers from Paterson, Passaic and Hackensack to Trenton, for example, to go via New York City.

There is a large bus transportation network which has gradually replaced a similar trolley network, extending from Newark to cities in adjacent counties. There are communities near Newark which have enjoyed a phenomenal growth and still have only bus or automobile transportation to that city. There is a need for intra-state rail transit. The City of Newark is laying the foundation for an intra-state transit system in the direction of Paterson by its trolley subway line along the bed of the old Morris Canal. Such a line should be expanded at the proper time to other communities. The interstate system is the most urgent at present, but your attention is also directed toward the growing need for an intra-state system as well.

A SUBURBAN TRANSIT PLAN FOR NORTHERN NEW JERSEY:

Several engineering plans for improved rapid transit between New Jersey and New York City have been studied. While theoretically feasible, all encounter economic obstacles which are basic to the problem. To test the economic practicability of a suburban transit system, that plan has been selected which appears to offer the maximum service, least duplication of facilities and most possibility of future expansion. This plan contemplates, as an initial step, extensions of the Hudson & Manhattan Railroad, an existing interstate rapid transit railroad between New Jersey and New York City.

Southerly Extension of Hudson & Manhattan Railroad to Staten Island

One phase of this plan embraces a southerly extension of the Hudson & Manhattan Railroad operation from its Grove Street station in Jersey City to Staten Island. This is accomplished by constructing a subway section from the Hudson & Manhattan Railroad to the Van Nostrand Place Station on the New Jersey Central Railroad; electrification of the New Jersey Central tracks to its West Eighth Street Station, Bayonne; and construction of a railroad connection across the Bayonne Bridge to Staten Island.

Northerly Extension of the Hudson & Manhattan Railroad to New Durham, N. J.

Another phase of the plan is the extension of the Hudson & Manhattan Railroad operation, northerly under Sixth Avenue, New York City, to 51st Street, near Rockefeller Center, thence westerly through 51st Street, under the Hudson River to the vicinity of New Durham, N. J. This involves subway construction from the present terminus of the Hudson & Manhattan Railroad at 33rd Street to 51st Street, and additional tubes under the Hudson River connecting with New Durham, N. J.

Erie Railroad Trains to 51st Street, New York City

Electrification of the main line of the Erie Railroad from Paterson to Secaucus and a short section of new railroad construction makes possible Erie suburban train operation from Paterson through the new tubes, direct to the 51st Street Station in New York City.

Through Trains—Erie and West Shore Railroads to 51st Street, New York City

The station at 51st Street, near Rockefeller Center, in addition to functioning as a terminal for the suburban electric trains from the main line of the Erie Railroad, will serve the long distance or through trains, with change from steam to electric motive power on the New Jersey meadows, from the Erie and West Shore Railroads. The through trains of the Lackawanna and the New Jersey Central-Baltimore & Ohio Railroads can also be brought into this terminal station if connecting trackage is provided in New Jersey and schedules are arranged so as not to interfere with the peak suburban movements twice daily. While a large station is not needed for suburban commuters, complete facilities for through train service will provide a source of net revenue which justifies inclusion of this feature in the plan.

Service to Suburban Passengers

Passengers residing along the electrified route of the New Jersey Central Railroad in Jersey City and Bayonne, as well as those from Staten Island, will have rapid transit service without transfer to all points in New York City reached by the Hudson & Manhattan Railroad as extended. In addition, the railroad passengers from all points on the New Jersey Central and Baltimore & Ohio railroad systems, by transfer from the steam operated trains to the Hudson & Manhattan trains at Van Nostrand Place, Jersey City, will have rail delivery and distribution in New York City instead of having to depend solely on ferry service across the Hudson River as at present.

On the northerly extension as proposed, electric suburban trains on the main line of the Erie Railroad will replace the present steam service from Paterson. These electric trains will pick up passengers from all stations enroute including those from

the New Jersey & New York branch of the Erie Railroad where it joins the main line, and operate direct to Midtown Manhattan.

Suburban passengers now using the Northern and Susquehanna branches of the Erie Railroad, as well as those from the West Shore Railroad, now entirely dependent upon ferry service to reach New York City, will transfer to the Hudson & Manhattan trains at New Durham, N. J.

Lackawanna Railroad and Greenwood Lake Division passengers of the Erie Railroad will avail themselves of the extended rail delivery in New York City by transfer to the Hudson & Manhattan Railroad at existing transfer points on the Jersey City and Hoboken waterfronts.

The service described is an initial step of a suburban transit network for Northern New Jersey. It offers a frequent interval and direct rail delivery into downtown and midtown Manhattan to all New Jersey passengers, without transfer for many. Distribution in New York City is provided through the center of Manhattan Island from 51st to Christopher Streets, with a downtown terminal at Cortlandt Street. Should other destinations be desired, convenient transfers may be made to the various lines of the New York City transit system at the Hudson Terminal, now so familiar to most of the New Jersey passengers, or at the new 51st Street station. At this new station, passengers, would be able, by short underground walks, to reach the 50th Street station of the 8th Avenue City Independent Line, the 50th Street station of the Seventh Avenue I. R. T. Line, the 49th Street station of the B. M. T. and the 48th Street station of the Sixth Avenue City Independent Line (when completed).

A FINANCIAL PLAN

In preparing estimates of the financial requirements to provide the suburban transit services outlined, it has been assumed that a transit agency through issuance of its own securities based on pledge of net earnings and a subsidy in some form, will finance, construct and arrange for the operation of the transit system. Negotiations with the railroads regarding joint use of facilities, electrification of lines, schedules, adjustments in fare bases if any, use of equipment, transfer of passengers, etc., will be necessary and the assumption has been made that satisfactory agreements can be reached.

The new capital needed to finance the cost of new construction, additional equipment and the acquisition of the Hudson & Manhattan properties is estimated at $187,500,000. The debt service, assuming the cost of new money to be 4% per annum with amortization of the transit debt in 40 years costing an additional 1% per annum, also the operating expenses of the transit system, can be estimated fairly accurately but the revenues, particularly those from passenger fares, are variable, depending upon the fare basis adopted.

The difference between debt service and operating expenses on the one hand and the revenues from all sources on the other, if a deficit, is the subsidy required to create and place the suburban transit system on a sound financial basis.

Traffic and Revenues

Estimates of passenger traffic for the transit system have been made, using 1935 data, the last year for which complete figures are available, with no allowance for any step-up or future growth. This is conservative inasmuch as experience in the New York Metropolitan District has shown that there is an accelerated growth in traffic wherever a new traffic or transit artery is opened. In making the estimate of potential traffic, the present traffic of the Hudson & Manhattan Railroad has been included, supplemented by the passenger traffic now using the West Shore Railroad, transferring at the New Durham Transfer, and the local pedestrian traffic which will use the subway station on the Weehawken Heights in lieu of the West Shore Ferry. Also, the railroad traffic from the New Jersey Central Railroad and Staten Island Rapid Transit Company, further supplemented by local passengers from Staten Island form a part of the estimate. In each case, only portions of the total traffic have been included, depending upon present travel habits and ultimate destination in New York City.

Revenues for the suburban transit system have been estimated on the assumption that there will be one operator of the inner zone system (the extended Hudson & Manhattan terminal railroad) with service from New Durham on the north and Van Nostrand Place on the south, similar to that from the present Journal Square Jersey City Station of the Hudson & Manhattan Railroad. Inside these points, all local passengers, i.e., passengers not using any of the suburban railroads, will pay a 6c fare to the nearest terminal (51st Street or Hudson Terminal) and 4c additional (total 10c) to other points reached by the Hudson & Manhattan Railroad along 6th Avenue, as is now done from New Jersey stations on the Hudson & Manhattan. Beyond New Durham, Van Nostrand Place and Journal Square, five alternative rate bases have been calculated, each centering around the basic assumption that there will be no increase in the present suburban railroad fares, but differing in the amount of the terminal charge and from whom collected, for rail delivery in New York City. These assumptions are as follows:

A—Existing fares on all suburban railroads to remain unchanged and the railroad delivering passengers to the inner electric transit zone to pay the present Hudson & Manhattan terminal charge, 6c to the nearest terminal (51st Street or Hudson Terminal) and 4c additional (total 10c) for further distribution along the 6th Avenue Hudson & Manhattan line. Passenger pays no extra fare under this assumption.

B—Existing fares on all suburban railroads to apply to the point of connection or transfer with the electric system and the passenger will pay the prevailing rate on the Hudson & Manhattan Railroad, i.e., 6c to the nearest terminal and 4c additional (total 10c) for further distribution along the 6th Avenue Hudson & Manhattan line.

C—Existing fares on all suburban railroads to apply to point of connection or transfer with the electric system and the passengers from these railroads to

pay a part of the terminal charge, say 3c to the nearest terminal and 2c additional (total 5c) for further distribution along the 6th Avenue Hudson & Manhattan line.

D—Existing fares on all suburban railroads to apply to point of connection or transfer with the electric system with the passenger and the delivering railroad, each paying a part of the terminal charge, making a total of 6c to the nearest terminal and 4c additional (total 10c) for further distribution on the 6th Avenue Hudson & Manhattan line.

E—Existing fares on all suburban railroads to apply to any point on the inner zone of the electric system, with neither the passenger nor the delivering railroad paying any part of the inner zone terminal charge.

A summary of the annual traffic and revenues under those assumptions shows:

		Revenue		
Assumption	Passengers	Miscellaneous	Passenger	Total Revenue
A	124,347,000	$4,876,000	$8,997,000	$13,873,000
B	99,955,000	4,654,000	7,233,000	11,887,000
C	113,305,000	4,733,000	6,131,000	10,864,000
D	113,305,000	4,733,000	8,198,000	12,931,000
E	124,347,000	4,876,000	4,064,000	8,940,000

Miscellaneous revenue includes such items as revenue from through train operation, revenue from advertising, concessions and terminal building rents, etc. The revenue from the through train operation of the Erie and West Shore Railroads into the 51st Street station has been determined on the assumption that the suburban rapid transit operation would use one-half of the station and terminal properties and the through train operation would require the other half and, therefore, should pay its proportionate share of the interest, amortization, operation and maintenance of the station and terminal property. A through train requires baggage, express and mail facilities, more switching to and from yards and longer lay time in the station than a suburban commuter train. Revenue from this source is slightly in excess of $2,000,000. Building rents, concessions, etc., account for another $2,000,000 leaving about three-quarters of a million dollars for other miscellaneous income from all sources.

Taxes

In this plan, it has been assumed that the transit system would not pay taxes to the State or Federal Government. In the opinion of our General Counsel, bonds (and interest payable on them) issued by the State, or its instrumentality to create the system, would not be subject to federal taxation. It is assumed that the State, of course, would not tax its own operations. Income derived by the State, or by its instrumentality, from operations would likewise, in the opinion of General Counsel, be immune from federal taxation. How much this means, so far as the subsidy is

concerned, is indicated by the fact that full payment of federal, state and local taxes, if the system were privately owned and operated, would amount to $2,480,000.

Financial Requirements and Subsidy

A summary of the annual financial requirements for this project is:

	Fare Assumptions				
	A	B	C	D	E
New Capital	$187,500,000	$187,500,000	$187,500,000	$187,500,000	$187,500,000
Debt Service	$ 9,375,000	$ 9,375,000	$ 9,375,000	$ 9,375,000	$ 9,375,000
Operation and Maintenance*	4,915,000	3,990,000	4,485,000	4,485,000	4,915,000
Taxes	None	None	None	None	None
Total Requirements	$ 14,290,000	$ 13,365,000	$ 13,860,000	$ 13,860,000	$ 14,290,000
Total Revenues	13,873,000	11,887,000	10,864,000	12,931,000	8,940,000
Deficit or Subsidy:					
Without Taxes	$ 417,000	$ 1,478,000	$ 2,996,000	$ 929,000	$ 5,350,000
With Taxes	$ 2,897,000	$ 3,958,000	$ 5,476,000	$ 3,409,000	$ 7,830,000

*Difference due to variation in passenger traffic.

The amount of the subsidy depends upon the extent to which individual trunk lines can be persuaded or required to absorb the terminal charge. Likewise, the extent to which riders can be induced to pay all or part of the terminal charge without diverting their patronage to cheaper though less convenient competitive routes will also reduce the amount of the subsidy.

Experience in other sections indicates that improved transit facilities inevitably leads to an increase in traffic and revenues in future years. This increased revenue may be utilized either to liquidate the initial debt, lessen the need for resorting to subsidy or provide additional suburban transit facilities.

Public aid as applied to rapid transit does not differ in principle from the use of federal grants in aid for the construction of highways or the use of state gasoline taxes for the benefits of those using the highways.

It is quite obvious from the figures given above that there is not sufficient traffic at present from New Jersey to operate a transit system on an entirely self-liquidating basis without public aid in some form. Another interstate transit line, if constructed in competition with the Hudson & Manhattan Railroad, would be doomed to failure because of insufficient traffic to support the two systems. Out of the traffic indicated as potential for an interstate transit system in this plan, 76,000,000 passengers are now using the Hudson & Manhattan Railroad. The interests of these passengers must be considered in proposing any additional transit facilities for Northern New Jersey.

TRANSIT BENEFITS TO NORTHERN NEW JERSEY:

Improved rapid transit between Northern New Jersey and New York City will benefit commuters through an increased frequency of transportation service, some saving in travel time, simplification of transfers from one facility to another, and, based on the experience of New York City, it will add millions of dollars in economic value to the communities thus served. The North Jersey Transit Commission, in its report to your honorable body, dated February 10, 1927, concluded "that demonstrable local benefits in excess of general benefits will result from the construction of the rapid transit system proposed." This conclusion was based not only on elaborate studies of the local benefits resulting from the construction of the Hudson & Manhattan but also the influence of the New Jersey railroad lines upon land values and the experience in New York City and elsewhere following the opening of new subway lines. In our opinion, nothing has occurred in the intervening nine years that would materially alter this view.

APPENDIX A

TRAVEL HABITS OF NEW JERSEY COMMUTERS

In considering the suburban transit problem, it is essential to know the travel habits of the suburban passengers, including their origin and destination; peak traffic load; relationship between the peak load and the 24-hour load; other transit facilities used after reaching Manhattan; the average length of ride; the average time spent upon the train, and the average commuter fare paid.

Peak Hour Movement:

More than three-quarters of all our suburban passengers live within walking distance of their respective railroad stations. The peak hour movement occurs at practically the same time at all terminals when passengers are endeavoring to reach their places of business by 9:00 A. M. In the evening, there is a similar peak on the return movement. The volume of this peak hour movement ranges from one-quarter to over one-half the entire 24-hour inbound traffic movement. At nine of the terminals in the Metropolitan District which handle by far the largest number of suburban passengers, these percentages are as follows:

	Ratio of Peak Hour to 24-Hour Total
New Jersey Terminals:	
New Jersey Central—Jersey City	50.0
Lackawanna—Hoboken	57.4
Erie—Jersey City	57.9
Pennsylvania Station—P. R. R. from New Jersey	15.7*
West Shore—Weehawken	60.5
Hudson Terminal—New York City	27.5
New York City Terminals:	
Pennsylvania Station	45.5
Grand Central Terminal	47.6
Flatbush Avenue, Brooklyn	39.6

* Through Passenger Traffic.

Proportion of Commuter Tickets:

A large portion of our suburban population consists of those who purchase wholesale transportation at reduced rates and are therefore classed as "commuters." Nearly 80 per cent (omitting the long distance traveler) use a commutation or multiple ride type of ticket which is purchased at less than the one-way fare. For the past 20 years there has been very little change in the relationship of the num-

ber of commuter passengers to the total passengers from New Jersey. An increase of one resident in suburban territory is equivalent to an increase of about 70 rides annually on the suburban railroads between the suburban destination and New York City. This is equivalent to about one person out of every two families in suburban territory making a round trip by train to New York City daily.

Average Time Spent Traveling

About 40 minutes are required by the average suburban commuter between his New Jersey railroad station and New York City. This includes from 10 to 15 minutes required for the ferry service across the Hudson River. Although the average distance traveled, as determined by surveys, on the suburban railroads in New Jersey is 2.1 miles less than that for the Long Island sector and 3.8 miles less than for the Westchester sector, the total time consumed in making this daily business trip is approximately the same for all sectors. This quite clearly indicates the effect that a direct rail connection has upon suburban development.

Average Monthly Commutation Rates

The average monthly commutation ticket costs approximately $10.00 and this rate does not vary materially in any sector. The following rates have been taken from the public tariffs for stations nearest to the average distance traveled in each sector:

NEW JERSEY SECTOR

Railroad	Community	Distance from New York City	Commutation Monthly
New Jersey Central			
Main Line	Roselle-Roselle Park	15.0	$ 8.26
Lackawanna			
Morris & Essex Div.	South Orange	14.9	11.10
Erie			
Main Line	Paterson	16.7	10.60
Susquehanna	Prospect Ave., Hackensack	14.6	10.30
Greenwood Lake Div.	Mountain Ave., Upper Montclair	15.2	10.30
N. J. & N. Y.	Fairmont Ave., Hackensack	15.1	10.30
Northern	Englewood	15.0	10.30
Pennsylvania			
Main Line	South Elizabeth	14.9*	8.58
West Shore			
River Division	Haworth	15.3	9.18
	Average for Sector	15.2	9.90

* Hudson Terminal.

WESTCHESTER SECTOR

Railroad	Community	Distance from New York City	Commutation Monthly
New York Central			
Hudson River Div.	Hastings-on-Hudson	18.7	$10.39
Harlem Division	Scarsdale	19.0	10.39
New Haven			
Main Line	Larchmont	18.7	12.52
Westchester & Boston			
Main Line	Rye	19.5*	8.10
White Plains Branch	Mamaroneck Ave., White Plains	19.0*	7.10
	Average for Sector	19.0	9.70

* Harlem River Station.

LONG ISLAND SECTOR

Long Island			
Main Line	Floral Park	16.9*	$ 9.68
North Side Division	Manhasset	17.3*	9.79
Montauk Division	Valley Stream	17.7*	10.01
	Average for Sector	17.3*	9.80

* Pennsylvania Station.

Percentage of Passengers Paying Extra Fare for Rail Delivery Into New York City:

The Hudson & Manhattan Railroad, the only rapid transit line operating between New Jersey and New York City, has transfer connections in New Jersey with the Erie and Lackawanna as well as with the Pennsylvania Railroad. About 50 per cent of the Erie and Lackawanna railroad passengers use the Hudson & Manhattan Railroad and pay a separate fare of 6c per trip to the Hudson Terminal at Cortlandt Street or 10c per trip to Midtown Manhattan between Christopher and 34th Streets. The proportion of Erie and Lackawanna Railroad passengers availing themselves of the Hudson & Manhattan rapid transit services at an extra fare has not varied substantially in the last 15 years as indicated in the following table:—

PERCENTAGE OF TERMINAL PASSENGERS
PAYING EXTRA FARE

Year	Erie Passengers	Lackawanna Passengers
1918	50%	62%
1919	55%	64%
1920	50%	54%
1921	53%	53%
1922	54%	51%
1923	55%	50%
1924	54%	49%
1925	55%	50%
1926	54%	52%
1927	52%	55%
1928	52%	53%
1929	50%	50%
1930	47%	48%
1931	46%	52%
1932	43%	50%
1933	43%	49%
1934	47%	48%
1935	47%	48%

Percentage of Passengers Paying Fare for Local Distribution in New York City:

The New Jersey railroads deliver their passengers by ferry at the Manhattan waterfront and those passengers whose destination is beyond walking distance must use the transit facilities furnished by New York City. The proportion of passengers doing this from each railroad is as follows:

	Percentage of Suburban Passengers Paying Fare for Local Transportation in New York City
New Jersey Central Railroad	48%
Lackawanna Railroad	37%*
Erie Railroad	37%*
Lehigh Valley Railroad	64%
Pennsylvania Railroad	58%
West Shore Railroad	64%

* Excluding Hudson & Manhattan Railroad.

This is in addition to the commutation tickets on the suburban railroads and in addition to fares on the Hudson & Manhattan Railroad, if used. These additional fares increase the railroad commutation ticket cost to the passenger from 25 to 75 per cent monthly. The minimum fare paid on any City transit facility is 5c. An analysis made of the travel habits of passengers on one New Jersey railroad indicates that 61 per cent of its New York City passengers paid an average of nearly 9.44c in addition to their regular railroad fare twice daily. This included fares paid on the Hudson & Manhattan Railroad. The various rates paid were as follows:

Percentage of Rail Riders	Extra Fare Paid Twice Daily	Amount of Extra Fare Paid Per Month	Ratio of Extra Fare to Average Monthly Rail Commutation Ticket
10%	15c	$7.80	78.0%
18%	11c	5.72	57.2%
9%	10c	5.20	52.0%
18%	6c	3.12	31.2%
6%	5c	2.60	26.0%

Growth of Railroad Passenger Traffic:

Railroad passenger traffic within the Port of New York District, more than 90 per cent of which has its destination in New York City, increased steadily for twenty years up to 1929 as shown on charts and tables in Appendix D. In 1930, due to the economic depression, a sharp decline set in which reached its low point in 1935. The traffic for 1936 definitely indicates that the low point is past. The accompanying table shows the daily volume of railroad passengers moving toward New York City from the three major sectors.

Sector	1911	1930	1933	1935	1936
New Jersey.....	194,300	309,800	218,000	214,200	223,700
Westchester	33,700	96,300	63,600	65,100	70,400
Long Island.....	50,300	175,400	118,600	115,300	122,100
Total.....	278,300	581,500	400,200	394,600	416,200

APPENDIX B

CHRONICLE OF TRANSIT STUDIES

The suburban transit problem for Northern New Jersey has been actively studied for more than 10 years, first by the North Jersey Transit Commission, later by the Suburban Transit Engineering Board created through the efforts of The North Jersey Transit Commission and The Port of New York Authority and then by the Port Authority itself.

The North Jersey Transit Commission made several reports, setting forth the difficulties of the New Jersey agency dealing with rapid transit extending beyond the State boundaries. This point was discussed with the Port Authority and it was readily recognized that the suburban passengers' transit problem is regional in character, involving the entire Metropolitan District surrounding the City of New York and should be studied from the point of view of the needs of the entire New York region.

With the cooperation of the North Jersey Transit Commission and acting on instructions from your body (Chapter 277, Laws of 1927), the Port Authority extended invitations to the official agencies in the three sectors of the Metropolitan District (New Jersey, Long Island and Westchester) and the railroads serving those sectors, to join in the creation of a coordinating agency, the Suburban Transit Engineering Board. The organization of this board marked the first coordinated effort on the part of the various regional public agencies and the railroad corporations to investigate and study this problem as a single group. Two progress reports were made by the Suburban Transit Engineering Board and transmitted to your honorable body by the North Jersey Transit Commission in 1928 and 1930.

By October 1931, suburban passenger traffic was rapidly declining, largely on account of the nation-wide economic depression. At the urgent request of the railroad members of the Board, further detailed studies were postponed at that time in order to release their personnel for more pressing duties. The North Jersey Transit Commission ceased to function in 1931. Since 1931, the Port Authority has confined its transit activities to collection of suburban passenger traffic data and other incidental studies until such time as a reversal in the downward traffic trend should revive interest in this subject.

In the interim since 1931, a number of individuals have presented plans for new interstate transit routes. Some of these follow the general proposals of a distributing terminal line in Manhattan, as indicated by the Suburban Transit Engineering Board; others have suggested a terminal at a single location with a distribution of passengers by New York City's subways.

APPENDIX C

CHAPTER J. R. 6

LAWS OF NEW JERSEY 1936

Joint Resolution requesting The Port of New York Authority to report upon interstate and suburban passenger transportation.

PREAMBLE WHEREAS, The increasing concentration of industry and population within the portion of the Port of New York District lying within the territorial limits of the State of New Jersey has created and to an increasing degree will continue to create a demand for more adequate interstate and suburban transportation facilities for passengers travelling within said district between the two States and between different communities within said district; and

PREAMBLE WHEREAS, The Port of New York Authority is a governmental instrumentality of the States of New Jersey and New York created for the purpose, among other things, of coordinating and developing transportation facilities within the Port of New York District; and

PREAMBLE WHEREAS, The Port of New York Authority has been continuously studying the problem of coordinating and developing transportation facilities for passengers within the Port of New York District, including the portion of said district lying within the territorial limits of the State of New Jersey, and has from time to time reported to the Governor and Legislature thereon; and

PREAMBLE WHEREAS, A further report by The Port of New York Authority with a special reference to the development and coordination of passenger transportation facilities within the portion of the port district lying within this State, is desirable to the end that the Governor and the members of the Legislature may be more fully informed; therefore,

BE IT RESOLVED by the Senate and General Assembly of the State of New Jersey:

RECOMMENDATIONS

1. That The Port of New York Authority be and it hereby is requested to report to the Governor and Legislature of the State of New Jersey, as promptly as practicable, upon the transportation of passengers within the Port of New York District, with especial reference to the portion of said district lying within this State, and to include in said report such recommendations with respect to new passenger traffic facilities and the development and coordination of existing facilities as may be deemed feasible.
2. This joint resolution shall take effect immediately.

Approved June 22, 1936.

APPENDIX D
TABLES AND CHARTS

ANNUAL RAILROAD PASSENGERS
NEW JERSEY SECTOR OF NEW YORK METROPOLITAN DISTRICT

Year	Commuters	Others	Total
1911	103,145,866	23,147,829	126,293,695
1912	100,397,229	22,338,504	122,735,733
1913	100,508,371	24,360,216	124,868,587
1914	99,703,013	23,262,343	122,965,356
1915	99,712,045	24,267,965	123,980,010
1916	107,154,122	26,665,233	133,819,355
1917	112,824,552	29,366,245	142,190,797
1918	119,288,433	31,897,449	151,185,882
1919	138,857,185	36,851,065	175,708,250
1920	144,468,076	37,671,983	182,140,059
1921	147,621,998	36,712,380	184,334,378
1922	152,735,801	36,866,861	189,602,662
1923	159,207,138	38,033,049	197,240,187
1924	162,346,883	38,052,106	200,398,989
1925	165,496,352	38,716,186	204,212,538
1926	167,137,038	38,702,636	205,839,674
1927	170,292,023	38,270,891	208,562,914
1928	169,565,388	37,577,870	207,143,258
1929	170,794,743	40,033,620	210,828,363
1930	164,921,443	36,817,886	201,739,329
1931	151,304,905	31,024,018	182,328,923
1932	131,676,916	27,253,184	158,930,100
1933	115,986,231	25,961,026	141,947,257
1934	113,576,107	27,839,112	141,415,219
1935	111,987,431	28,013,948	140,001,379
1936	*114,915,819	*31,253,787	*146,169,606

* Estimated, based on 11 months.

NEW YORK METROPOLITAN DISTRICT
ANNUAL RAILROAD PASSENGERS—CLASSIFIED BY SECTORS
IN COMPARISON WITH TOTAL CLASS I RAILROAD PASSENGERS—U. S.

Year	Annual Railroad Passengers—New York Metropolitan District				Total Class I R.R. Passengers U. S.	Ratio of N. Y. Metro. Passengers to Class I R.R. Passengers
	New Jersey Sector	Long Island Sector	Westchester Sector	Combined Sectors		
1911.....	126,293,695	33,867,228	21,687,815	181,848,738	938,655,719	19.4
1912.....	122,735,733	37,319,812	23,429,320	183,484,865	944,265,173	19.4
1913.....	124,868,587	40,606,183	26,524,936	191,999,706	983,692,468	19.5
1914.....	122,965,356	41,634,223	27,530,170	192,129,749	1,002,350,385	19.2
1915.....	123,980,010	42,629,325	29,393,634	196,002,969	936,368,539	20.9
1916.....	133,819,355	45,802,722	34,812,602	214,434,679	1,055,954,777	20.3
1917.....	142,190,797	50,796,028	37,487,487	230,474,312	1,066,638,474	21.6
1918.....	151,185,882	55,004,086	35,649,129	241,839,097	1,084,997,896	22.3
1919.....	175,708,250	64,067,541	38,438,901	278,214,692	1,177,820,454	23.6
1920.....	182,140,059	72,743,820	45,329,210	300,213,089	1,234,862,048	24.3
1921.....	184,334,378	75,506,045	45,295,650	305,136,073	1,035,496,329	29.5
1922.....	189,602,662	79,656,891	46,190,539	315,450,092	967,409,205	32.6
1923.....	197,240,187	86,166,896	48,427,318	331,834,401	986,913,075	33.6
1924.....	200,398,989	92,991,010	50,810,046	344,200,045	932,678,462	36.9
1925.....	204,212,538	100,922,813	53,710,983	358,846,334	888,267,296	40.4
1926.....	205,839,674	104,794,222	56,943,350	367,577,246	862,361,333	42.6
1927.....	208,562,914	111,653,333	60,586,261	380,802,508	829,917,845	45.9
1928.....	207,143,258	112,546,591	63,098,052	382,787,901	790,327,447	48.4
1929.....	210,828,363	118,888,128	65,536,638	395,253,129	780,468,302	50.6
1930.....	201,739,329	118,189,901	63,609,520	383,538,750	703,598,121	54.5
1931.....	182,328,923	110,283,437	57,549,258	350,161,618	596,390,924	58.7
1932.....	158,930,100	91,713,868	47,743,433	298,387,401	478,800,122	62.3
1933.....	141,947,257	79,947,258	42,159,165	264,053,680	432,979,887	61.0
1934.....	141,415,219	79,134,435	43,080,819	263,630,473	449,775,279	58.6
1935.....	140,001,379	77,671,201	43,160,255	260,832,835	445,872,300	58.5

Source: Railroad Passengers—New York Metropolitan District—Various Railroads.
Railroad Passengers—U. S.—Interstate Commerce Commission.

ORIGIN OF RAILROAD COMMUTERS

Expressed in Percentage by 5-Mile Zones

Railroad	Miles from Terminals					
	5 Miles %	10 Miles %	15 Miles %	20 Miles %	25 Miles %	Beyond 25 Miles %
New Jersey Central Railroad	0	10	34	59	83	100
D. L. & W. Railroad	0	21	65	76	87	100
Erie Railroad	0	16	49	71	95	100
Lehigh Valley Railroad	0	0	57	58	82	100
Pennsylvania Railroad	0	43	65	83	96	100
West Shore Railroad	0	58	85	91	97	100
Total	0	23	56	73	90	100

POPULATION
NORTHERN NEW JERSEY

County	Years			
	1900	1910	1920	1930
Bergen	78,441	138,002	210,703	364,977
Hudson	386,048	537,231	629,154	690,730
Essex	359,053	512,886	652,089	833,513
Passaic	155,202	215,902	259,174	302,129
Union	99,353	140,197	200,157	305,209
Total Five Counties	1,078,097	1,544,218	1,951,277	2,496,558
Total State	1,883,669	2,537,167	3,155,900	4,041,334

NET VALUATION TAXABLE PROPERTY
NORTHERN NEW JERSEY

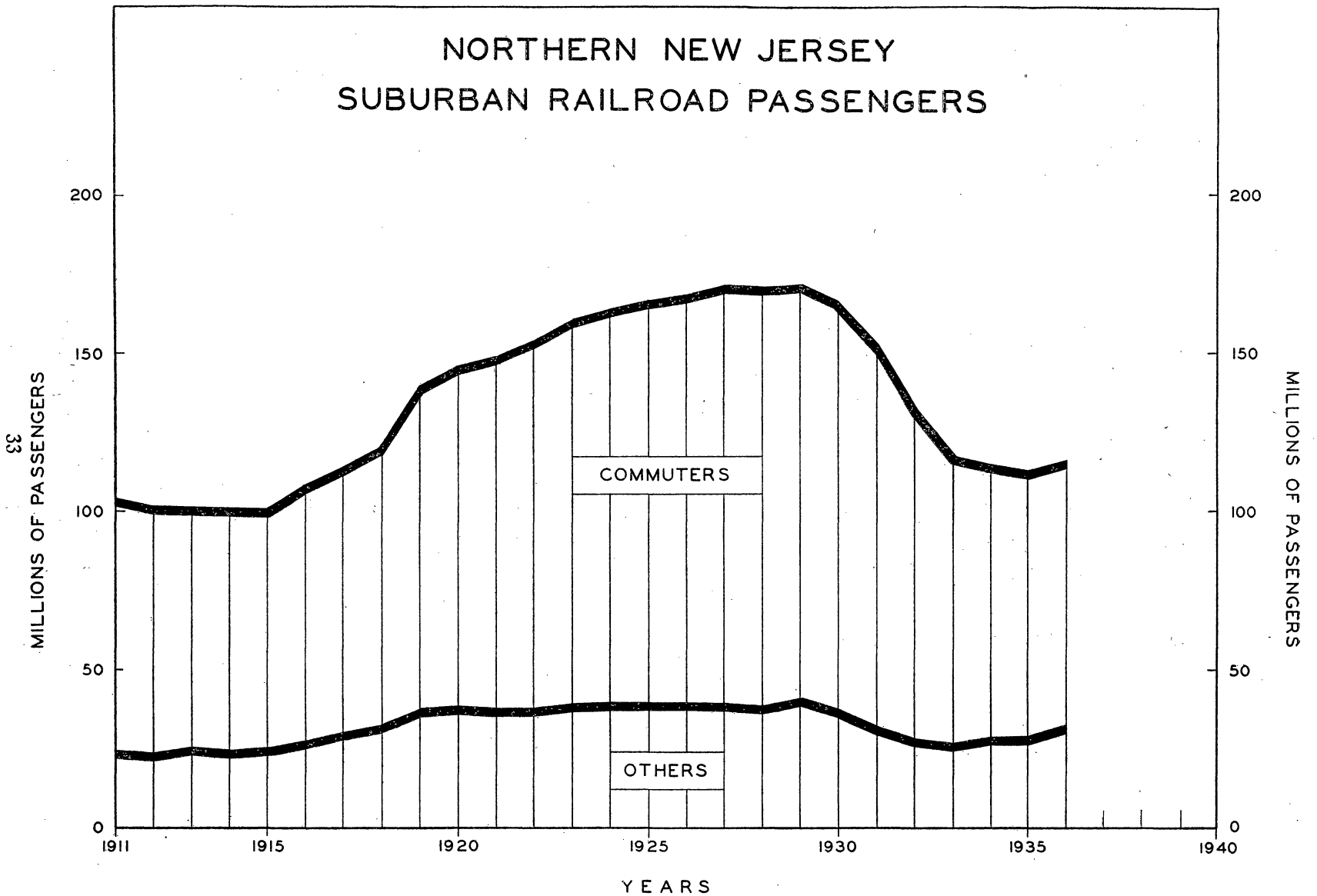
County	Year			
	1921	1925	1930	1935
Bergen	$ 223,169,780	$ 298,058,766	$ 470,819,362	$ 483,723,442
Hudson	799,389,106	1,022,353,182	1,246,664,372	1,199,627,937
Essex	823,647,022	1,113,375,787	1,599,084,423	1,645,698,053
Passaic	255,869,440	357,225,327	428,006,784	380,660,316
Union	259,195,867	330,508,244	482,672,661	469,388,559
Total 5 Counties.	$2,361,271,215	$3,121,521,306	$4,227,247,602	$4,179,098,307
Total State	$3,519,841,268	$4,756,154,259	$6,394,742,130	$5,841,062,846

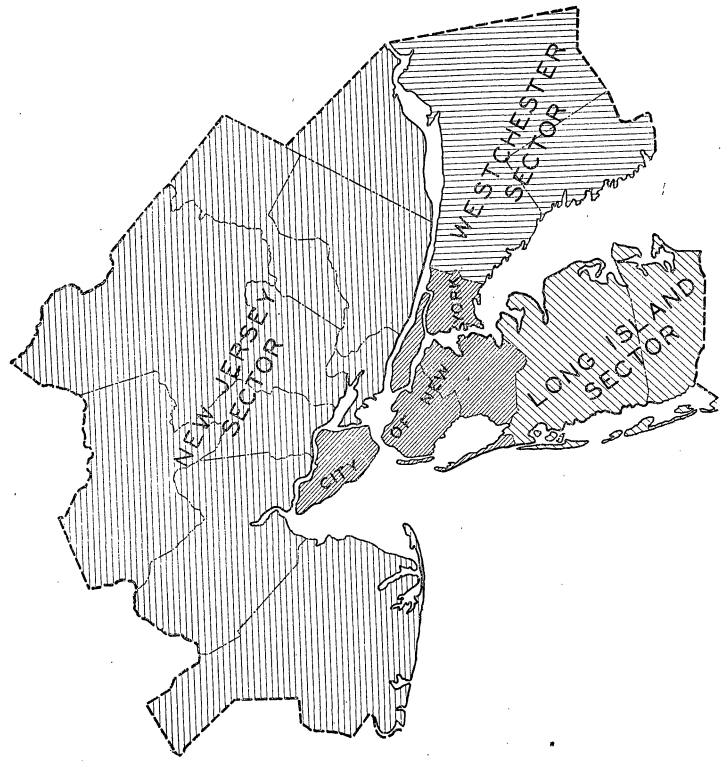
TRANS-HUDSON PASSENGER TRAFFIC

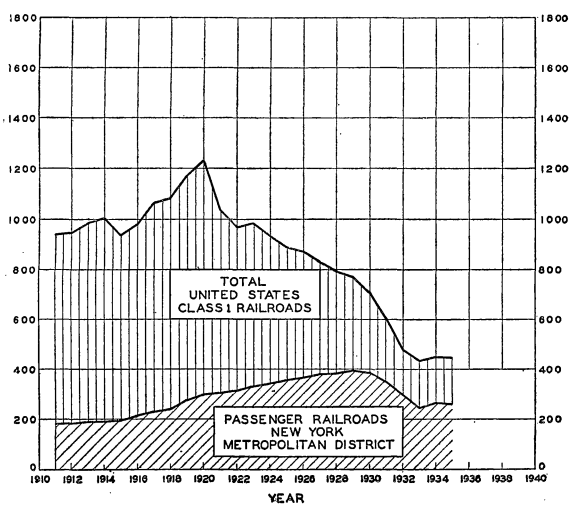
1925-1936

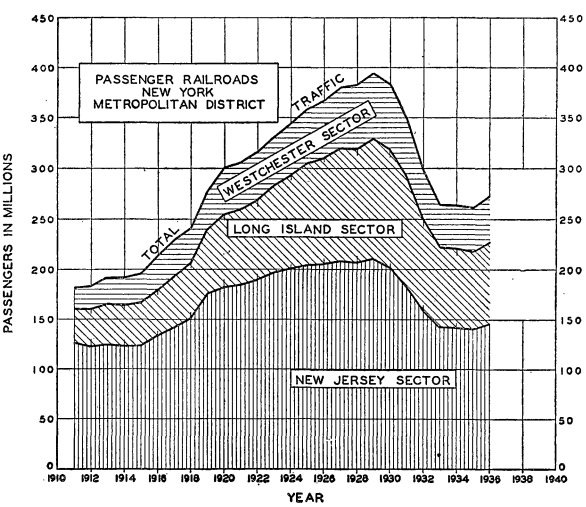
Year	Railroad Passengers Using — Railroad Tunnels	Railroad Passengers Using — Ferries	Local Pedestrians Using Ferries	Passengers Using Buses	Passengers Using Pleasure Cars	Total Trans-Hudson Passengers
1925	120,580,558	83,631,980	44,726,307	966,000	18,257,000	268,161,845
1926	122,655,690	83,183,984	45,019,947	949,000	19,803,000	271,611,621
1927	125,008,697	83,554,217	45,348,021	2,479,000	23,804,000	280,193,935
1928	123,605,770	83,537,488	42,935,703	7,061,000	35,744,000	292,883,961
1929	124,242,783	86,585,580	41,500,276	9,050,000	40,920,000	302,298,639
1930	117,750,227	83,989,102	38,264,185	9,052,000	43,573,000	292,628,514
1931	105,777,866	76,551,057	34,899,173	10,263,000	47,855,000	275,346,096
1932	91,011,395	67,918,705	29,050,296	11,105,000	53,370,000	252,455,396
1933	82,233,992	59,713,265	26,357,775	14,355,000	51,898,000	234,558,032
1934	83,893,218	57,522,001	26,471,757	15,481,000	52,377,000	235,744,976
1935	83,941,325	56,060,054	25,913,911	17,077,000	54,556,000	237,548,290
1936	*88,592,396	*57,577,210	*25,763,775	.....	.....	.....

* Estimated—based on 11 months.

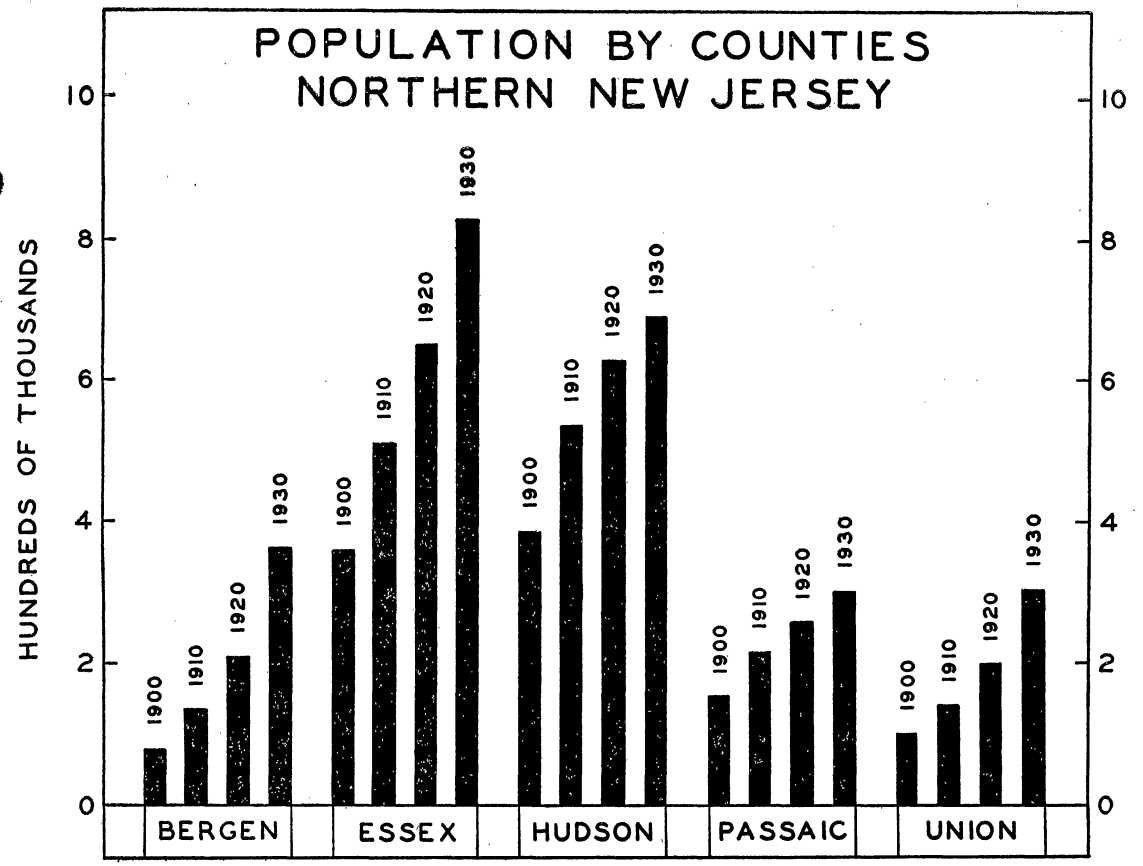

NORTHERN NEW JERSEY
SUBURBAN RAILROAD PASSENGERS
MILLIONS OF PASSENGERS
200
150
100
50
0
COMMUTERS
OTHERS
1911
1915
1920
1925
1930
1935
1940
YEARS
MILLIONS OF PASSENGERS
200
150
100
50
0

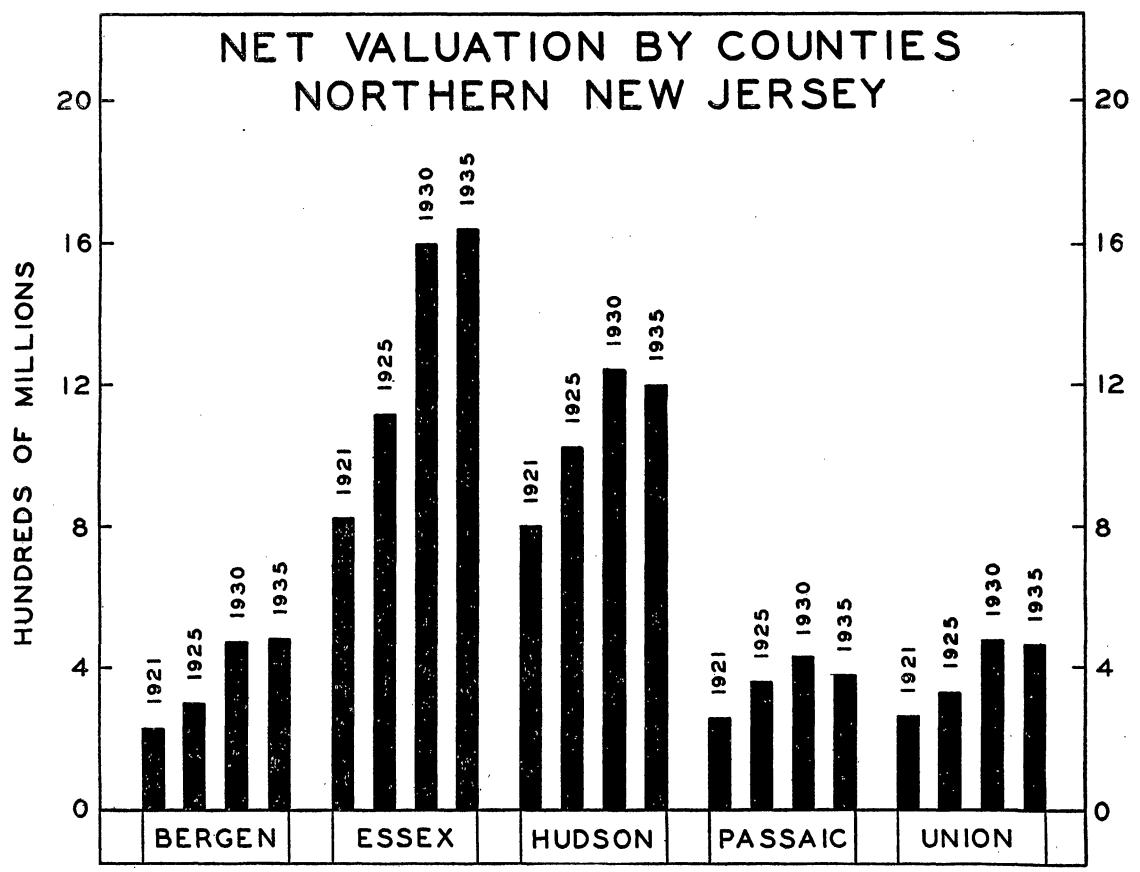






CHANGES IN VOLUME OF PASSENGER TRAFFIC


POPULATION BY COUNTIES
NORTHERN NEW JERSEY
HUNDREDS OF THOUSANDS
HUNDREDS OF THOUSANDS
0
2
4
6
8
10
1900
1910
1920
1930
BERGEN
ESSEX
HUDSON
PASSAIC
UNION


NET VALUATION BY COUNTIES
NORTHERN NEW JERSEY
HUNDREDS OF MILLIONS
HUNDREDS OF MILLIONS
0
4
8
12
16
20
1921
1925
1930
1935
BERGEN
ESSEX
HUDSON
PASSAIC
UNION

TRANS-HUDSON PASSENGER TRAFFIC