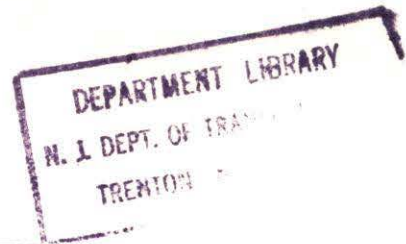


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NEW JERSEY
PUBLIC TRANSPORTATION STUDY
PHASE A

IT-09-0023 TS F110 (7350)

IMMEDIATE ACTION PLAN
MARCH 1974



NEW JERSEY DEPARTMENT OF TRANSPORTATION

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IMMEDIATE ACTION PLAN

MARCH 1974

Prepared For:

NEW JERSEY DEPARTMENT OF TRANSPORTATION

in cooperation with:

URBAN MASS TRANSPORTATION ADMINISTRATION, USDOT
TRI-STATE REGIONAL PLANNING COMMISSION
DELAWARE VALLEY REGIONAL PLANNING COMMISSION
N.J. DEPARTMENT OF COMMUNITY AFFAIRS

Wilbur Smith and Associates
FORD, BACON & DAVIS, INC.

WILBUR SMITH AND ASSOCIATES

FORD, BACON & DAVIS Inc.

IN ASSOCIATION

831 Parkway Avenue •

Trenton, New Jersey 08618 •

609-883-0006

March 8, 1974

Commissioner Alan Sagner
New Jersey Department of Transportation
1035 Parkway Avenue
Trenton, New Jersey 08625

RE: Project TS F-112 (7351) IT-09-0023

Dear Commissioner Sagner:

We are pleased to submit our report "Immediate Action Plan,
New Jersey Public Transportation Study."

The report presents the findings of our work on Task 3 of the Agreement dated December 6, 1972, which also provided for an interim overview report, dated January, 1973, and a comprehensive inventory of the statewide bus system. The inventory has been presented in a series of eight segment reports, which covered all regular route bus transit services in New Jersey. As you are aware, the inventory has also resulted in the establishment of a bus transit databank in the Electronic Computer Division of the New Jersey Department of Transportation.

Mr. Charles O. Pratt, Project Manager, and Mr. David S. Greer, Assistant Manager, appreciate the cooperation of all members of the staff of the New Jersey Department of Transportation who have been involved on the project.

We trust the proposals for alleviation of some of the current problems will be useful in advancing the cause of improved public transportation in New Jersey.

Respectfully submitted,

WILBUR SMITH AND ASSOCIATES



E. M. Whitlock
Vice President
Registered Professional Engineer
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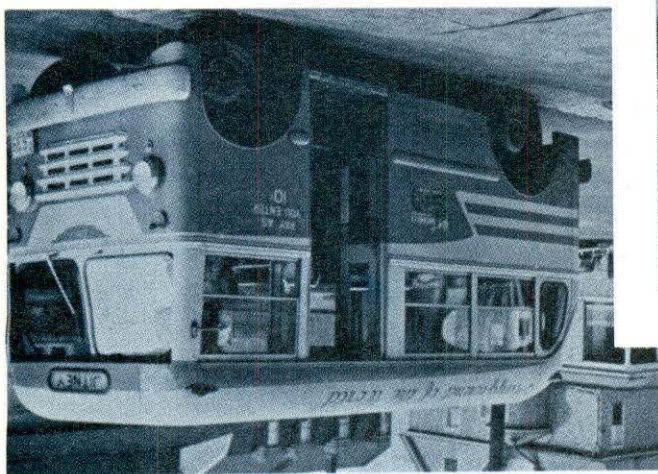
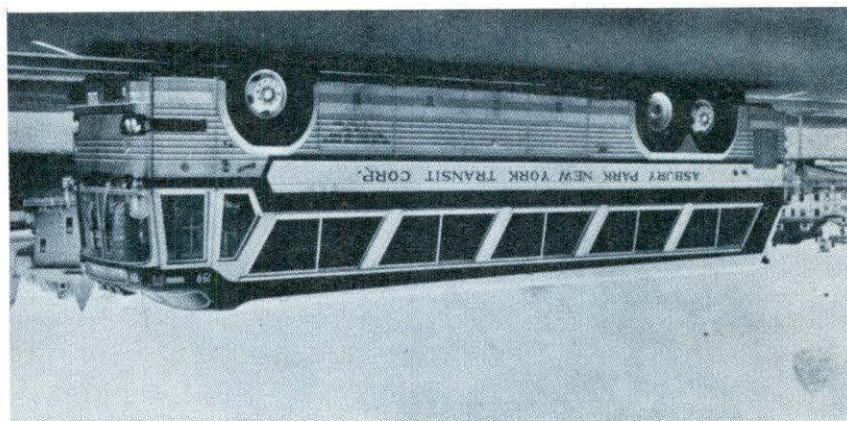
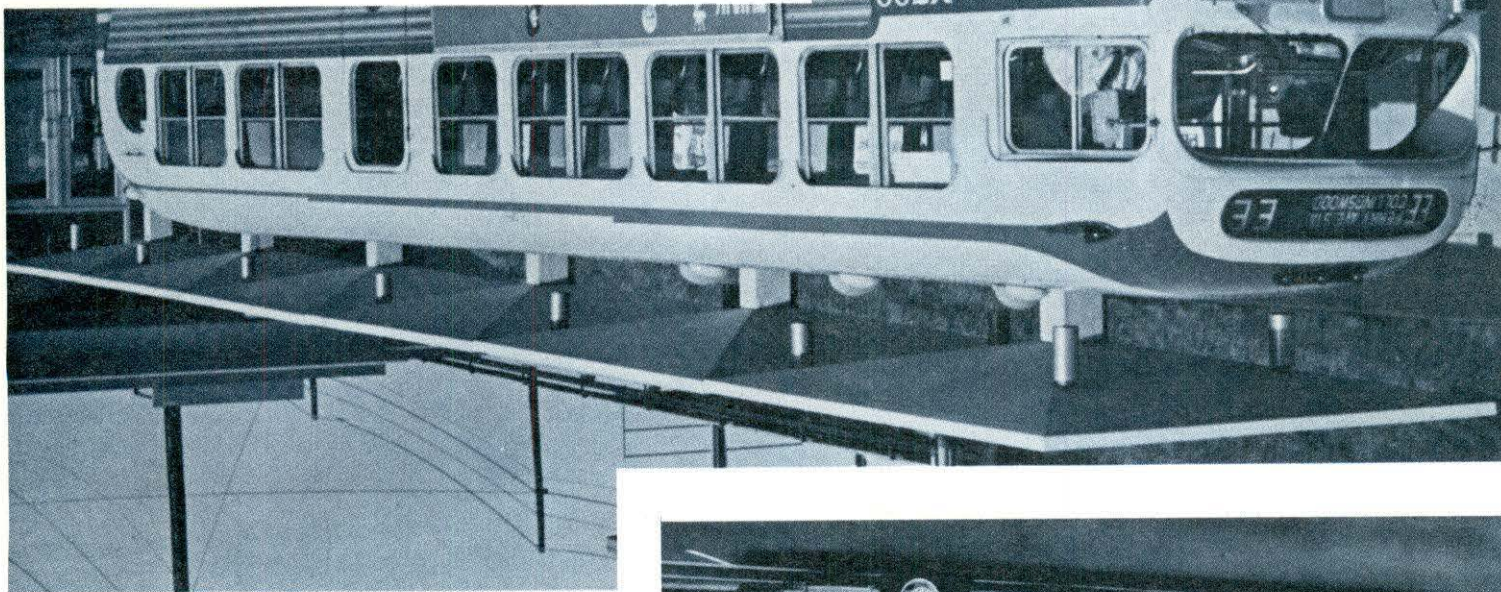
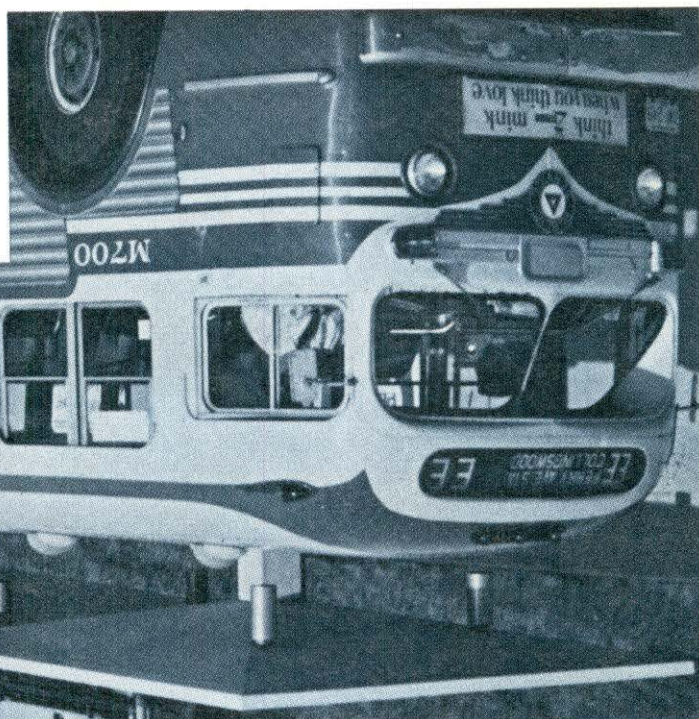
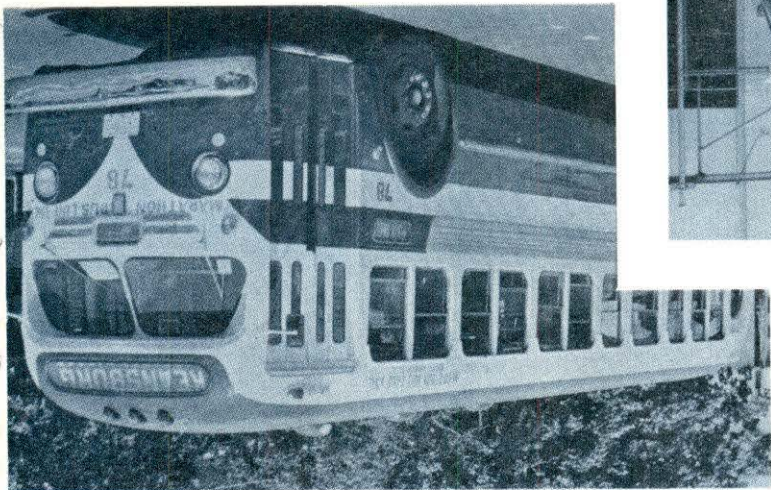
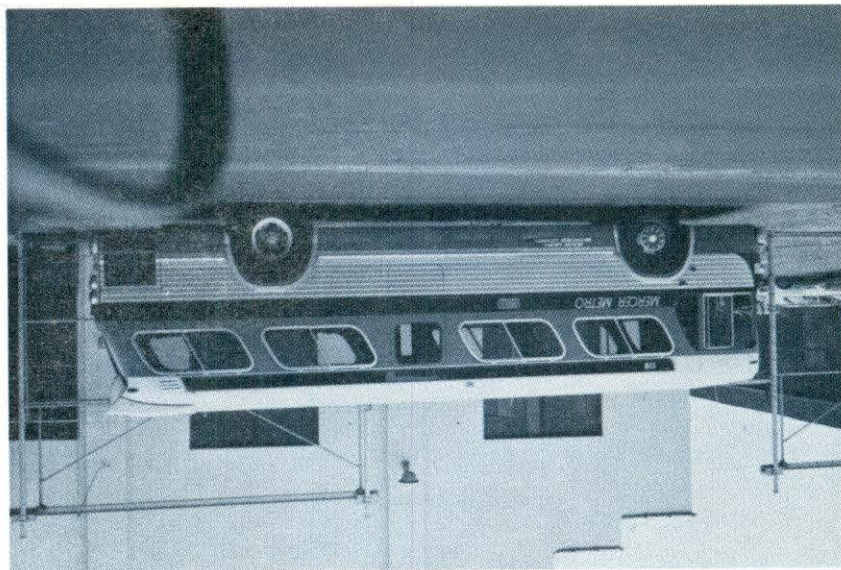
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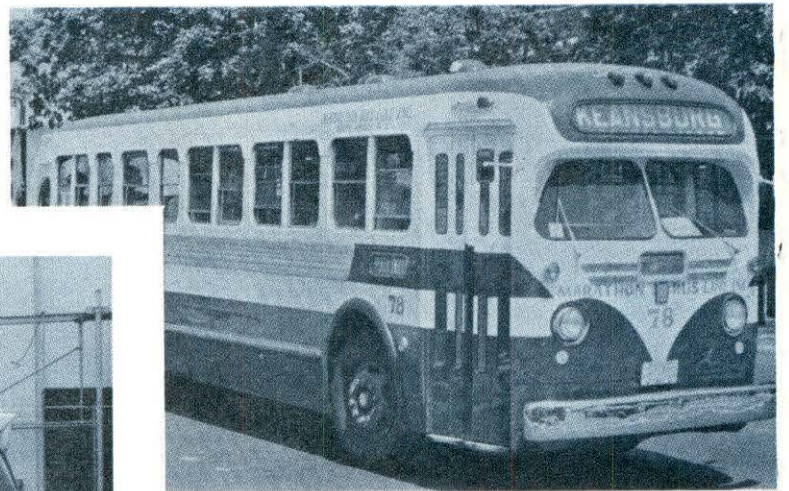
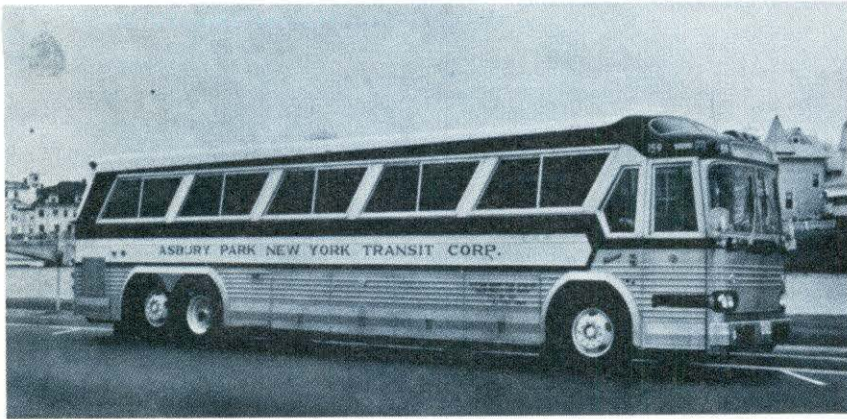
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THE REPORT IN BRIEF

Evaluation of existing bus transit operation in New Jersey lead to the following findings:

- . A total of 226 bus companies operate as 48 regular service companies and 14 independent groups of operators in providing fixed route transit service in the state.
- . Operating revenues of the five principal groups in 1971 ranged between \$6,500,000 for DeCamp Bus Lines and nearly \$79,000,000 for Transport of New Jersey.
- . The 1973 bus fleet totalled 3,970 buses, of which 2,076 were Transport of New Jersey vehicles and the total fleet consisted of 2,263 urban transit vehicles, 1,358 suburbans and 349 parlor or cruisers.
- . The fleet has an average capacity of 48 seated passengers and an average age of nearly 11 years.
- . Service is provided on a regular route schedule to all communities with population densities in excess of 6,000 persons per square mile and to most communities in the range of 3,000 to 6,000 persons per square mile.
- . Bus service is provided by private operators with only two exceptions, the Mercer Metro system operated by the Mercer County Improvement Authority in and around Trenton and a small one-bus operation maintained by the City of Hoboken.
- . Examples of both apparently harmful competition and integrated or coordinated route sharing may be found throughout the State.

- . Total bus transit revenue in New Jersey totalled nearly \$164,000,000 in 1971, with Transport of New Jersey responsible for nearly half (\$79,000,000).
- . 1971 statistics found 27 operating groups reporting profits, 15 groups in the marginal loss category and the balance of 20 groups recording significant losses.
- . Between 1968 and 1971 Transport of New Jersey purchased 430 of the 480 new buses placed in operation in New Jersey. Very few new buses have been placed in service since 1972 except through a bus purchase program initiated by the Department of Transportation.
- . Intra-state bus transportation in New Jersey is controlled by the Board of Public Utility Commissioners and the Department of Transportation with the Department of Transportation's role in the ascendancy since its organization in 1966 and particularly as administrator of a bus subsidy program instituted by the State Legislature in 1969 and amended in 1971.
- . The bus subsidy program has grown from a total of slightly over \$530,000 in fiscal 1970 to over \$4,250,000 in fiscal 1973, with further increases anticipated during the next few years.

Proposals for immediate action in response to indicated problems of the bus transit system in New Jersey included the following:

- . Clarification of responsibility for the operation of the state's bus system between the Public Utility Commission and the Department of Transportation with major controls to be shifted to the Department of Transportation.

- . Development of a comprehensive program at the State level to "market" the available bus transit service and achieve a higher level of utilization of present facilities.
- . Within the framework of the bus subsidy program, arbitration clauses should be a required part of labor agreements with subsidized operators.
- . DOT review of transportation impact statements provided by developers should assure that state, regional and local planning coordination is achieved and non-conforming projects can be modified or accommodated.
- . Essential elements of the bus transit network are identified for the purpose of establishing priorities in maintenance of key services.
- . Detailed review of present subsidized operators in relation to essential bus network elements to facilitate trimming of subsidy budgets and minimization of new funding requirements.
- . Establishment of field inspection forces to monitor and provide route supervision of smaller independent operators in the interest of optimizing performance of existing systems.
- . Initiation of a cluster service concept for improved economy and safety of evening and weekend transit service.
- . Resolution of service duplications in selected corridors.
- . Initiation of express bus service on I-280 in Newark and its suburbs along with park and ride and mode change facilities at the temporary terminus of I-280.
- . Continue to expand park and ride services along major arteries providing access to New York, Newark and Philadelphia.

- . Consolidation of intercity bus operations in Atlantic City in the Union Station bus terminal operated by the city.
- . Establishment of criteria for distribution of buses to be made available under the Department of Transportation's bus purchase program.
- . Continuation of the study efforts to develop short range plans for optimization of public transit facilities in five prototypical corridors throughout the State.

Chapter 1

INTRODUCTION

The State of New Jersey is experiencing an increasingly serious inadequacy in its public transportation system aggravated by a concurrent reduction in the construction of facilities for private automobiles. The major factors contributing to the inadequacy are insufficient funding levels, poor operating practices including lack of route supervision, lack of coordination of competing modes and services, conflict between state regulatory and administrative agencies, and lack of an effective public information marketing program.

Highway traffic volumes are growing faster than new facilities are being provided, resulting in continually increasing highway congestion while, on the other hand, no relief is available in the form of improved or expanded public transportation services. Changing priorities in the allocation of available funds, and environmental constraints have contributed to the curtailment of the highway program. This impact is felt most strongly in urban areas where costs are highest and public advocacy pressures most severe.

At the same time, four of the state's five commuter railroads are bankrupt, and more than 20 private bus companies which are receiving subsidies for essential operations, are doing little to improve or expand service.

State bus and railroad subsidy programs are administered by the Commuter Operating Agency (COA) on different bases. They are aimed at preserving existing services, and there is no motivation to improve service nor optimize costs. At the present time, COA is making no attempt to coordinate these services.

The bus industry comprises 289 companies operating independently. This results in duplication of service, unnecessary cost, and lack of service to important segments of urban and rural communities in the State.

Study Objectives

The objective of this study is to provide an immediate action plan for improving public bus service in New Jersey to ensure greater response to public needs. The study examines existing public transportation characteristics and, following extensive analysis, recommends appropriate action for the preservation and extension of bus services.

The role of rail rapid transit is investigated as a component of the total public transportation system to provide recommendations for modal integration and intermodal transfer where appropriate.

The study recommendations will lead to improved coordination, operation and regulation of essential bus services and will guide the most effective use of state and federal assistance.

Awareness of the State's official transit development program for fiscal year 1974, and possible programs for the next five years is reflected in the Study.

The immediate action objectives of this report, designated Phase A will be followed by a Phase B work program establishing a comprehensive analysis of public transportation requirements for a short-range (five-year) improvement program.

Scope of Study

This phase of the public transportation study is divided into work tasks as follows:

Task 1 - An introductory overview statement dimensioning the transportation situation in the State of New Jersey and identifying governmental policy alternatives.⁽¹⁾

Task 2 - Initiation of a detailed inventory of all present bus transportation operations in the State. This inventory includes:

- a. Bus company financial status reports;
- b. Inventories of bus fleets including data on age, capacities, and related equipment details;
- c. Regular weekday routes, schedules, headways, and related operating statistics; and,
- d. Presentation of the above data suitable for storage in a computerized data bank with procedures for regular and routine updating.

Task 3 - Development of recommendations for immediate-action improvements making optimum use of existing equipment and facilities.

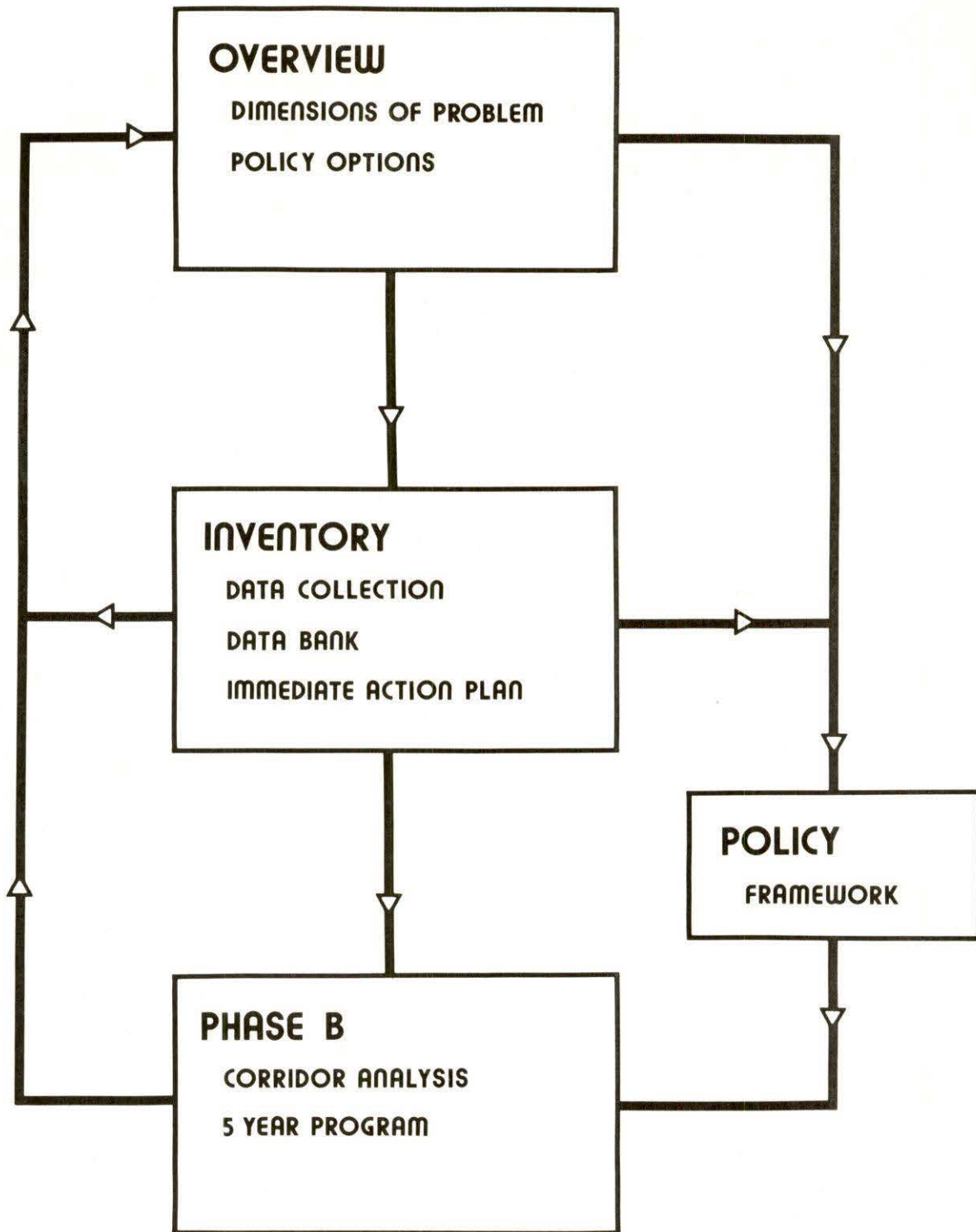
The Study Concept is depicted in Figure 1.

Type of Bus Service Covered

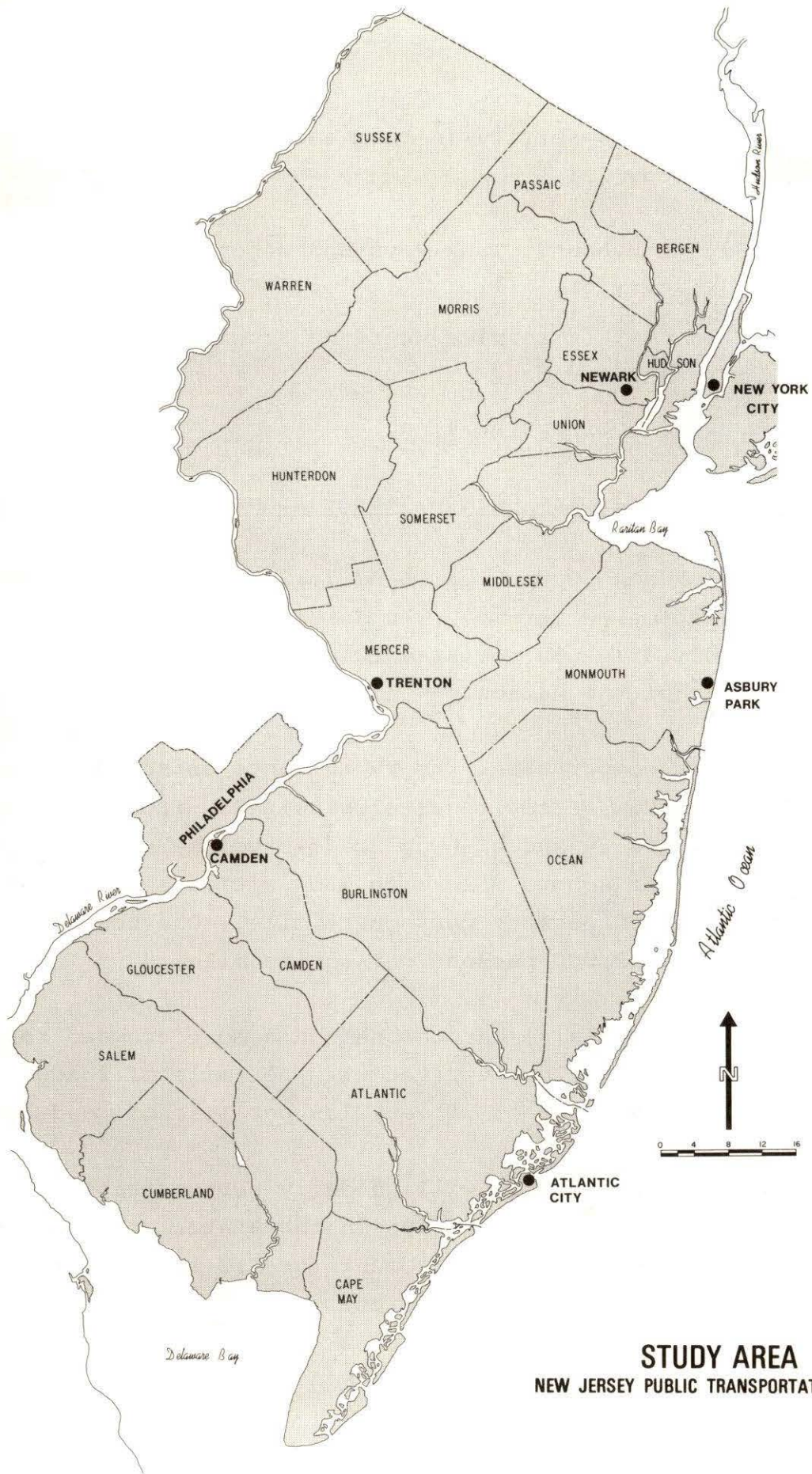
This Study addresses bus transportation operating in regular scheduled service in New Jersey. The Study Area includes the entire State as shown in Figure 2.

The Study includes all scheduled intrastate service and interstate commuter service carrying New Jersey residents to and from destinations in New York or Philadelphia.

(1) Interim Report: OVERVIEW AND POLICY ALTERNATIVES ON TRANSPORTATION IN NEW JERSEY, prepared for New Jersey Department of Transportation by Wilbur Smith and Associates/Ford, Bacon & Davis, Inc., January, 1973.



STUDY CONCEPT
NEW JERSEY PUBLIC TRANSPORTATION STUDY



STUDY AREA
NEW JERSEY PUBLIC TRANSPORTATION STUDY

Other bus service in the state not included in the inventory study is:

1. Greyhound, Trailways and other thru interstate service.
2. Charter service where no regular route service is provided.
3. School bus service

The Role of Buses in the New Jersey Transportation System

With a 1970 population of 7,172,000, and nearly 4,000 buses in scheduled service, New Jersey has about one bus for every 1,800 residents compared to one bus for every 4,140 persons in the rest of the nation.

This comparatively heavy reliance on scheduled bus transportation in New Jersey results principally from the state's high population density and highway traffic volume. The state averages 950 persons per square mile with many cities in the state averaging more than 10,000 persons per square mile. One county, Hudson, averages over 13,000 persons per square mile.

The state also has the nation's most crowded roads and streets averaging 120 motor vehicles per mile of roadway, compared to a national average of 31 vehicles per mile of roadway.

An estimated 1.5 million daily person trips, representing 10 per cent of all person-trips in the state, are made by transit vehicles. Scheduled buses account for 1.2 million, or 80 per cent of these daily transit trips.

Reasons for the Decline in Transit Patronage

Before the use of the private automobile became widespread in the United States, public transportation systems were successful private enterprises with assured markets. These systems were characterized by fixed routes serving concentrated residential corridors and centralized downtown business areas. With the flexibility permitted in work and shopping journeys by the private automobile, however, urban areas have become characterized by low density sprawl. In the last two decades, most population and employment growth has occurred outside the boundaries of older urban communities. Even with this significant change in travel patterns, however, the downtown areas of the nation's largest cities still receive more than half of their peak-hour travelers by public transportation vehicles.

The effects of these changes have been widely documented. Nationally, private automobile travel has doubled about every 15 years, while public transportation patronage has decreased from 19 billion riders in 1945 to less than 5.3 billion in 1972. With rising costs and reduced patronage, the nation's transit systems, in the aggregate have operated at a deficit for nearly a decade. As patronage has declined, route mileage and service frequency have been reduced drastically by the bus operators in attempting to optimize net revenue. As a result the quality of service has also been seriously reduced.

Community Benefit Concept of Transit Service

While greater automobile use has increased mobility for a large sector of the population, mobility of urban residents who cannot use automobiles has been reduced by cutbacks in public transit service. Persons excluded from driving due to age, physical handicap, or income or members of one-car households where one family member has priority use of the automobile often find

extreme difficulty in traveling for work, medical, educational, and other purposes. The availability of a convenient public transportation service would be a substantial community benefit to these persons.

The major role of public transit is serving peak-period weekday work trips along major travel corridors. These are the hours and locations where traffic congestion is most acute. It is here that increased public transportation service can best increase the person trip capacities of overcrowded roadways by substituting mass transportation vehicles for individual private autos.

In addition, as the world's deficit in fossil fuels becomes more acute, individual reliance on the automobile must be replaced by improved and expanded public transportation service.

There is growing recognition today by public officials at the federal, state, and local levels that public transit provides essential community services similar in many instances to police and fire protection. The community benefits that can be gained are justification for the supplemental public financial assistance where transit farebox revenues alone will not cover capital investment and operating and maintenance costs necessary to maintain an adequate transportation system.

Organization of Report

The subjects covered in subsequent chapters of this report are:

- Study Methodology;
- Evaluation of Existing Conditions;
- Administration of Public Transportation;
- Immediate-Action Recommendations; and,
- Review of Bus Purchase Program.

The Study was done with the support and guidance of two committees. A Policy Committee consisted of representatives of New Jersey's Departments of Transportation and Community Affairs and, the Tri-State and Delaware Valley Regional Planning Commissions. This Committee created a Technical Committee composed of staff personnel from each of the above agencies supplemented by representatives of selected county governments and the bus industry.

Chapter 2
STUDY METHODOLOGY

This transportation study focuses on three major work elements:

1. An overview of the current New Jersey transportation situation;
2. Compilation of operating data from bus companies; and,
3. An immediate action improvement program.

The methodology employed in each of these tasks is presented in this chapter.

Task 1: Overview Report

The product of Task 1 was an Overview Report⁽¹⁾ on the current status of the total transportation situation in New Jersey along with identified governmental transportation policy alternatives. This report was desired by the state for submission to the legislature in early January, 1973. It was, therefore, primarily a brief status report on the total transportation picture in the state, identifying some basic transportation problems.

(1) Interim Report: OVERVIEW AND POLICY ALTERNATIVES ON TRANSPORTATION IN NEW JERSEY, prepared for New Jersey Department of Transportation by Wilbur Smith and Associates/Ford, Bacon & Davis, Inc., January, 1973.

Procedures followed in preparation of the Overview Report included:

1. A library search of recent reports related to public transportation in the state;
2. Interviews with all division heads and bureau chiefs within the Department of Transportation to obtain their insights on the transportation problem;
3. Interviews with officials of all county governments in the state to obtain copies of recent transportation related reports and information on special projects in their jurisdictions related to transportation relevant to a statewide study;
4. Interviews with officials of Tri-State Regional Planning Commission, Delaware Valley Regional Planning Commission, Port Authority of New York and New Jersey, Delaware River Port Authority, Transport of New Jersey and other major bus operators in the state, and other transportation-related agencies including New Jersey Turnpike Authority, New Jersey Highway Authority, and the Atlantic City Expressway Authority; and,
5. Interview with federal transportation officials.

Task 2: Inventory of Bus Operations

Initial estimates set forth in the study contract indicated that 283 bus companies in New Jersey operate approximately 5,500 buses and 200 maintenance garages. Based upon these preliminary data, forms to be used in interviewing bus companies

were prepared and reviewed with technical staffs of the Department of Transportation and Tri-State Regional Planning Commission.

Pilot Study Program - To test the interview forms and study procedures, a pilot study was conducted in early February, 1973, in the Monmouth County corridor which includes the Garden State Parkway, U.S. Route 9, and New Jersey Routes 34 and 35.

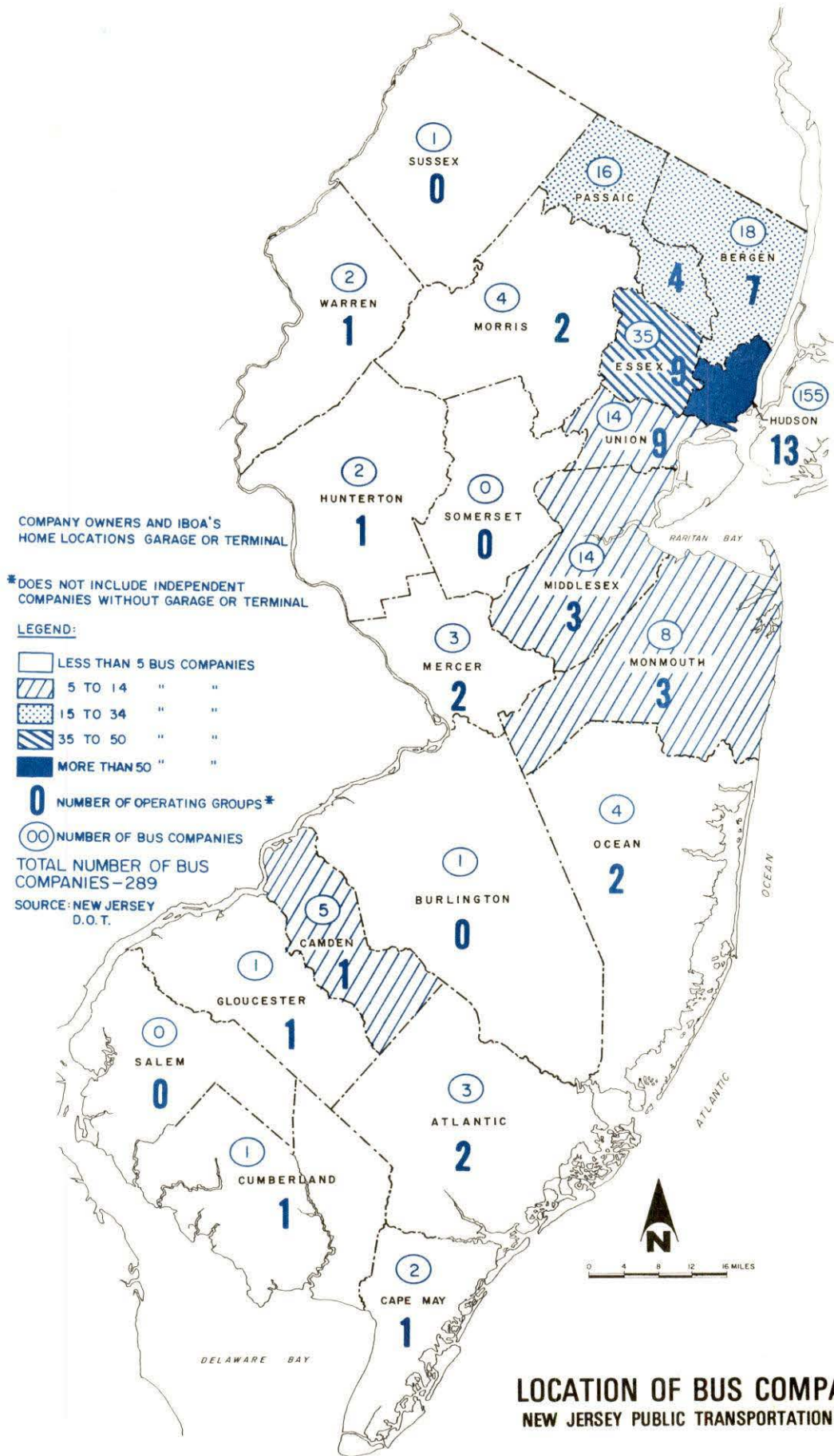
There is a heavy commuter bus operation through this corridor from Monmouth and Ocean Counties to New York. There are also local bus services in and around Red Bank and Asbury Park. The travel characteristics of this corridor afforded an opportunity to compare the service of the New York and Long Branch Railroad with the competing services of the Asbury Park New York Transit Company and the New York-Keansburg and Long Branch Bus Company.

The pilot study obtained data on 12 bus companies currently operating within the selected corridor. These companies were found to include two local bus services, three charter bus operators, six commuter inter-city operators, and one seasonal shore and racetrack service.

The study also afforded an opportunity for observing the increasingly heavy bus traffic on U.S. Route 9 between Sayreville and Lakewood. Transport of New Jersey and Lincoln Transit provide competitive morning peak-hour service through this area of spreading apartment development from Lakewood along Route 9 to the New Jersey Turnpike and on to New York via the exclusive bus lane to the Lincoln Tunnel.

As a result of the pilot study:

1. A check list of questions was prepared to enable interviewers to obtain a broad cross section of on each company's operations.



LOCATION OF BUS COMPANIES
NEW JERSEY PUBLIC TRANSPORTATION STUDY

Field follow-up contacts, generally by telephone, were made in response to questions raised during the coding operations.

Data Bank Output - Basic information obtained in the course of the inventory study were developed into 18 tabulations. These tabulations summarized bus fleets, bus routes, and company statistical and financial data.

The data bank permits convenient updating and cross referencing of data for localized and regional summaries of route, fleet, and company information.

Task 3: Immediate-Action Recommendations

The third task involved development of immediate-action recommendations for improvement of the operation of the bus system. Subjects outlined as pertinent candidates for immediate-action recommendations included public information, routes, service levels, funding, transfer points, and coordination of transportation planning.

Identifying Immediate Action Goals - Interviewers were instructed to ask bus operators suggestions for potential immediate action improvements. All such suggestions were catalogued and reviewed to identify potential recommendations.

An implementation period of one year for immediate action projects was assumed. With this restraint, many of the recommendations suggested by bus company operators could not be included in this study. Proposals for the immediate action program were evaluated on the basis of state, regional or local impact, costs for property acquisition or operation, environmental impact and benefits.

Chapter 3

EVALUATION OF EXISTING CONDITIONS

This chapter presents a statewide perspective of existing bus services in the State of New Jersey. The findings contain a collection and interpretation of the inventories of 226 operating bus companies and nearly 4,000 buses operating in regular service over a total of 290 basic routes throughout New Jersey and into New York City and Philadelphia.

Comparison of operating companies, charter and school operators and non-operating or holding companies, shown in Table 1, indicates a total of 289 companies operating in 62 groups. A group is defined as one or more companies sharing management or operating rights. Thus, the system complexity is not so great as the total number of companies might indicate.

The major bus operator in New Jersey is Transport of New Jersey (TNJ) which, in 1972, carried over 96 million passengers and operated 46,745,000 bus-miles with over \$52 million in total revenues. The 1972 operations of TNJ were substantially reduced by a 75-day strike.

In 1971, the last full year of operations, TNJ had operating revenues of over \$78 million, nearly 50 per cent of the total statewide bus revenues. The 26 major operating groups are listed in Table 2 in order of operating revenues in excess of \$1 million for 1971. The top ten companies exceeding \$2 million in revenues, account for approximately 79 per cent of total revenues.

Table 1

OPERATING BUS COMPANIES AND GROUPS
New Jersey - 1972

<u>GROUP TYPE</u>	<u>NUMBER OPERATING</u>	<u>NUMBER OF COMPANIES</u>
Operating:		
Regular Service Companies	48	59
Independent Associations	14	167
Non-Operating:		
Charter and School Bus	--	40
Other	--	23
	—	—
TOTAL	62	289

Table 2

PRINCIPAL NEW JERSEY OPERATING GROUPS
Ranked by Revenue

<u>OPERATING GROUP</u>	<u>1971 OPERATING REVENUES</u>
Transport of N.J.	\$ 78,913,116
Maplewood Equipment Corp. ⁽¹⁾	9,715,261
Hudson Transit Lines	7,332,113
Rockland Coaches Inc.	7,172,160
Decamp Bus Lines	6,501,685
Manhattan Transit Co.	6,270,606
Lincoln Transit Co. Inc.	4,266,098
Suburban Transit Corp.	3,995,323
Somerset Bus Co.	3,670,446
Hudson Bus Transp Co.	2,426,631
N.Y., Keansburg, & Long Branch Bus Co.	1,986,154
Asbury Park, New York Transit	1,922,021
So. Hudson County Blvd, IBOA	1,800,976
Domenico Bus Service, Inc.	1,751,580
Atlantic City Transportation Co.	1,664,334
Mercer County Improvement Authority	1,657,621
Lakeland Bus Lines	1,469,370
Lafayette and Greenville, IBOA	1,404,466
Trackless Transit Co.	1,176,558
Bergen Ave. IBOA	1,162,456
Newark, West Orange IBOA	1,146,741
Starr Transit Co.	1,121,219
No. Hudson Blvd IBOA	1,082,193
Garden State Coachways	1,067,419
Central Ave. IBOA	1,060,749
Trenton-Phila Coach Co.	1,002,844

(1) Includes Inter-City Transportation, Northeast Coach, Orange and Black Bus Lines, and Warwick, Greenwood Lake and New York Transit.

Bus Fleet

The 1973 fleet totals 3,970 buses in regular operation in New Jersey. The 2,076 buses in the TNJ fleet, represent 52 per cent of the state's total. Maplewood Equipment Corporation, owned by the state but operated as a subsidiary of TNJ, owns 265 buses. DeCamp Bus Lines owns 129 buses, and Manhattan Transit Company owns 119 buses.

Bus Type - The bus fleet includes three types of vehicles:

1. Regular urban transit buses characterized by double doors, low seat backs and aisle space for standees (2,263 buses);
2. Suburbans with high seat backs and generally a single front door (1,358 buses); and,
3. Parlor or cruiser type buses designed for intercity service with reclining seats, single doors and, in many cases, lavatories (349 buses).

Fleet Capacity - The 3,970 buses in regular route operation have an average capacity of nearly 48 passengers. As shown in Table 3, and Figure 4, 75 per cent of the buses have capacities of 46 to 53 passengers.

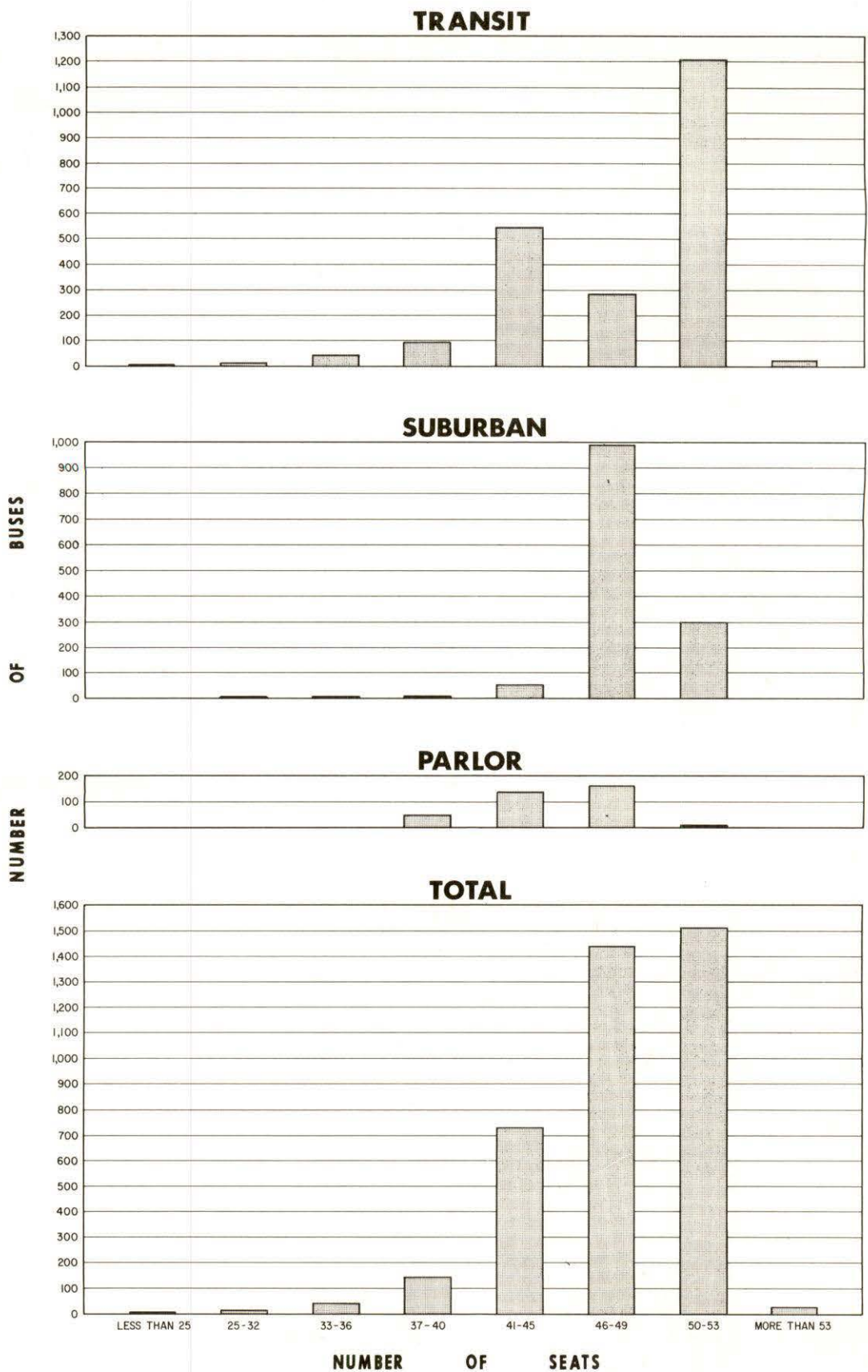
Age of Fleet - The average age of regular route buses in New Jersey is nearly 11 years. Sixty-five buses were manufactured before 1950, while 1,547 or 39 per cent of the fleet was manufactured in 1960 or earlier. Among the newer buses, 289 were manufactured in 1970 or later. There has been a significant reduction in purchases of buses manufactured after 1970 reflecting the weak financial position of many companies. During the 1960's the purchase of new buses averaged over 200 per year. In 1971, only

Table 3

BUS TYPE BY NUMBER OF SEATS
New Jersey

NUMBER OF SEATS	BUS TYPE							
	Transit		Suburban		Parlor		All	
	No.	Per Cent	No.	Per Cent	No.	Per Cent	No.	Per Cent
Less Than 25	1	-	0	-	0	-	1	-
25-32	16	0.7	1	0.1	0	-	17	0.4
33-36	46	2.0	1	0.1	0	-	47	1.2
37-40	101	4.5	5	0.4	46	13.2	152	3.8
41-45	550	24.3	50	3.7	138	39.5	738	18.6
46-49	294	13.0	999	73.6	160	45.9	1,453	36.6
50-53	1,220	54.0	302	22.1	5	1.4	1,527	38.5
More Than 53	<u>35</u>	1.5	<u>0</u>	-	<u>0</u>	-	<u>35</u>	0.9
TOTAL	2,263	100.0	1,358	100.0	349	100.0	3,970	100.0
Per Cent of Total Buses	57.0		34.2		8.8		100.0	

SOURCE: Bus Company Records.



SEAT CAPACITY BY BUS TYPE
 NEW JERSEY PUBLIC TRANSPORTATION STUDY

Wilbur Smith and Associates
 FORD, BACON & DAVIS, INC.

FIGURE 4

49 buses were purchased and in 1972 only 64. Table 4 and Figure 5 show the distribution of each type of bus by year of manufacture.

Of the 113 buses purchased during 1971 and 1972, 48 were the parlor type for intercity, suburban, and charter service. The 28 transit buses added to the fleet in the entire State of New Jersey in 1971 and 1972 represents only 26 per cent of the fleet additions made during that two-year period.

Terminals and Garages

Bus terminals and garage facilities are located around the largest population centers. Essex County with 16 and Bergen and Hudson Counties with 15, contain the largest number of garage and terminal facilities. Passaic and Union are next with eight each.

The 104 terminal and garage facilities listed in Table 5 are only those with space dedicated to these purposes as a primary use. Drug stores, hotels and other locations where buses stop are not included.

Route Coverage - Statewide System

Figure 6 shows the areas of the state served by the existing bus system. In the rural portions of the state, routes providing less than eight round trips per day are not considered to be providing minimum service.⁽¹⁾ In some cases, particularly in seasonal shore traffic, service levels of less than an average of eight round trips per weekday may be considered acceptable.

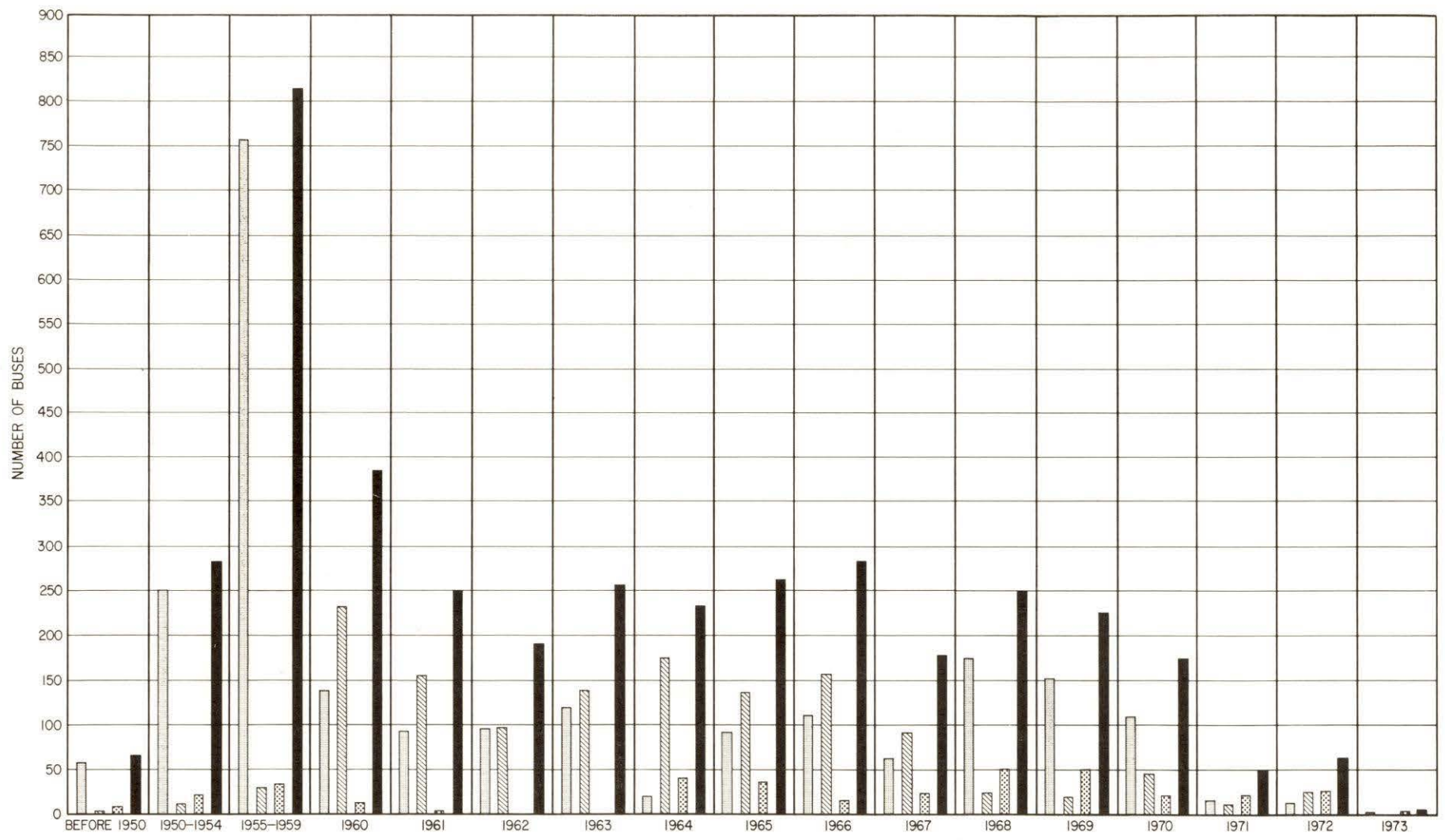
(1) Eight bus round trips per day has been indentified as a minimum number to provide an "adequate" area coverage. Wilbur Smith and Associates.

Table 4

BUS TYPE BY YEAR OF MANUFACTURE
New Jersey

YEAR OF MANUFACTURE	TYPE OF BUS						ALL BUSES	
	Transit		Suburban		Parlor		No.	Per Cent
	No.	Per Cent	No.	Per Cent	No.	Per Cent		
Before 1950	47	2.1	1	.1	7	2.0	55	1.4
1950-1954	261	11.5	11	.8	21	6.0	293	7.3
1955-1959	756	33.3	29	2.1	33	9.5	818	20.6
1960	141	6.2	230	16.9	13	3.7	384	9.7
1961	93	4.1	155	11.4	2	.6	250	6.3
1962	95	4.2	96	7.1	0	-	191	4.8
1963	118	5.2	136	10.0	0	-	254	6.4
1964	17	.8	174	12.8	40	11.5	231	5.8
1965	92	4.1	138	10.2	35	10.0	265	6.7
1966	113	5.0	157	11.6	16	4.6	286	7.2
1967	63	2.8	92	6.8	23	6.6	178	4.5
1968	176	7.8	24	1.8	50	14.3	250	6.3
1969	156	6.9	34	2.5	37	10.6	227	5.7
1970	106	4.7	45	3.3	22	6.3	173	4.4
1971	15	.7	11	.8	22	6.3	48	1.2
1972	13	.6	25	1.8	26	7.4	64	1.6
1973	<u>1</u>	<u>-</u>	<u>0</u>	<u>-</u>	<u>2</u>	<u>.6</u>	<u>3</u>	<u>.1</u>
TOTAL	2,263	100.0	1,358	100.0	349	100.0	3,970	100.0
Per Cent of Total	57.0		34.2		8.8		100.0	

SOURCE: Bus Company.



YEAR OF MANUFACTURE BY BUS TYPE
 NEW JERSEY PUBLIC TRANSPORTATION STUDY

LEGEND
 TRANSIT
 SUBURBAN
 PARLOR
 TOTAL

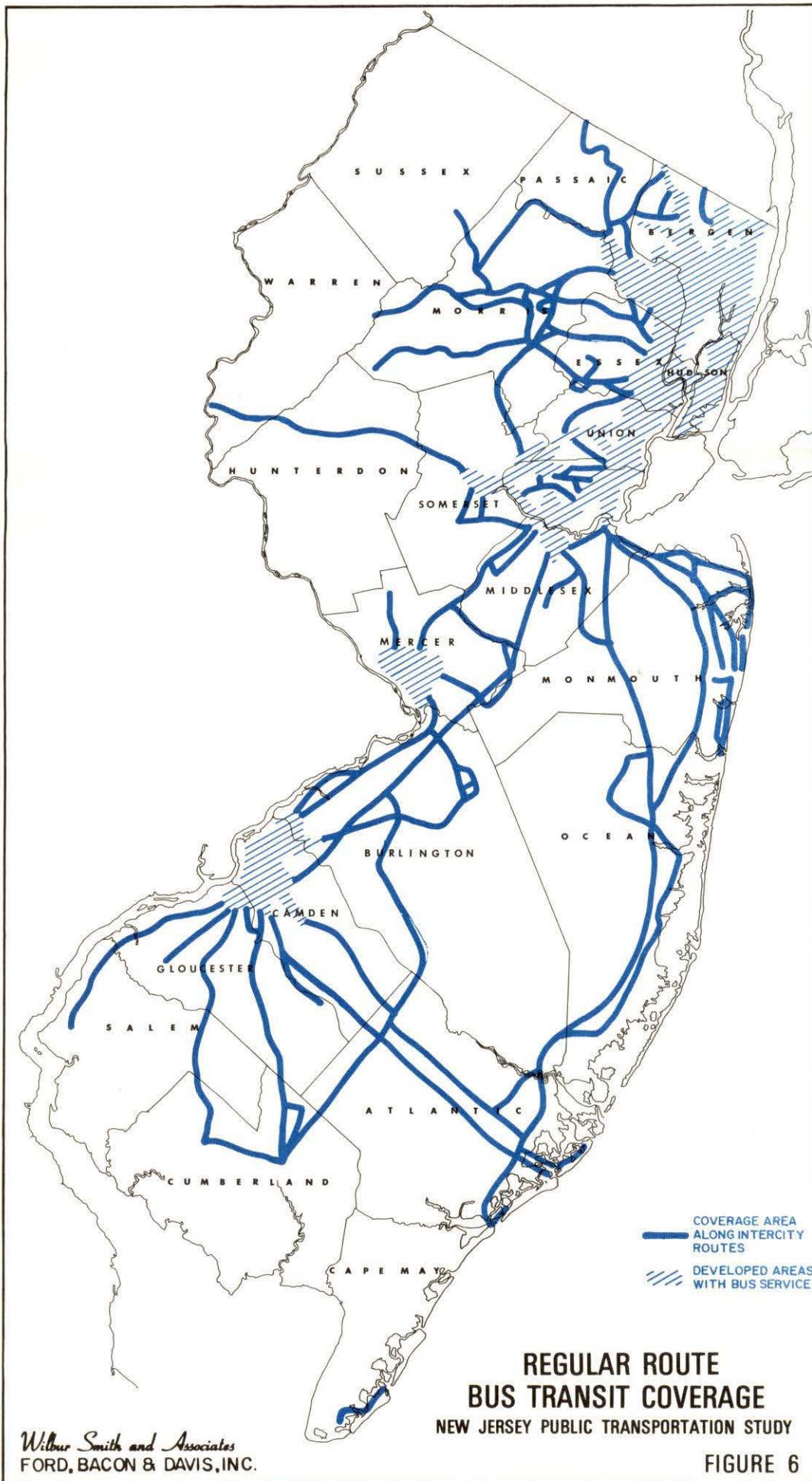
Wilbur Smith and Associates
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FIGURE 5

Table 5

GARAGES AND TERMINALS BY COUNTIES
New Jersey

<u>COUNTY NAME</u>	<u>GARAGE FACILITIES</u>	<u>TERMINAL FACILITIES</u>	<u>GARAGE AND TERMINAL FACILITIES</u>	<u>TOTAL</u>
Atlantic	--	3	2	5
Bergen	11	3	1	15
Burlington	2	3	--	5
Camden	1	1	--	2
Cape May	--	2	--	2
Cumberland	--	1	1	2
Essex	13	3	--	16
Gloucester	2	--	--	2
Hudson	9	2	4	15
Hunterdon	1	--	--	1
Mercer	2	1	--	3
Middlesex	2	--	3	5
Monmouth	3	3	--	6
Morris	2	1	1	4
Ocean	--	2	1	3
Passaic	8	--	--	8
Salem	--	--	--	--
Somerset	--	--	--	--
Sussex	--	--	--	--
Union	7	--	2	9
Warren	<u>1</u>	<u>--</u>	<u>--</u>	<u>1</u>
Total Facilities	64	25	15	104



Outside the densely developed areas of Hudson, Bergen, Passaic and Essex Counties, and parts of Union, Middlesex, Mercer, and Camden Counties, transit routes generally follow major highways.

Despite reductions and route abandonments in intercity service major population centers remain linked. Detailed intra-city service is explored below.

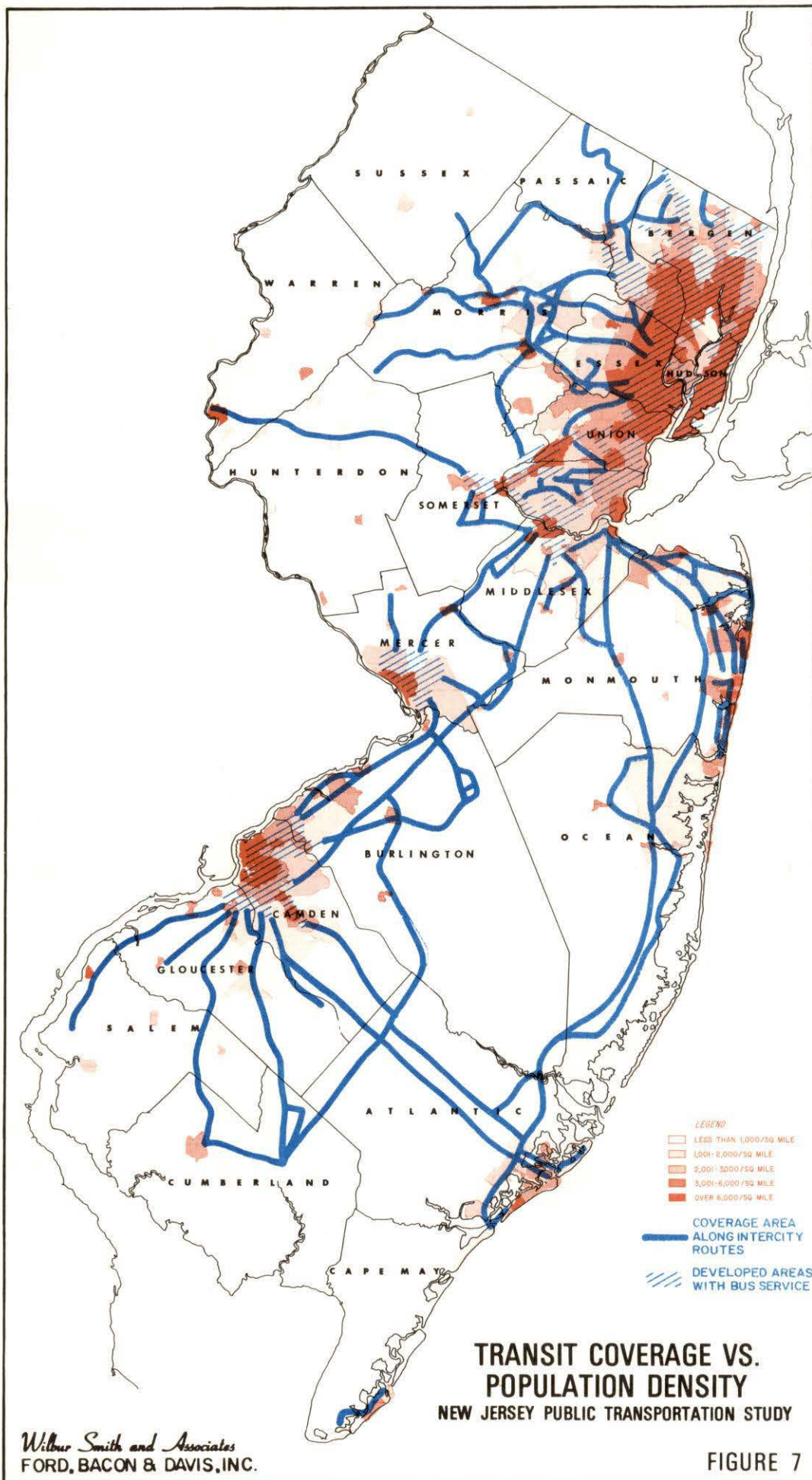
Service - Population Density Relationship

The population density of individual cities and towns is shown for the entire State in Figure 7. Present service provides coverage of all communities with population densities over 6,000 persons per square mile and most areas with densities between 3,000 and 6,000 persons per square mile.

An alternative measure of density used to identify need for service is five dwelling units per acre, or about 11,000 persons per square mile. Thus, New Jersey is well-served by the bus network based on the population density standards.

Service Characteristics

While measurement of geographic areas covered by bus service is important in evaluating service, it is also necessary to measure the type and quality of the service. In making these assessments of operating characteristics, local transit, commuter service and intercity service between New York and Atlantic City are treated separately.



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FIGURE 7

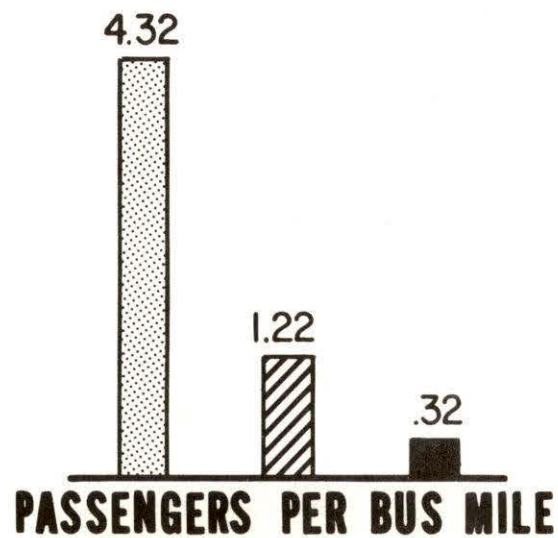
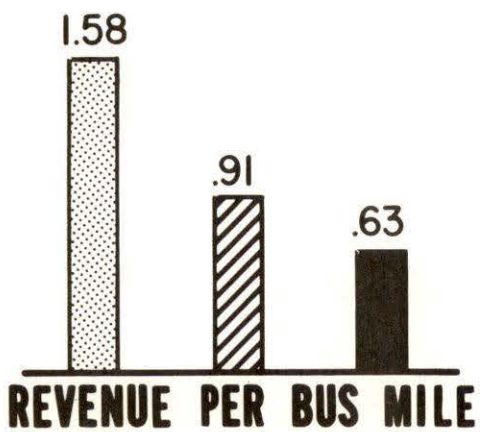
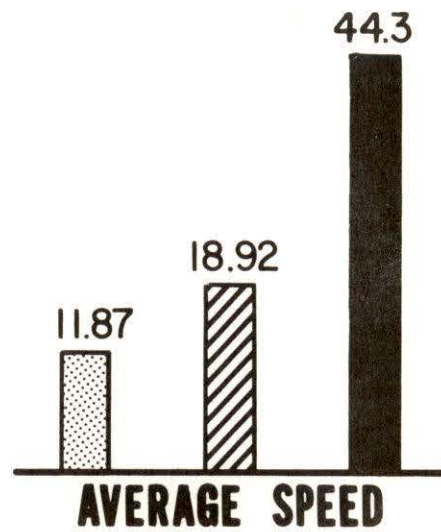
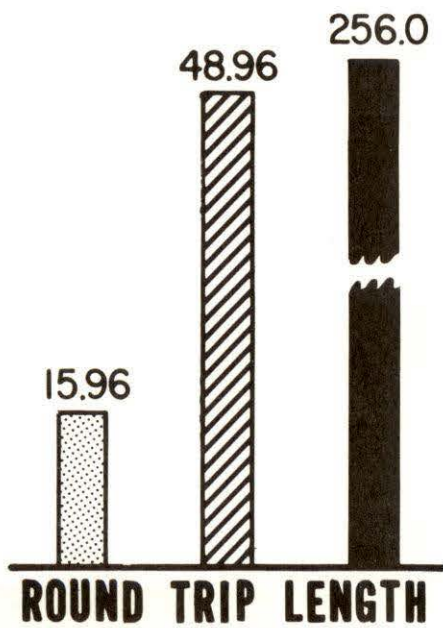
Figure 8 shows how urban, suburban and intercity services differ in their basic operating characteristics. Round trip length in miles, average speed, revenues and passengers per bus mile are shown as developed from a sample of Transport of New Jersey bus routes. Table 6 shows the detailed data selected from typical routes in 1971. Round trip length and average scheduled speeds increase from urban to suburban to intercity routes while revenue and passengers per bus mile decrease.




These statistics are based on TNJ data for routes which are not always completely of one specific type. For example, much of the New York-Atlantic City intercity route serves a heavy suburban operation from Lakewood to New York. No way is available at the present time to separate the data for the suburban operation from the true intercity data for the longer portions of the operation.

Even with this qualification, however, it is clear that the characteristics of the three types of service are quite different and must be recognized in evaluating the transit service across the state.

Corridors of Competition

Several levels of competition exist between public transportation modes and among individual companies in New Jersey. In many areas, buses operate in competition with rail commuter service. In some corridors, there is both bus-rail competition and competition



- LEGEND·**
-  URBAN
 -  SUBURBAN
 -  INTERCITY

CHARACTERISTICS OF SERVICE TYPES
 TRANSPORT OF NEW JERSEY ROUTE
 NEW JERSEY PUBLIC TRANSPORTATION STUDY

Table 6
 SELECTED ROUTE OPERATING CHARACTERISTICS
 TYPICAL BUS ROUTES OF T.N.J.
 1971

Route Class	Route No.	Route Name	Total Passengers	Total Bus Miles	Round Trip Time, Min.	Length, Miles	Av. Speed m./hr.	Bus Hrs.	Total Revenue	Av. Revenue/ Bus Mile	Passengers Per Route Mi.	Bus Mi.
Urban (0-25 miles)	13	Broad	7,051,630	1,323,614	116	22.77	11.8	112,171	2,280,175	1.72	309,689.5	5.33
	27	Mt. Prospect	4,537,882	698,085	82	14.78	10.8	64,638	1,408,941	2.02	307,028.6	6.50
	25-26	Springfield	4,103,213	730,464	94	15.24	9.7	75,306	1,311,867	1.80	269,239.7	5.62
	1	Newark - J.C.	3,559,632	676,592	112	20.58	11.04	61,286	1,113,705	1.65	172,965.6	5.26
	21	Orange-Port Newark	3,529,374	746,471	124	23.41	11.3	66,059	1,197,443	1.60	150,763.5	4.73
	34	Market	3,505,905	550,688	68	16.75	14.8	37,209	1,062,611	1.93	209,307.8	6.37
	44	Bergenline	3,458,969	627,941	100	15.80	9.5	66,099	1,252,913	2.00	218,922.1	5.51
	24	Elizabeth- West Orange	3,025,811	577,337	114	21.42	11.3	51,092	996,186	1.73	141,261.0	5.24
	14-16	Clinton Place	2,953,798	523,781	74	13.48	10.9	48,053	948,158	1.81	219,124.5	5.64
	9	Newark Ave.	2,836,139	545,992	82	13.60	10.0	54,599	941,691	1.72	208,539.6	5.19
Subtotal			38,562,353	7,000,965		177.83	12.1 (av.)	578,338	12,513,690	1.79 (av.)	216,849.5	5.51
Suburban (25 mi. & over) or (to/from NY or Phila.)	29- 114-116	Newark-Caldwell- Denville-Butler	4,951,092	1,774,817	228	70.50	18.6	95,420	1,891,357	1.07	70,228.3	2.79
	49	Union	2,812,909	1,118,622	230	57.67	15.0	74,575	1,076,019	.96	48,775.9	2.51
	165	Westwood-NY	2,596,656	1,668,412	150	42.81	17.1	97,568	1,463,406	.88	60,655.4	1.56
	166	Dumont-Tenafly- New York	2,440,515	1,314,251	146	41.44	17.0	77,309	1,282,071	.98	58,892.7	1.86
	139	Sayreville-NY via Carteret	2,406,392	5,017,810	134	120.04	53.7	93,442	2,920,279	.58	20,046.6	.48
	107	Irvington-NY	2,190,450	1,618,262	94	49.59	31.7	51,049	1,460,225	.90	44,171.2	1.35
	6-7-71	Moorestown- Mt. Holly- Phila.	2,183,910	1,658,996	164	73.38	26.8	61,903	1,213,179	.73	29,761.7	1.32
	21-31	Blackwood- Williamstown- Phila.	2,087,692	1,356,767	160	47.67	17.9	75,797	1,100,017	.81	43,794.7	1.54
	9	Trenton- Burlington-Phila. Phila.	2,022,652	1,691,538	250	82.22	19.7	85,865	1,204,758	.71	24,600.5	1.20
	70-72-75	Newark-Summit- Morristown	1,616,488	933,039	220	54.46	14.9	62,831	724,745	.78	29,682	1.73
Subtotal			25,308,756	18,152,514		639.78	23.4 (av.)	775,759	14,336,056	0.79 (av.)	39,558.5	1.39
Special & Intercity Subway	118	Newark-NY Exp.	2,830,229	1,748,623	60	27.54	27.5	63,586	1,679,430	.96	102,767.9	1.62
	102-104	Newark-Hacken- sack-Paterson	1,871,350	726,402	120	30.77	15.4	47,169	749,161	1.03	60,817.4	2.58
	120	Lincoln Tunnel	1,278,104	317,098	30	9.3	18.6	17,048	698,033	2.20	137,430.5	4.03
	101	Atlantic City- Phila.	917,933	2,324,605	140	128.49	55.0	42,266	1,595,730	.69	7,144.0	.39
	150	Allentown-NY	286,881	1,240,795	324	190.51	35.3	35,150	986,997	.80	1,505.9	.23
	119A	NY Fort Dix	272,962	887,867	210	157.23	44.9	19,774	632,423	.71	1,736.1	.31
Subtotal			7,457,459	7,245,390		543.84	36.9	224,993	6,341,774	0.88	13,712.6	1.03
Subway	7	Newark Subway	3,154,668	546,876	24	8.34	20.9	44,777	962,139	1.76	378,257.6	5.77

SOURCE: New Jersey Public Utilities Commission, Report of TNJ, 1971.

between bus companies operating along essentially common routes, providing similar service in terms of headway and destination.

Twenty-six corridors in which competitive public transit services operate have been identified after study and review of route-maps, timetables, and general origin-destination patterns of the routes. These corridors are shown in Table 7 and in Figure 9.

Because of the large subsidies being paid to commuter rail lines amounting to over \$19 million in fiscal 1973 in New Jersey, and increasing pressures for subsidies for some bus companies, there is a need to optimize relationships between service provided and subsidy payments, and to eliminate duplicate service, particularly where subsidies are involved.

Competition has many aspects, and in many areas, what may appear to be destructive competition may be a healthy, thriving service with good patronage for both lines. Several situations where competition and inefficiency were initially thought to exist have been found after a more detailed study, to provide a basically coordinated service. Competition may become apparent in peak-hours while in off-peak periods, the competing carriers offer a coordinated service.

Service duplication can exist in any one of several significant characteristics. Origin and destination, fare structure or cost of travel, street routings, speed or travel time, and frequency of service are elements which may identify alternative services which are partly or wholly duplicative. Very seldom in any duplicative situation would all characteristics be comparable or sufficiently similar to be judged as competitive. The degree of duplication can then be evaluated by determination of the number of characteristics which are comparable.

Table 7

CORRIDORS OF DUPLICATE PUBLIC TRANSPORTATION SERVICE
Bus-Bus or Bus-Rail Duplication
New Jersey

<u>CORRIDOR NUMBER</u> (1)	<u>CORRIDOR</u>	<u>COMPETING OPERATORS</u>	<u>CHARACTERISTICS OF DUPLICATION</u> (2)	<u>DESCRIPTION OF COMPETITION</u>
1	Erie-Lackawanna R.R. (Bergen Co. Branch)	Erie-Lackawanna R.R. Hudson Transit Lines, Inc. Intercity Transportation Co.	A, D	Parallel operation of service. Buses operate along Route 17 between Mahwah and Riggewood, and along Route 208 and Maple Avenue between Ridgewood and Fairlawn.
2	Erie-Lackawanna R.R. (Pascack Valley Branch)	Erie-Lackawanna R.R. TNJ Rockland Coaches, Inc.	A	Parallel operation of service. Buses operate along Kinderkamack Road between Montvale and Hackensack.
3	Port Authority Trans-Hudson (PATH)	PATH TNJ No. Hudson Blvd. IBOA Downtown Bus Co.	A	Parallel operation of intrastate and interstate service between N.Y.C. and Hoboken, Jersey City, Harrison and Newark.
4	Eastern Bergen Co. County	Rockland Coaches, Inc. TNJ Intercity	B, C, E,	Duplication of service and parallel operations along portions of some major north-south arteries.
5	Northern Hudson County	No. Hudson Blvd. IBOA TNJ Orange & Black Manhattan Transit	B, C, D, E	Parallel operation of North Bergen-New York service on Kennedy Blvd. and Bergenline Avenue.

(continued)

Table 7 (Cont.)

<u>CORRIDOR NUMBER</u> (1)	<u>CORRIDOR</u>	<u>COMPETING OPERATORS</u>	<u>CHARACTERISTICS OF DUPLICATION</u> (2)	<u>DESCRIPTION OF COMPETITION</u>
6	Southern Hudson County	Central Avenue IBOA Bergen Avenue IBOA Lafayette & Greenville IBOA TNJ South Hudson Blvd. IBOA Montgomery & West Side IBOA Hudson Bus Transportation Co. Broadway IBOA	B, C, E	Parallel operation of service on north-south streets in Jersey City and Bayonne. Duplication of service along portions of roadway operated by TNJ and various IBOA's.
7	N.J. Rt. 4	Maplewood Equipment (Intercity) TNJ	C, D	Duplicate of route between Paterson and Fort Lee.
8	Erie-Lackawanna R.R. (Morris & Essex Division)	Erie-Lackawanna R.R. TNJ	C, E	Parallel operation of intrastate service between Morris Plains and Millburn.
9	State Route 9W	Rockland Coaches, Inc. Mohawk Coach Lines	C, D	Duplication of service between Alpine, N.J. and N.Y.C. along Route 9W.
10	Newark CBD	TNJ No. Newark IBOA	A, C, D, E	Duplication of the route #18 service.
11	South Orange Ave., Newark	TNJ So. Orange Avenue IBOA	A, D, D, E	Duplication of the route #31/32 service.
12	Clinton Avenue, Newark	TNJ Clinton Avenue Bus Co.	C, D	Duplication of portions of the route #14/16 and route #13 services.

(continued)

Table 7 (Cont.)

<u>CORRIDOR NUMBER</u> ⁽¹⁾	<u>CORRIDOR</u>	<u>COMPETING OPERATORS</u>	<u>CHARACTERISTICS OF DUPLICATION</u> ⁽²⁾	<u>DESCRIPTION OF COMPETITION</u>
13	Central R.R. of N.J. Route 22	Central R.R. of N.J. TNJ Somerset Bus Co.	A	Parallel operation of service between Somerville area and Newark. N.J. Bus operate along Route 22.
14	Route 22	TNJ Somerset Bus Co.	C,D	Parallel operation of service along Route 22 between Somerville and N.Y.C.
15	Penn- Central R.R.	Penn Central R.R. Suburban Transit Corp. TNJ	A	Parallel operation of service between Trenton and New Brunswick and N.Y.C. Buses operate along Route 206, Route 27, and the N.J. Turnpike.
16	New Jersey Turnpike	TNJ Suburban Transit Corp.	A, B	Duplication of service between New Brunswick and N.Y.C. (Suburban service is express).
17	New York & Long Branch R.R.	Central R.R. of N.J.- Penn Central Asbury Park-N.Y. Transit Corp.	A	Parallel operation of service between Asbury Park and Newark.
18	Route 35 - N.J. Turnpike	North & South Jersey Bus Co. Asbury Park New York Transit Co.	C, D	Parallel operation of service from Asbury Park. No. & So. Jersey operates to Jersey City. A.P.-N.Y. Transit operates to New York.

(continued)

Table 7 (Cont.)

<u>CORRIDOR NUMBER</u> (1)	<u>CORRIDOR</u>	<u>COMPETING OPERATORS</u>	<u>CHARACTERISTICS OF DUPLICATION</u> (2)	<u>DESCRIPTION OF COMPETITION</u>
19	Route 36	Domenico Bus Service	A, B	Parallel interstate operation of service between Keansburg and New York.
20	U.S. Rt. 9/ Garden State Parkway	TNJ Lincoln Transit Co.	A, C, D, E,	Duplication of service between N.Y.C. and Atlantic City and intermediate points.
21/22/23	Pennsylvania Reading-Seashore Line/PATCO	Pennsylvania-Reading-Seashore Line PATCO TNJ	A	Partial parallel operation of service between Philadelphia, Pa. and Atlantic City, Ocean City, or Cape May.
24	Route 45	TNJ Philboro Coach Corp.	A,C,D	Duplication of service on Route 45 and Route 130 between Mantua, N.J. and Philadelphia, Pa.
25	Route 36	Boro Buses N.Y.-Keansburg and Long Branch Bus Co.	C, D	Parallel operation of local service along Route 36 between Belford and Highlands.
26	Paramus-N.Y.	Manhattan Transit TNJ	A, C, D, E,	Duplication of route and service between termini.

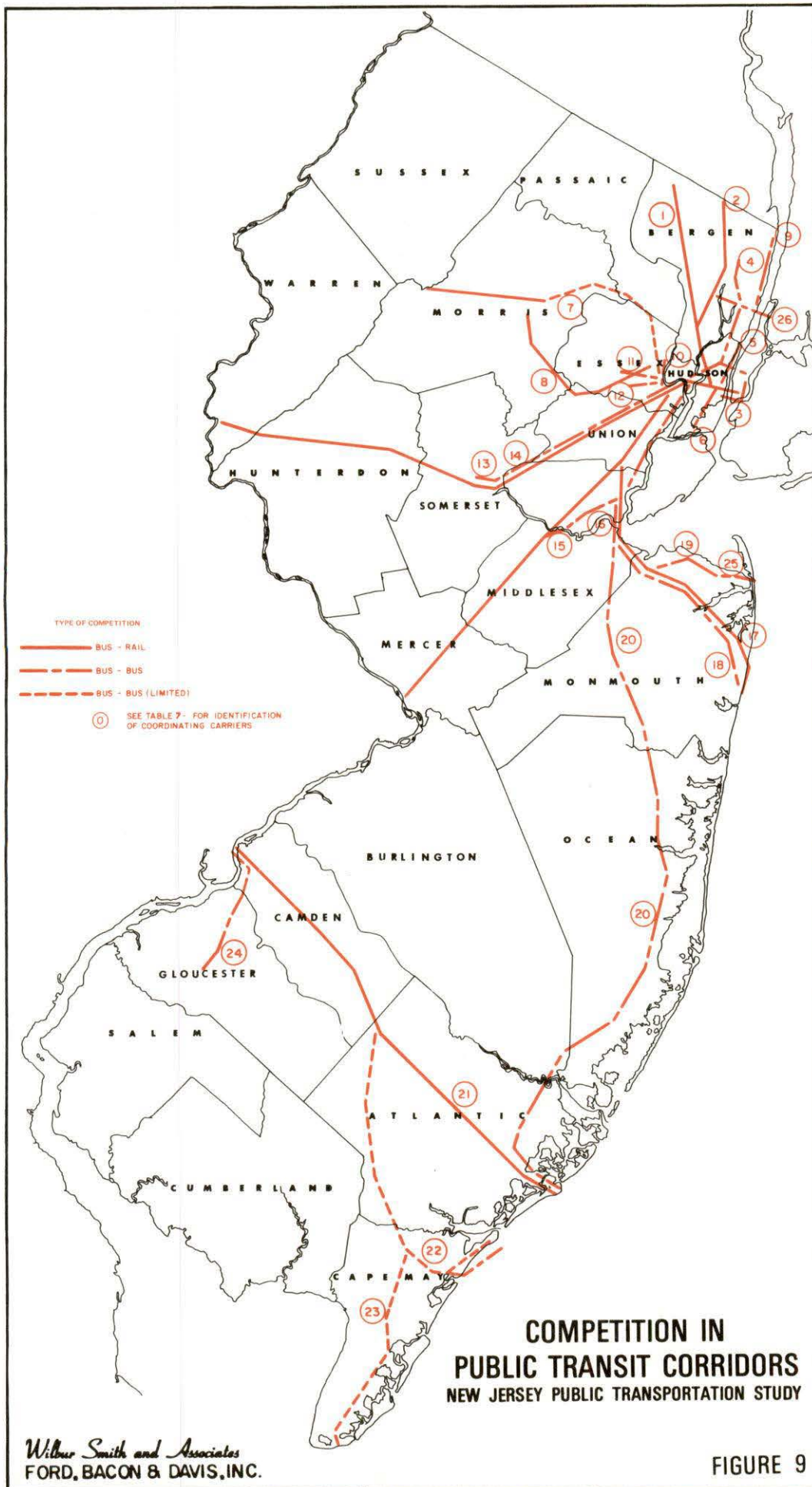
(1) See Figure 9.

(2) Characteristics of Duplication =

A - Origin and Destination
B - Fares

C - Route
D - Travel Time

E - Service Frequency



Typical Competitive Corridor Review - Two sample corridors were identified for closer analysis of route overlapping and/or duplication. These are Bergen County east of the Garden State Parkway and the U.S. Route 9 Corridor between Lakewood and Sayreville. They are discussed below.

Bergen County Corridor - The eastern area of Bergen County contains numerous overlaps and/or duplications of route segments. Major competing companies are TNJ and Rockland Coaches. Most Rockland Coaches (RC) routes originate in northern Bergen or in Rockland County, New York, and operate to either the George Washington Bridge Bus Terminal (GWBT) or to the Port Authority Bus Terminal (PABT) via the Lincoln Tunnel. All of the PABT trips operate express from Palisades Park, New Jersey via the New Jersey Turnpike. Except for the more northerly sections, the RC routes duplicate portions of TNJ routes. In the duplicated sections, TNJ fares are either equal to or slightly less than RC fares. Peak-hour headways of the TNJ routes are generally shorter than for corresponding RC services. Table 8 sets forth characteristics of the overlapping services.

Prime examples of overlapping service in this corridor are the service from Westwood to the PABT (TNJ Rt. 165 and RC Route 11) and the service from Tenafly to PABT (TNJ Rt. 166 and RC Rt. 20). RC Route 11 offers 36 daily Turnpike trips compared to 42 trips by TNJ Route 165. Travel times are comparable but the TNJ fares are lower and peak-period headways shorter.

Transport of New Jersey Route 166 offers 20 daily Turnpike express trips compared to 11 daily RC trips. The TNJ fare is slightly lower. The RC service is operated during peak periods only.

Transport of New Jersey also provides more frequent local service on all of the above routes.

Table 8

BERGEN COUNTY (CORRIDOR #4) COMPETITION OF ROUTES
New Jersey

COMPETING ROUTES	ORIGIN	DESTINATION	AREA OF COMPETITION	DAILY TRIPS	O/W TIME	FARES	HEADWAYS	
							Peak Hr.	Off-Peak
TNJ #165	Westwood or Oradell	PABT	Along Kinderkamack Road between West- wood and Hackensack	92 (42 via TPK). 36 to PABT 30 to GWB	Eastbound to PABT: 55 via TPK. 75 via local 57 Min.	Eastbound to PABT: 90¢ \$8.25 (10T) \$1.00 \$9.85(10T)	3-6 min. (via TPK)	30 min.
Rockland Coaches #11	Spring Valley New York	PABT or GWB					13-15 min. (to PABT)	30 min.
TNJ #B-72	New Milford	Carlstadt/ Moonachie	The #B-72 and the #10 compete for local passengers along Madison Ave. and Washington Ave. in	8	N. Milford to Bergen- field: 11 Min.	New Milford to Bergen- field: 40¢ N. Milford to Bergen- field: 40¢	60 Min.	
R.C. #10	Oradell	GWB	New Milford, Dumont & Bergenfield. In addition, the #10 and routes #167, #122, #86 and #166 operate along Washington Ave. between Madison Ave. and Clinton Ave.	18	N. Milford to Bergen- field: 12	Dumont to GWB: 80¢ \$20.00(25T)		
TNJ #122	Dumont	Jersey City	Both the #10 and #86 operate to the GWB bus terminal	6			60-75 Min.	

(continued)

Table 8 (Cont.)

COMPETING ROUTES	ORIGIN	DESTINATION	AREA OF COMPETITION	DAILY TRIPS	O/W TIME	FARES	HEADWAYS	
							Peak Hr.	Off-Peak
TNJ #167	Harrington Pk./Haworth	PABT	(see preceding page)	66			3 Min.	30-50 Min.
TNJ #86	Harrington Pk./Haworth	GWB		77 (via Route 4)	Dumont to GWB: 37 Min. 31 via Route 4	Dumont to GWB: 75¢ \$17.25 (25T)	4-10 Min.	20-25 Min.
TNJ #166	Dumont	PABT	The #166 and the #20 operate on River Edge Rd., Huyler Ave., Engle St., Hudson Ave., Dean St., and Van Nostrand Ave. in Tenafly and Englewood.	76 (20 via TPK)	Tenafly to PABT: 58 Min. (local) 46 via TPK.	Tenafly to PABT: 85¢ \$7.65 (lot)	Tenafly to PABT: 3-5 Min.	20-30 Min.
R.C. #20	Nanuet, New York	GWB or PABT	(same as TNJ #166)	26 to GWB 11 to PABT	44 Min.	90¢ (\$9.00 lot)	5-10 Min.	
TNJ #78	Hackensack	GWB	Along Palisade Ave. Grand Ave., Dean St., Van Nostrand Ave., and Route 4 in Englewood and Fort Lee.	35	Englewood to GBW: 12 Min.	Englewood to GBW: 55¢	Englewood to GBW: 25 Min.	35 Min.
R.C. #10	Oradell	GWB		22	13 Min.	55¢	20 Min.	60 Min.
R.C. #84	Northvale Harrington	GWB		40	13 Min.	55¢	15 Min.	30 Min.
R.C. #14K	HarringtonPk. or Westwood	GWB		24	13 Min.	55¢	20 Min.	60 Min.
R.C. #20	Nanuet, N.Y.	GWB		26	13 Min.	55¢	20-25 Min.	60 Min.

SOURCE: Wilbur Smith and Associates - Ford, Bacon and Davis.

On the Dumont-GWBT service, TNJ Route 86 operates as many express trips as RC Route 10 at shorter headways and lower fares.

Only on peak-hour service between Paramus and the GWBT does RC have a clear advantage. Although operating on a longer headway, the travel time for RC Routes 22/23 is much faster than the TNJ Route 82 service. The TNJ route operates via Fort Lee Road while the RC service uses Route 4. The TNJ off-peak intra-state service is more favorable because it serves the Bergen Mall and downtown Hackensack. The RC service provides only two daily Bergen Mall trips.

In addition to route duplication, there are significant instances of parallel service. Between Englewood and Palisades Park, Transport of New Jersey Route 166 operates along Broad Avenue three blocks west of RC routes using Grand Avenue bound for PABT. RC Routes 14, 20 and 84 operate on Tenafly Avenue through Tenafly and Englewood, a few blocks from the Engle Street and Dean Street operation of TNJ's Route 166.

Several routes converge in Harrington Park at the Station Plaza at the intersection of Carman Avenue, Schraalenburgh Road, and Old Closter Dock Road. Transport of New Jersey Route 86 connects this area with the GWBT as do RC Routes 84, 14K, and 20. Transport of New Jersey Route 167 operates between this location and the PABT as do RC Routes 14T and 20T.

Lakewood-Freehold-New York Express Service - Both the Lincoln Transit Company (LTC) and TNJ's Route 119 operate express bus service between New York and Lakewood and intermediate points utilizing the New Jersey Turnpike and Route 9. Travel times for respective variations of the services are similar and the fares are identical as shown in Table 9.

Table 9

TNJ AND LINCOLN TRANSIT BUS FARES

<u>COMPANY</u>	<u>FARES TO PORT AUTHORITY BUS TERMINAL FROM:</u>				
	<u>Lakewood</u>	<u>Freehold</u>	<u>Old Bridge</u>	<u>Englishtown</u>	<u>Sayre Woods</u>
TNJ	\$3.30 (OW)	\$2.75	\$2.20	\$2.55	\$1.90
and	5.95 (RT)	4.95	4.00	4.65	3.50
LINCOLN	19.20 (ten- trip)	16.30	13.00	14.65	12.30

SOURCE: Company timetables.

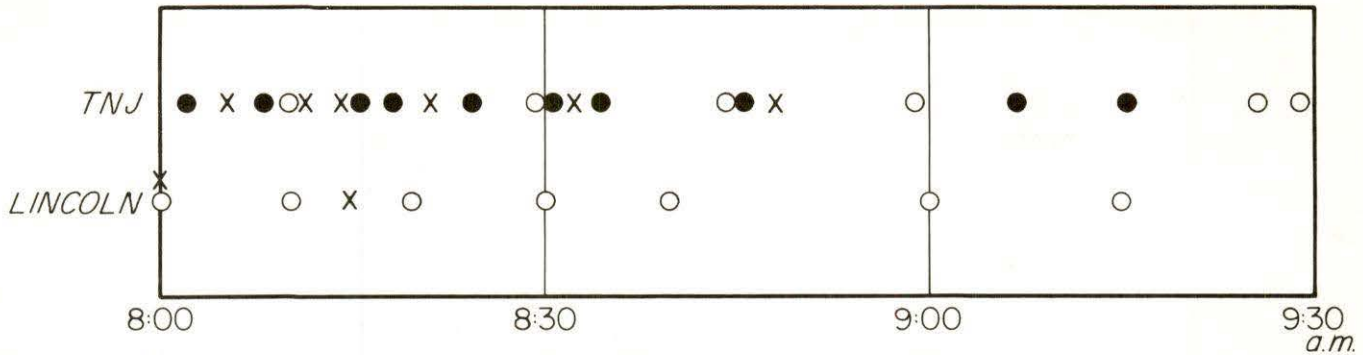
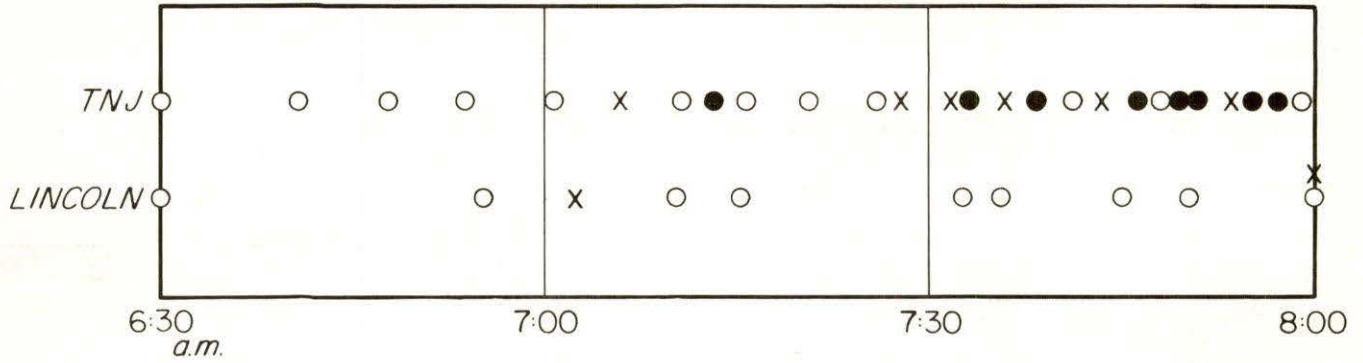
During peak periods, there is considerably less coordination with trips from common origins departing together or within minutes of each other. During peak hours, TNJ provides most of the service to intermediate points while the companies operate nearly an equal number of Lakewood trips. Figure 10 shows the New York arrival and departure times of the routes operated by the two companies from and to Lakewood, Freehold-Gardens Corner and Browntown-Sayrewoods.

Lincoln operates most of the Old Bridge/Englishtown service. The TNJ service to these towns consists of four peak period trips.

TNJ also provides four daily trips from Lakewood to the Public Service terminal in Newark and nine trips from Lakewood to Newark and Journal Square (Jersey City). Lincoln operates three daily trips from Lakewood to Newark Airport and New York City.

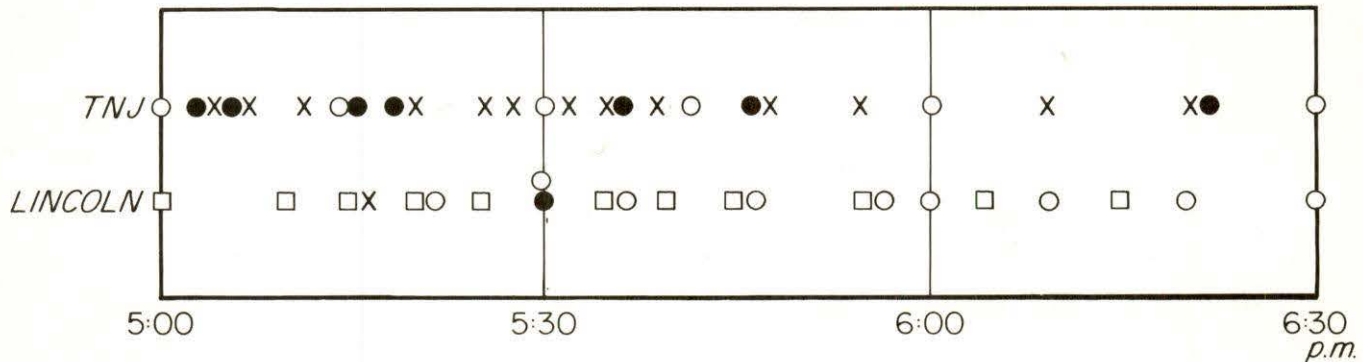
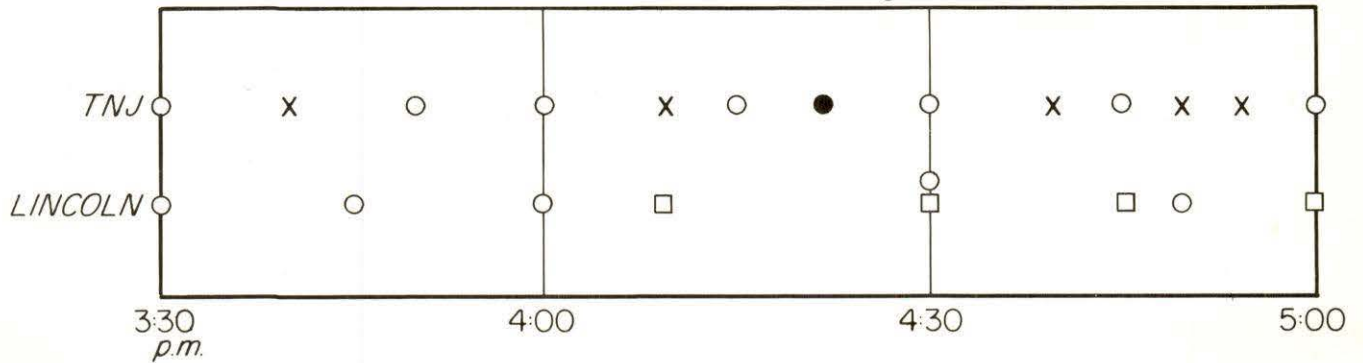
ARRIVAL TIME IN NEW YORK

- FROM LAKEWOOD
- X FROM FREEHOLD OR GORDONS CORNER
- FROM BROWNTOWN OR SAYREWOODS



DEPARTURE TIME FROM NEW YORK

- TO LAKEWOOD
- X TO FREEHOLD/GORDONS CORNER
- TO LAKEWOOD (EXPRESS)
- TO SAYREWOODS/BROWNTOWN



SCHEDULED PEAK HOUR SERVICE-1973
U.S. ROUTE 9 TO PORT AUTHORITY TERMINAL
NEW JERSEY PUBLIC TRANSPORTATION STUDY

Coordination

Coordination of services exists where schedules of transit services are integrated and jointly established by the competing companies to minimize transfer times and duplication. There are several important areas of the State where coordinated service is found. These are listed and described briefly in Table 10 and shown in Figure 11. Additional details are set forth in the following discussion.

Fort Dix Service - Lincoln Transit and TNJ (Route 119A) operate service from the PABT to Fort Dix, McGuire Air Force Base, and the Bayonne Military Ocean Terminal on a coordinated schedule. The bus companies also alternate service to Newark Airport.

New York-Keansburg - Domenico Bus Service and the Hudson Bus Transportation Company combine their services to connect the PABT to Keansburg. The Domenico service operates from Keansburg to Bayonne via Staten Island. Passengers can then transfer to the Hudson Bus service to complete their trips to New York.

Central Avenue, Newark - Transport of New Jersey and the Newark-West Orange Independent Bus Owner's Association (IBOA) both operate Route 24 between West Orange and Elizabeth. The IBOA service operates only to the Newark-Elizabeth city line. Transport of New Jersey prepares the operating schedule and assigns trips for the IBOA buses.

Atlantic City-Cape May - Lincoln Transit and TNJ Route 119 each operate three daily trips between Atlantic City and Cape May on a coordinated schedule. Transfers can be made in Atlantic City for trips to or from New York.

The following corridors consist of local bus operations which serve as feeder buses to commuter railroad stations.

Table 10

CORRIDORS OF COOPERATIVE SERVICE
Coordinating Bus Operations
New Jersey

<u>CORRIDOR NUMBER</u>	<u>CORRIDOR</u>	<u>COORDINATING OPERATORS</u>	<u>DESCRIPTION OF COORDINATION</u>
1	Fort Dix Service	Lincoln Transit TNJ	Duplication of service on a coordinated schedule. Service operates from N.Y.C. to Fort Dix, N.J. via the N.J. Turnpike.
2	New York-Keansburg	Domenico Bus Service Hudson Bus Transportation Co.	Coordination of schedules permitting convenient transfer in Bayonne to complete Keansburg-New York trips.
3	Central Avenue, Newark	TNJ Newark West Orange IBOA	Duplication of route 24 service between West Orange and Newark on a coordinated schedule.
4	Springfield Ave., Newark	TNJ Springfield Avenue IBOA	Duplication of route 25 service between Penn Station and Irvington on a coordinated schedule.
5	Atlantic City- Cape May	TNJ Lincoln Transit	Duplication of service on a coordinated schedule. Service operates from Atlantic City to Cape May via the Garden State Parkway.

Table 10 (continued)

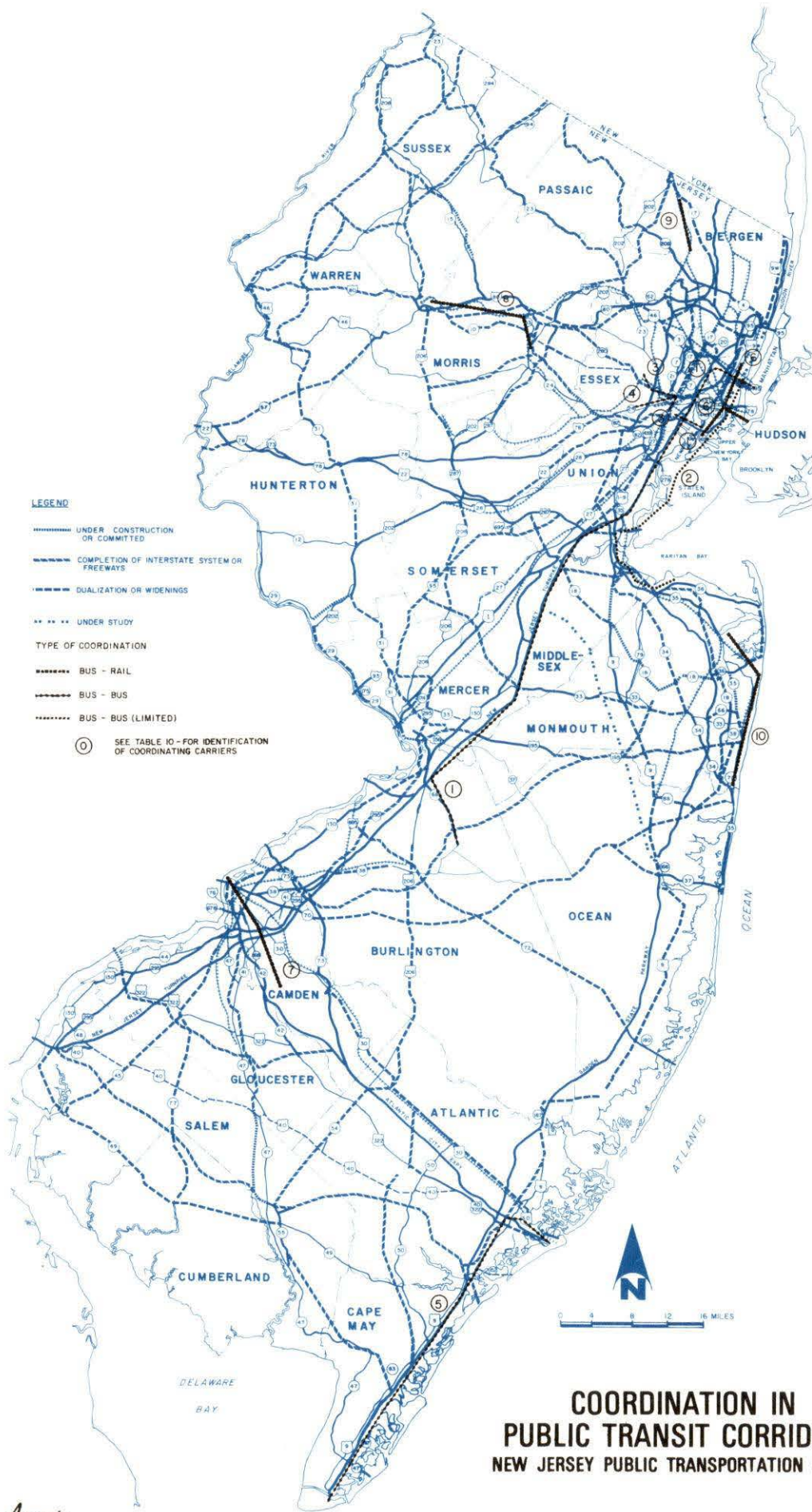
CORRIDORS OF COOPERATIVE SERVICE
Coordinating Bus Rail Operations
New Jersey

<u>CORRIDOR NUMBER</u>	<u>CORRIDOR</u>	<u>COORDINATING OPERATORS</u>	<u>DESCRIPTION OF COORDINATION</u>
6	PATH	PATH No. Hudson Blvd. IBOA So. Hudson Blvd. IBOA Downtown Bus Co. Washington Street IBOA TNJ Central Avenue IBOA Lafayette & Greenville IBOA Bergen Avenue IBOA Hudson Bus Transportation Co. Montgomery & West Side IBOA	The bus routes serve as feed- ers to the PATH stations
7	PATCO	PATCO TNJ	The bus routes serve as feed- ers to the PATCO stations. PATCO and TNJ operate a cooperative fare program. The TNJ routes are subsidized by N.J.D.O.T.
8	Erie Lackawanna R. R., Morris County	Erie Lackawanna R.R., Jersey Bus Co.	The bus routes are county- subsidized and serve as feed- ers to the railroad between Netcong and Denville and Morristown. The bus schedules are coordinated with the train schedule.

Table 10 (continued)

CORRIDORS OF COOPERATIVE SERVICE
 Coordinating Bus Rail Operations
 New Jersey

<u>CORRIDOR NUMBER</u>	<u>CORRIDOR</u>	<u>COORDINATING OPERATORS</u>	<u>DESCRIPTION OF COORDINATION</u>
9	Erie-Lackawanna R.R., Bergen County	Erie Lackawanna R.R. Associated Bus Company of Hawthorne	The bus route #92 serves as a feeder to the railroad be- tween Ridgewood and Ramsey.
10	Central R.R. of N.J., Monmouth County	Central R.R. of N.J. Boro Buses Company Coast Cities Coaches	The bus routes serve as feed- ers to various rail stations between Red Bank and Asbury Park.



COORDINATION IN PUBLIC TRANSIT CORRIDORS
NEW JERSEY PUBLIC TRANSPORTATION STUDY

Port Authority Trans Hudson (PATH) - There are numerous bus companies operating in Hudson County which serve the PATH stations at Journal Square, Grove Street, Exchange Place, and Hoboken. These companies are:

North Hudson Boulevard IBOA
South Hudson Boulevard IBOA
Downtown Bus Company
Washington Street IBOA
TNJ
Central Avenue IBOA
Lafayette & Greenville IBOA
Bergen Avenue IBOA
Hudson Bus Transportation Company
Montgomery & West Side IBOA

Similarly, there are many bus routes (predominantly operated by TNJ) which serve the PATH station at Pennsylvania Station in Newark.

Port Authority Transit Corporation (PATCO) - Transport of New Jersey operates a network of routes in the Camden County area under DOT subsidy which serve as feeder operations to the Lindenwold Transit Line. Bus passengers intending to use the train pay nothing for their return bus trip. PATCO reimburses TNJ for the return fares.

Morris County-Erie-Lackawanna Railroad (E.L.R.R.) - The Jersey Bus Company operates a route planned and subsidized by Morris County to serve as a partial feeder operation to the Erie-Lackawanna Railroad (Greenwood Lake Branch and Morris & Essex Division) between Netcong and Denville and between Denville and Morristown. Eastbound bus trips are scheduled to coordinate with train departures at Dover.

Bergen County-E.L.R.R. - The Associated Bus Company of Hawthorne operates Route 92 parallel to the Erie-Lackawanna Railroad (Bergen County Branch). This route serves as a feeder operation to the Ridgewood, Waldwick, Allendale, and Ramsey railroad stations. The bus route operates between Paterson and Ramsey. Bergen County's B-2 Cross County route also schedules service to commuter trains at Ridgewood.

Monmouth County-Central Railroad of New Jersey (C.R.R.N.J.) - Boro Company Route 8 serves as a feeder to the Red Bank and Little Silver stations of the C.R.R.N.J. New York & Long Branch Railroad.

Coast Cities Coaches operates four routes which also serve as feeders to the stations of the New York and Long Branch. Route 4 connects Deal and Neptune City to the Asbury Park station. Route 31 serves the Long Branch station and operates along Main Street to the North Asbury Park station.

Route 2/16 operates parallel to the railroad and serves the railroad stations between Asbury Park and Manasquan. Route 7 parallels the railroad and feeds stations between Asbury Park and Elberon.

Summary of Competition and Coordination

The basic types of competition and coordination are bus vs. bus and bus vs. rail. Examples of each of these are summarized below:

Bus-Bus Competition - There are five major areas of direct bus competition. All but one involve TNJ operations, and they include the following:

1. Bergen County north-south corridor where routes of TNJ and Rockland Coaches serve identical portions of Kinderkamack Road, Forest Avenue, Washington Avenue, Engle Street and River Edge Road.
2. South Hudson County corridor where TNJ Route 9 competes with the Montgomery and Westside IBOA, and TNJ Route 7 and 14 parallel and partially duplicate the routes of other IBOA's. The TNJ operations extend beyond one or both termini of the IBOA routes.
3. The Newark area corridors of competition as well as those of coordination (Table 10 numbers 3 and 4) consist of IBOA's operating routes duplicated by TNJ. The TNJ services extend beyond one or both of the IBOA route termini. While these corridors can be classified as competitive, limited coordination occurs on some routes.
4. Route 9 - Garden State Parkway corridor. Both TNJ and Lincoln Transit operate routes between Atlantic City and Newark/New York City. Coordination of scheduling between the two companies occurs on trips connecting with the shared service between Atlantic City and Cape May. Commuter service in this corridor north of Lakewood finds competition scheduling in effect.

Bus-Bus Coordination - The principal examples of cooperative operations are the coordination of schedules between TNJ and Lincoln Transit and, TNJ coordination with some of the Newark IBOA's.

Bus-Rail Competition - Major bus-rail competition corridors involve commuter buses and trains to and from New York City. All

bus services operate to either the GWBT or the PABT. The PATH rail service operates to the World Trade Center or to 33rd Street.

The Penn Central line from New Jersey terminates at Penn Station. The other rail lines in New Jersey require transfer (to either Penn Central or PATH) to complete a New York-bound trip. The most obvious example of bus-rail duplication of service is within the Penn Central corridor where the Penn Central Railroad, Suburban Transit, and TNJ all operate commuter service.

Bus-Rail Coordination - Very little coordination of service exists. Most coordination throughout the state consists of local bus routes terminating at or near railroad stations and serving as feeder operations.

Financial Condition of Bus System

The bus industry in New Jersey is experiencing a financial crisis as a result of declining patronage and revenues and rising labor and other operating costs.

Operating results for all transit including subway operations in the United States indicate that the industry received net revenues of \$198 million in 1945. By 1963, an annual operating deficit of \$880,000 existed. This deficit increased to an estimated \$513 million for 1972. The bus industry revenue and deficit trends are similar, as shown in Table 11.

Average revenue per bus passenger nationwide is slightly higher than the transit industry average. Since 1959, the ratio of average bus fares to the average of all transit fares has increased by about nine per cent, indicating that bus fares are rising at a slightly faster rate than rail fares.

Table 11
NATIONWIDE TRENDS
BUS VS. TOTAL TRANSIT STATISTICS

CALENDAR YEAR	REVENUE PASSENGERS			PASSENGER REVENUE			AVERAGE FARE			VEHICLE MILES OPERATED			PASSENGERS PER BUS MILE
	Motor Bus	Grand Total Transit (millions)	Bus Per Cent of Total	Motor Bus	Grand Total Transit (millions)	Bus Per Cent of Total	Motor Bus	Grand Total Transit	Bus Per Cent of Total	Motor Bus	Grand Total	Bus Per Cent of Total	
1940	3,620.1	10,503.7	35	\$ 248.8	\$ 701.5	36	6.87¢	6.68¢	1.03	1,194.5	2,596.0	46	3.03
1945	8,344.7	18,981.9	44	590.0	1,313.7	45	7.07	6.92	1.02	1,722.3	3,253.8	53	4.85
1950	7,681.0	13,845.0	56	734.2	1,386.8	53	9.56	10.02	.95	1,895.4	3,007.6	63	4.05
1955	5,734.0	9,189.0	62	826.3	1,358.9	61	14.41	14.79	.97	1,709.9	2,447.5	70	3.35
1956	5,568.0	8,756.0	64	845.3	1,351.1	63	15.18	15.43	.98	1,680.9	2,366.6	71	3.31
1957	5,438.0	8,338.0	65	849.6	1,319.8	64	15.62	15.83	.99	1,648.4	2,289.5	72	3.30
1958	5,135.0	7,778.0	66	839.2	1,282.2	66	16.34	16.48	.99	1,593.6	2,201.0	72	3.22
1959	5,108.0	7,650.0	67	877.0	1,308.3	67	17.17	17.10	1.00	1,576.5	2,158.9	73	3.24
1960	5,069.0	7,521.0	67	910.3	1,334.9	68	17.96	17.75	1.01	1,576.4	2,142.8	74	3.22
1961	4,834.0	7,242.0	67	897.8	1,320.9	68	18.57	18.24	1.02	1,529.7	2,077.1	74	3.16
1962	4,773.0	7,122.0	67	910.1	1,330.2	68	19.07	18.68	1.02	1,515.2	2,047.4	74	3.15
1963	4,752.0	6,915.0	69	932.2	1,316.3	71	19.62	19.04	1.03	1,523.1	2,021.7	75	3.12
1964	4,729.0	6,854.0	69	950.4	1,326.0	72	20.10	19.35	1.04	1,527.9	2,015.8	76	3.10
1965	4,730.0	6,798.0	70	971.9	1,340.1	73	20.55	19.71	1.04	1,528.3	2,008.2	76	3.10
1966	4,702.0	6,671.0	71	998.1	1,385.4	72	21.23	20.77	1.02	1,521.7	1,983.6	77	3.09
1967	4,633.0	6,616.0	70	1,037.3	1,457.4	71	22.39	22.03	1.02	1,526.0	1,996.8	76	3.04
1968	4,524.5	6,491.0	70	1,049.7	1,470.2	71	23.20	22.65	1.02	1,508.2	1,988.7	76	3.00
1969	4,335.3	6,310.3	69	1,114.8	1,554.7	72	25.71	24.64	1.04	1,478.3	1,966.7	75	2.93
1970	4,058.3	5,931.7	68	1,193.6	1,639.1	73	29.41	27.63	1.06	1,409.3	1,883.1	75	2.88
1971	3,734.8	5,497.0	68	1,226.8	1,661.9	74	32.23	29.78	1.08	1,375.5	1,846.3	75	2.72
1972	3,579.0	5,271.0	68	1,218.2	1,650.7	74	34.04	31.32	1.09	1,308.0	1,755.6	75	2.74

-56-

Vehicle miles operated by buses has ranged between 70 and 77 per cent of total transit vehicle miles since 1955.

Other significant nationwide trends are:

1. The annual bus passenger volume has decreased each year since 1945 and is now below the 1940 volume. In 1972, total transit trips represented approximately 50 per cent of 1940 transit trips.
2. Over the same period passenger revenues for bus operations as well as for all transit increased steadily. From 1940 to 1972 average fares increased from 7 cents to 34 cents for bus transit and from 7 cents to 31 cents for all transit.
3. Vehicle miles operated decreased for buses as well as for all transit vehicles, but while buses accounted for only 53 per cent of total transit vehicle miles in 1945, they have steadied at 75 per cent over the last few years.
4. Passengers per vehicle-mile operated has been a meaningful statistic for local bus operators over the years. In 1945, the nationwide average peaked at 4.84. Since then, the ratio has dropped steadily. The 1972 rate was 2.74 passengers per mile, a slight increase from 2.72 in 1971.

Profit and Loss - Statewide - Annual financial reports to the New Jersey Public Utilities Commission for all reporting regular carriers in the state, 226 operating companies in 62 operating groups, are summarized in Table 12, which shows that:

1. Bus revenues of over \$156 million in 1970 increased to \$163.6 million in 1971. This

TABLE 12
NEW JERSEY BUS INDUSTRY

PROFIT AND LOSS SUMMARY REPORT
1970 and 1971

	<u>YEAR</u>		<u>CHANGE 1970-71</u>	
	<u>1970</u>	<u>1971</u>	<u>Amount</u>	<u>Per Cent</u>
Bus Revenue	156,461,080	163,595,657	7,134,577	4.6
Operation & Maintenance	139,954,074	147,201,474	7,247,400	5.2
Depreciation	6,889,828	6,774,718	(115,110)	(1.7)
Amortization	11,808	20,046	8,238	69.8
Taxes and Licenses	9,356,760	10,265,384	908,624	9.7
Operating Rents	6,961,975	7,100,678	138,703	2.0
Rent Lease (income)	1,400	6,728	5,328	380.6
Net Operating Income	(6,711,965)	(7,759,915)	(1,047,950)	(15.6)
Other Income	1,231,482	1,368,924	137,422	11.2
Income Deductions	1,024,951	617,515	(407,436)	(39.8)
Net Revenue	(6,505,434)	(7,008,506)	(503,072)	(7.7)
Subsidy (1)	594,488	1,332,935	738,447	124.2

(1) Based on amounts reported in bus company annual reports to Public Utility Commission and subject to variability of accounting procedures and the normal fiscal year-calendar year differences.

is an increase of 4.6 per cent, due mainly to increased fares.

2. Net operating income showed a deficit of almost \$7 million in 1970 and \$7.8 million in 1971, an increase of 15.6 per cent.
3. Transport of New Jersey (exclusive of Maplewood Equipment Company) accounts for about 50 per cent of the total industry revenue in the state. TNJ's revenue was \$75.4 million in 1970 and \$78.6 million in 1971, yet TNJ realized a net deficit of \$3.2 million in 1970 and \$4.2 million in 1971. TNJ accounts for 50 per cent of both gross revenue and net deficit of all bus operators in New Jersey.

Capital Investment and Financial Status

The current financial status of the bus industry in New Jersey is detailed in the balance sheet reports prepared for the PUC at the end of each calendar year. While assets and liabilities were balanced at over \$50 million in 1968 and 1969, the 1972 report balances at less than \$33 million, indicating that total cash flow has been reduced by approximately 33 per cent over the five years, as shown in Table 13.

The ratio of current assets to liabilities indicates the trend of company financial conditions. As shown in Figure 12, the ratio of current assets to current liabilities for TNJ held at above 2.0 from 1968 to 1971 but dropped sharply in 1972 to a point where liabilities now exceed assets.

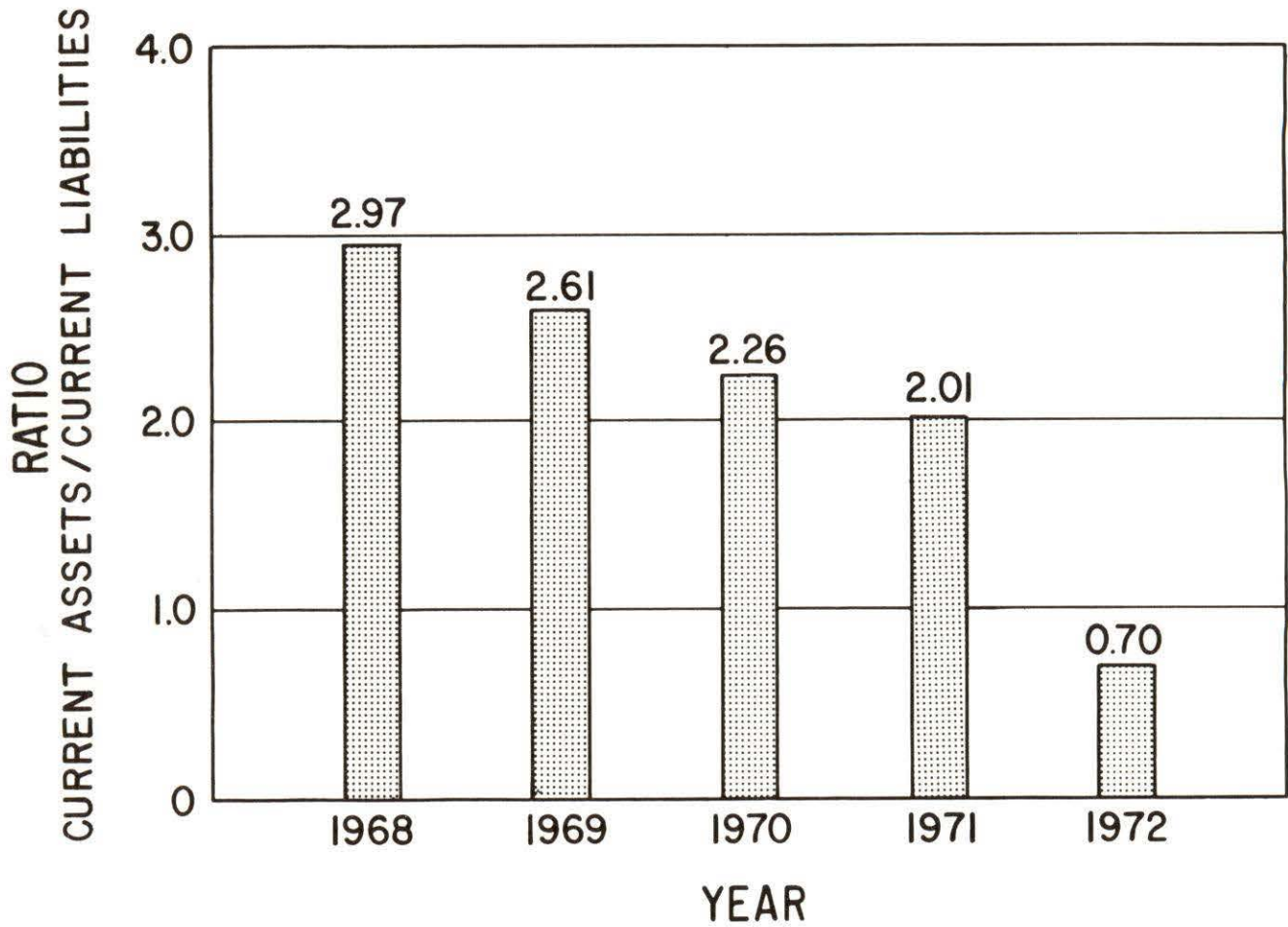
Only three of the thirteen companies listed, showed net income for 1971. The other ten companies operated at a deficit as shown in Table 14.

Table 13

TRENDS IN CURRENT ASSETS
 TRANSPORT OF NEW JERSEY⁽¹⁾
 1968 to 1972

	1968	1969	Change 68-69	1970	Change 69-70	1971	Change 70-71	1972	Change 71-72
Current Assets	\$14,897,333	\$14,635,767	\$(261,566)	\$11,462,738	\$(3,173,029)	\$10,842,078	\$(620,660)	\$4,273,446	\$(6,568,632)
Tangible Property	34,636,169	35,520,264	884,095	35,407,090	(113,174)	32,000,663	(3,406,427)	27,616,426	(4,384,237)
Intangible Property	234,333	197,333	(37,000)	160,333	(37,000)	123,333	(37,000)	86,333	(37,000)
Investments Counties & Advances	275,505	150,380	(125,125)	169,375	18,995	109,168	(60,207)	271,881	162,713
Special Funds	18,188	15,813	(2,375)	6,719	(9,094)	33,594	26,875	4,750	(28,844)
Deterred Debits	685,135	824,107	138,972	768,389	(55,718)	970,813	202,424	695,852	(274,961)
Miscellaneous Debit Items	-	-	-	-	-	-	-	-	-
Total Assets	\$50,746,663	\$51,343,664	\$597,001	\$47,974,644	\$(3,369,020)	\$44,079,649	\$(3,844,995)	\$32,948,688	\$(11,130,961)

(1) Public Service Coordinated Transport
 in 1968,69 and 70



FINANCIAL STATUS INDICATOR
TRANSPORT OF NEW JERSEY
NEW JERSEY PUBLIC TRANSPORTATION STUDY

Table 14

SELECTED N.J. BUS SYSTEMS
FINANCIAL CONDITION
1971

<u>COMPANY</u>	<u>Gross Investment (1) in Facilities</u>	<u>Net Investment (2) in Facilities</u>	<u>Total Capital (3) Involvement</u>	<u>Annual Passenger Revenue</u>	<u>Net Income (Deficit)</u>
Transport of New Jersey	\$ 92,967,317	\$ 31,979,183	\$ 44,079,649	\$ 71,899,469	\$(4,213,075)
Atlantic City Transp. Co. (4)	1,261,276	131,452	358,717	1,219,613	40,830
Boro Buses	882,296	94,735	298,998	253,553	(57,460)
Coast Cities Coaches	125,670	930	94,279	233,269	(34,665)
DeCamp Bus Lines	4,054,168	1,198,568	2,096,461	4,849,086	(95,151)
Hudson Transit Lines	2,246,763	1,042,059	3,380,229	6,242,568	95,533
Lincoln Transit	3,447,870	929,559	1,363,942	3,858,820	(200,621)
Manhattan Transit	2,280,170	828,696	1,893,811	2,374,115	10,121
Mercer Co. Imp. Auth.	1,787,106	1,463,405	1,962,918	1,376,146	(227,429)
Orange & Black Bus	1,800,130	170,922	903,160	1,942,163	(126,155)
Rockland Coaches	2,063,724	218,831	1,252,604	5,515,003	(6,639)
Somerset Bus Co.	1,005,368	144,157	443,533	3,123,400	(53,108)
Suburban Transit	3,042,819	773,934	1,294,144	3,216,068	28,743

(1) Carrier Operating Property

(2) Carrier Operating Property Less Reserve for Depreciation & Amortization

(3) Total Assets at end of year

(4) Reported net loss for 1971 in division of commuter services, New Jersey Department of Transportation records, subject to accounting procedures and normal calendar year-fiscal year variation in records.

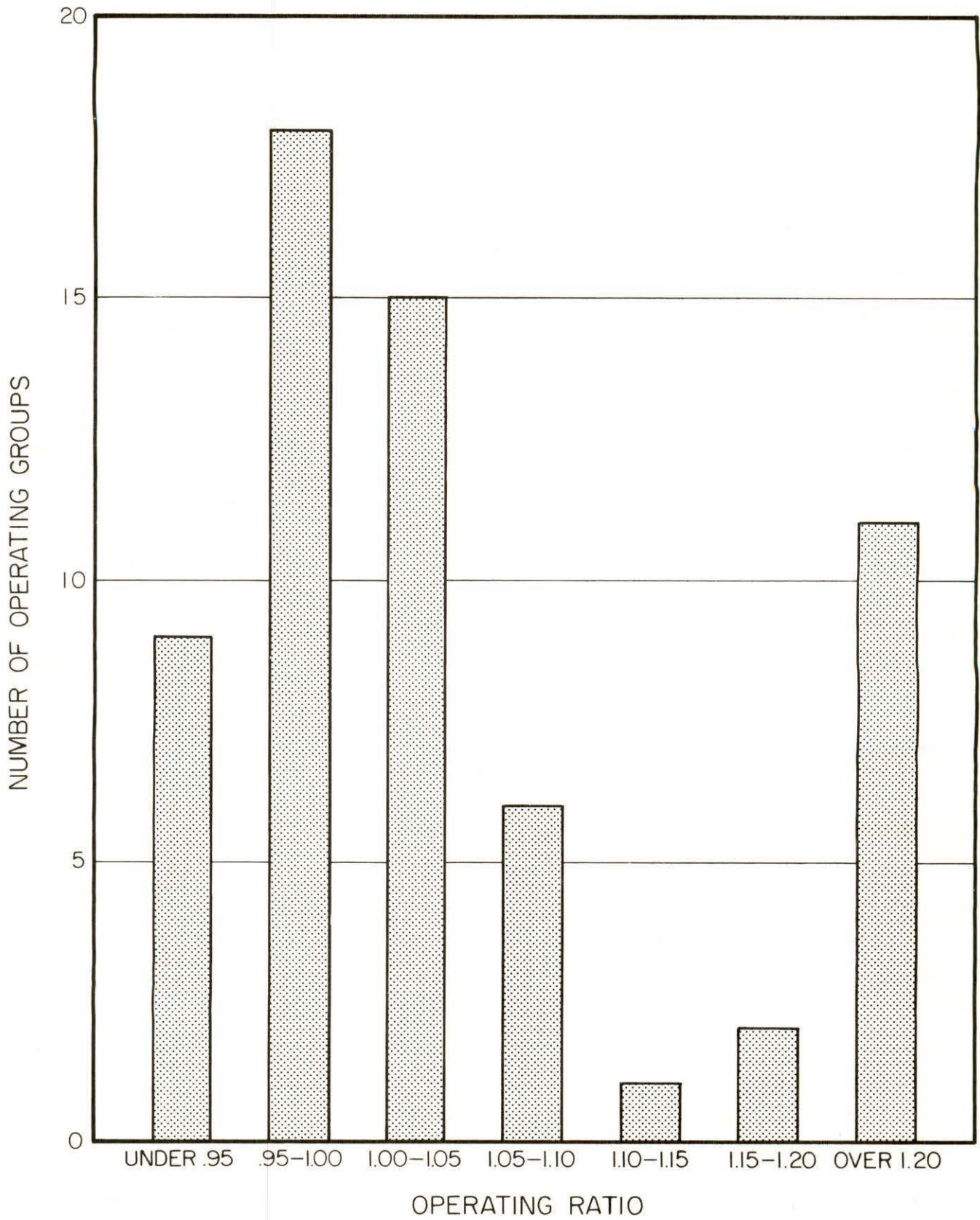
SOURCE: Public Utility Commission, Annual Report.

Operating Ratios - Operating ratios are defined as operating costs divided by operating revenue. Twenty-seven of the 62 operating groups had profitable operations (operating ratio below 1.00) during 1971. Fifteen companies were in the marginal loss category with ratios between 1.00 and 1.05. The remainder recorded significant operating loss ratios with eleven groups exceeding 1.20 as shown in Figure 13.

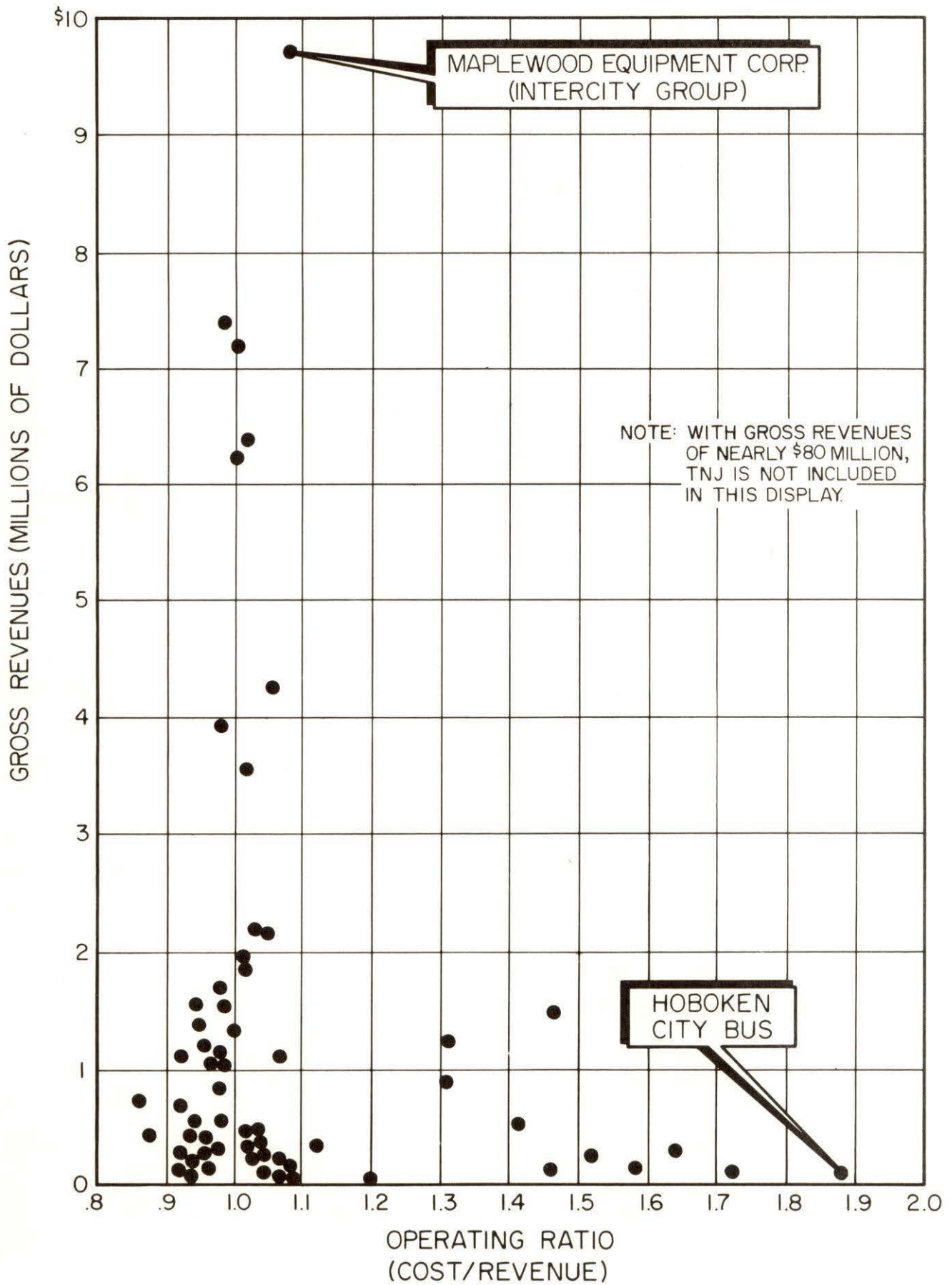
As shown in Figure 14, those companies recording gross revenues in excess of \$2 million for 1970 and 1971, reported operating ratios between 0.97 and 1.13 suggesting that the major carriers are all close to the breakeven point. This illustration omits statistics on Transport of New Jersey whose gross revenues of over \$78,000,000 are in a class by themselves. TNJ's operating ratio was recorded as 1.05. While many groups report net losses, the magnitude of the losses is not great. Continued losses at the rate of 10 per cent of gross revenue, however, suggest that some operating support will be required if service is to be maintained. Many smaller companies (less than \$2 million gross revenues) are developing critical losses, reflected in operating ratios of up to 1.3, or 30 per cent of gross revenues.

The companies on the edges of Figure 14 include Maplewood Equipment Corporation; (Intercity, Orange and Black, Northeast and Warwick-Greenwood Lake-New York in 1971) with gross revenues in the \$9 to \$10 million range and Hoboken's Municipal bus line with revenues covering only about half the cost.

Base Fares and Driver Wages - A comparison of the relationships between base fares charged by urban bus systems and the driver wage rate in dollars per hour also assists in evaluating company economic status. Bus fares in several cities have been



**OPERATING GROUPS BY
OPERATING RATIO-1971**
NEW JERSEY PUBLIC TRANSPORTATION STUDY



found to average, approximately 10 cents per dollar of driver wage rate. As shown in Figure 15, only two companies, Inter-City and Atlantic City Transportation Company, record fare structures at or above this rule-of-thumb indicator. Most companies have fare-wage relationships of about eight cents of fare per dollar of driver wages. The ratio for TNJ falls very near to this value which could be called the modified rule-of-thumb line for New Jersey.

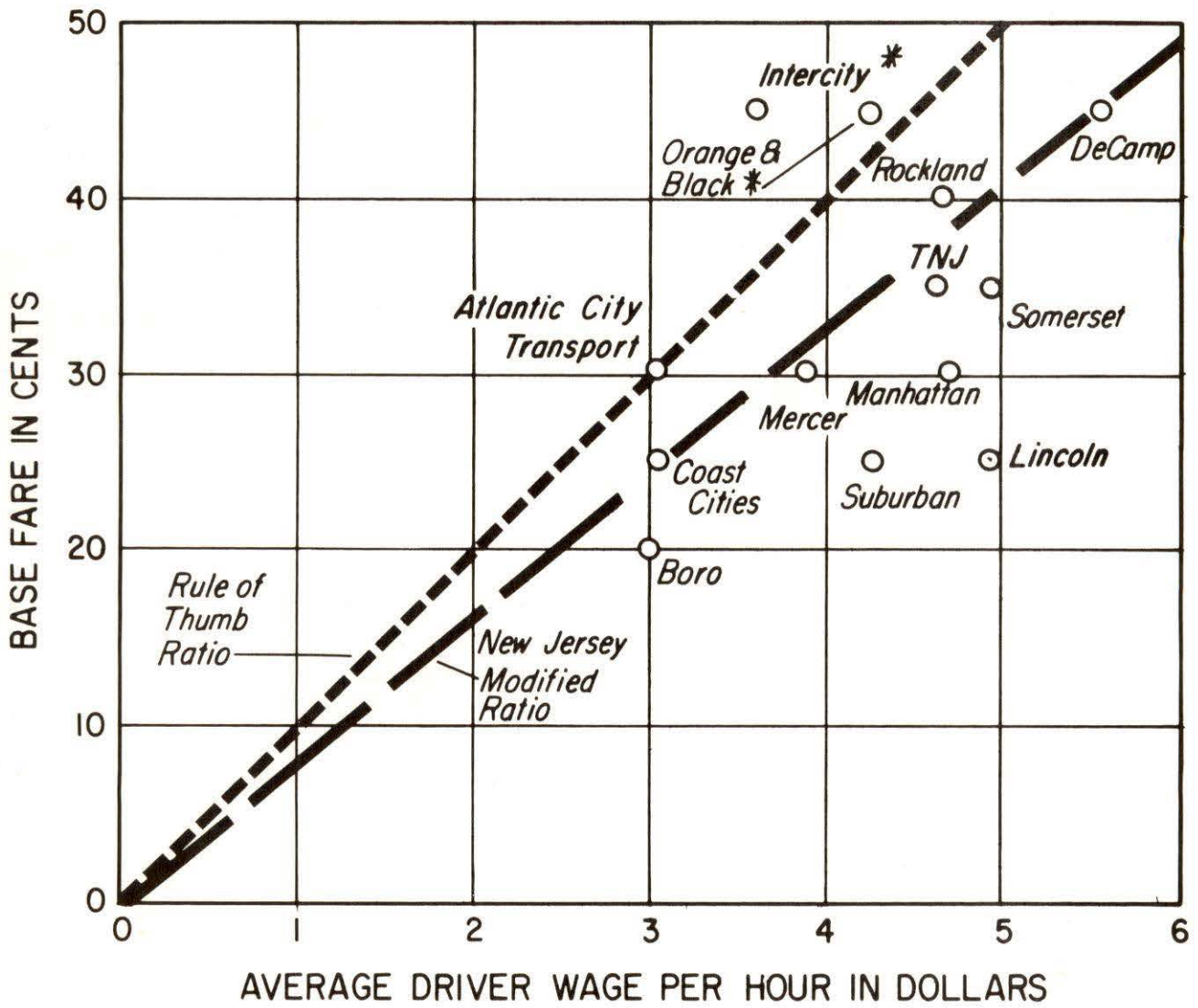
Operating Income - In 1971, over half of the operating groups reported incomes of less than \$1 million, and only one, TNJ, exceeded \$10 million. The income of 25 groups were within the range of \$1 million to \$10 million. With TNJ, these companies represent the core of the New Jersey system. Figure 16 depicts the distribution of operating groups by income.

In summary, the financial status of the New Jersey bus system appears unstable at best. With TNJ, in its very perilous situation, providing half of the state's service, concern for the viability of the total system can be appreciated. The number of subsidized operations will likely increase substantially during 1973 and 1974 subject to availability of state funding and cooperation of the counties in providing a local share of the subsidy.

Elements of the statewide system and the relative merit of various segments of the system need to be evaluated to establish priorities for subsidy allocation.

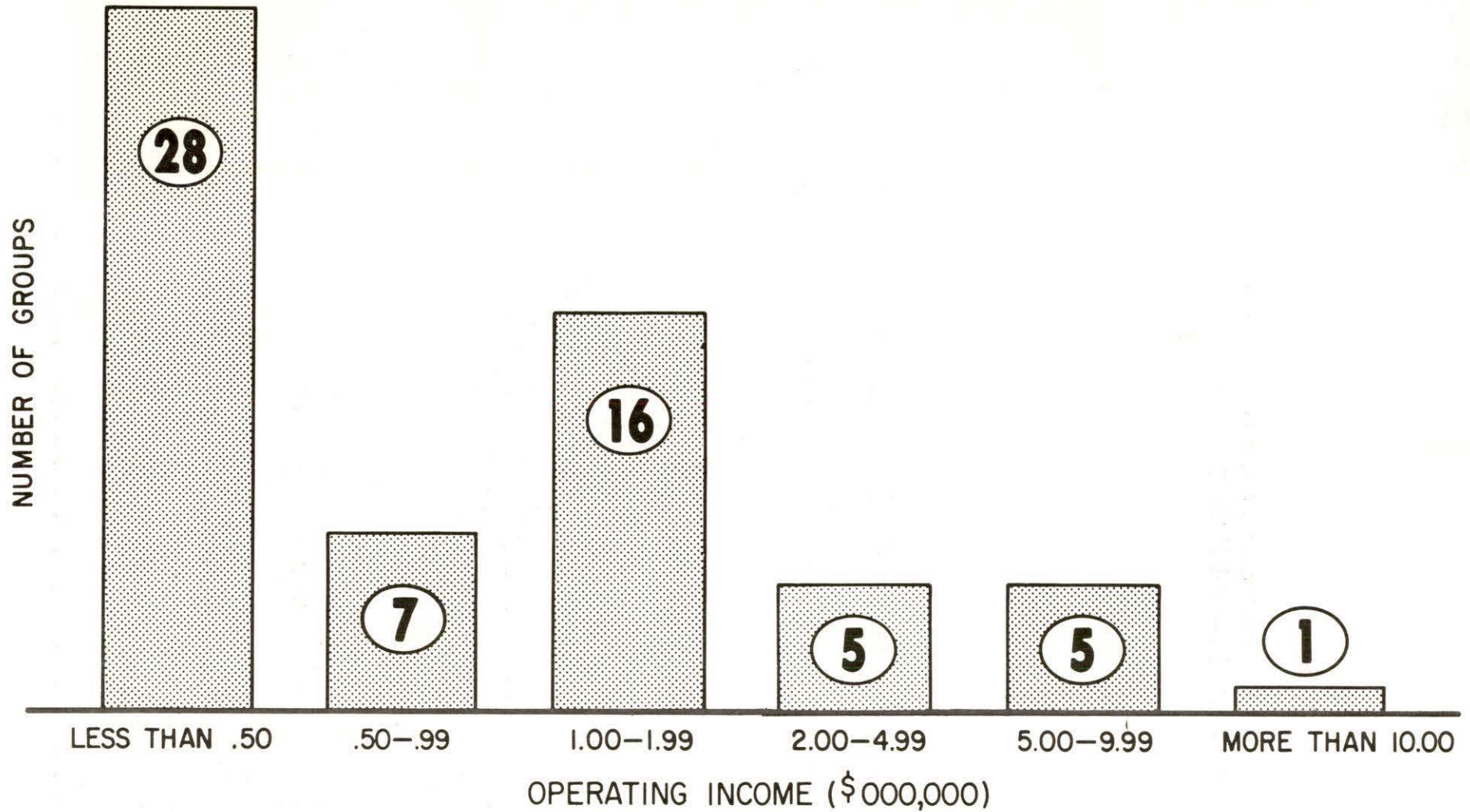
Capital Improvements

The financial status of most bus companies in New Jersey has extensively inhibited capital investment. As noted in discussing the age of the fleet, the addition of new vehicles, key elements in the bus transit system has been sharply curtailed in the last two years.



* Interstate Fare

FARE-WAGE RELATIONSHIP—1971
 NEW JERSEY PUBLIC TRANSPORTATION STUDY



OPERATING GROUPS BY INCOME-1971
NEW JERSEY PUBLIC TRANSPORTATION STUDY

The PUC, which records all buses in operation as common carriers in intrastate traffic in New Jersey, records 405 new buses placed in operation in New Jersey in the period 1970-1972. These records include charter as well as regular route buses. For this three-year period, regular route operators purchased 264 of the total 405 buses. The regular route purchases included 75 in 1970 by TNJ (PSCT in that year) which were not repeated in the following years. In fact, in 1972, charter bus operators purchased 67 buses as compared to only 51 by the regular route operators as shown in Table 15. It should be noted that these data reflect buses registered with PUC and do not relate directly to the year of manufacture as shown in Table 4.

Table 15

BUSES PURCHASED AND REGISTERED
WITH N.J.P.U.C.
1970-1972

	<u>1970</u>	<u>1971</u>	<u>1972</u>	<u>TOTAL</u>
Regular Route Operators	163	50	51	264
Charter Companies	<u>36</u>	<u>38</u>	<u>67</u>	<u>141</u>
	199	88	118	405

Transit Bus Purchases, 1968-1972

TNJ placed a total of 430 new buses in service during the 1968 through 1971 period. Of these, 345 were transit-type buses, 50 were suburbans, and 35 were parlor or cruiser-type buses. The assignment of these buses to garages is shown in Table 16. The transit-type buses were bought during the early years of this period, and no new transit-type vehicles were added after 1970.

Table 16

TNJ BUS PURCHASES AND GARAGE ASSIGNMENTS (1)
1968 - 1971

TNJ GARAGE	1968 to 1971 MODEL BUSES				Total
	1971	1970	1969	1968	
A. Elizabeth	--	13S 10T	5S	9P 21T	58
B. New Brunswick	--	--	--	--	--
C. Oradell	--	--	--	--	--
D. Greenville	--	10T	--	36T	46
E. Union City	7P	9S	5P 5S 20T	11P 32T	89
H. Big Tree	--	33T	--	--	33
I. Lake Street	--	--	14T	--	14
J. Hilton	--	22T	11T	--	33
K. Orange	--	--	40T	17T	57
L. Market	--	--	5S	33T	38
P. Newton Ave.	--	--	10T	5T	15
Q. Townville	--	--	20T	--	20
R. Riverside	--	9S	--	--	9
S. Maple Shade	3P	--	--	11T	14
T. Atlantic City	--	--	--	--	--
U. Wildwood	--	4S	--	--	4
V. Ocean City	--	--	--	--	--
	10	110	135	175	430

(1) As of April, 1973.

SYMBOLS

Bus Type:

T = Transit

S = Suburban

P = Parlor or Cruiser

The largest single investor in new transit buses, other than TNJ, was Mercer Metro, which purchased 20 new vehicles in 1970 shortly after taking over the operations of Capital Transit. These purchases were purchased with the one-third local share provided entirely by Mercer County.

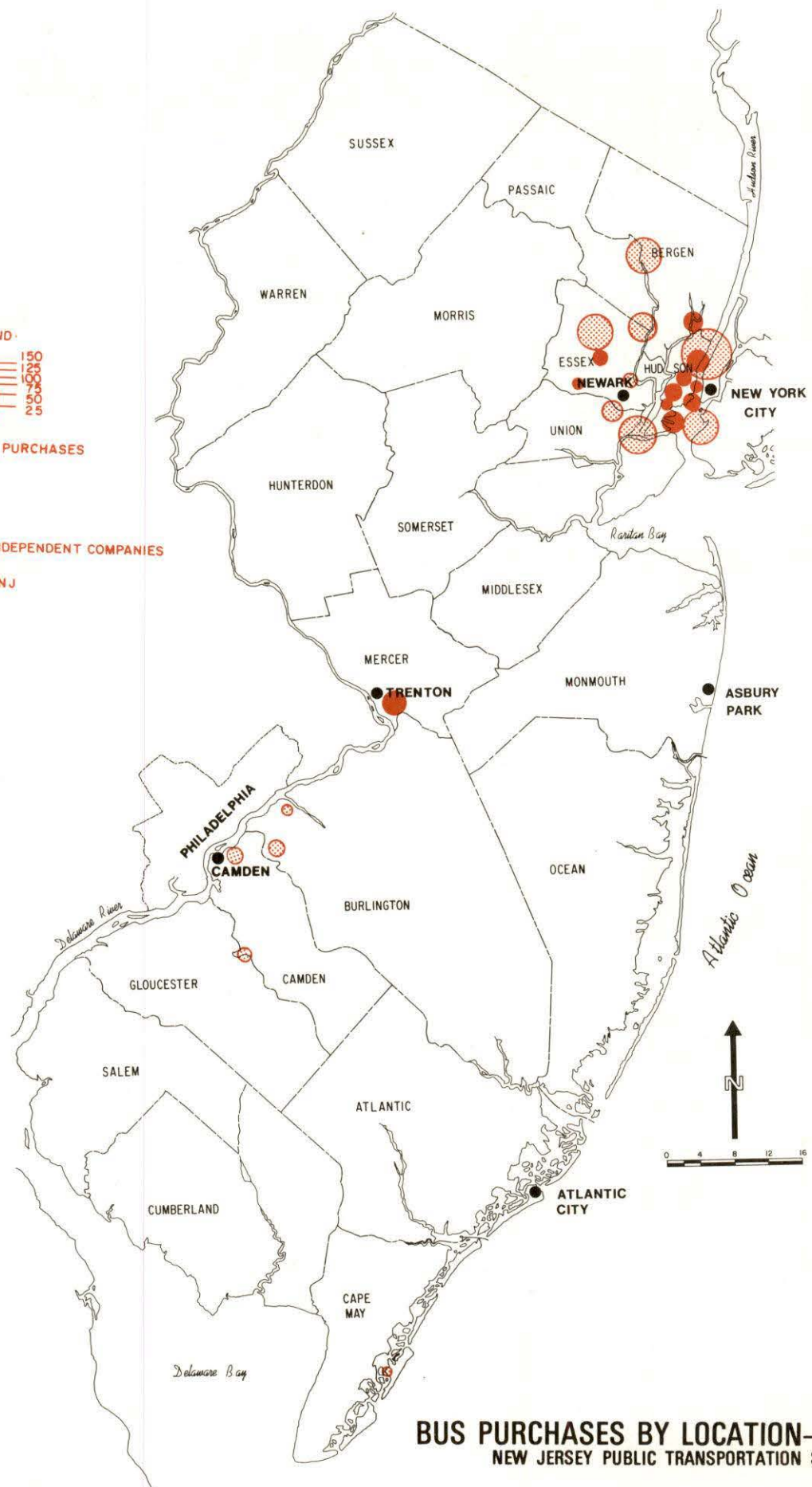
The distribution of new buses around New Jersey as a result of the bus purchases reported during the 1968 to 1972 period is shown in Figure 17.

Marketing Activities

Marketing public transportation in New Jersey has been fragmented and individualized due to limited coordination between bus companies. The operating groups have undertaken to market their services individually with no coordination at the state level.

The marketing efforts that do exist range from the substantial program of TNJ to no program at all as reported by several of the Independent Bus Owners Associations. The TNJ program includes:

1. Updated timetables proposed for new or revised route schedules are forwarded to interested agencies such as the PUC and DOT and distributed to passengers in the area served by each route.
2. Brochures are issued advertising special charter bus services and weekend tours.
3. Maps are printed on the timetables providing details of route operations. Pocket-sized maps identifying interlocking company routes were published in 1969-70 for the Paterson, Hackensack, Elizabeth, Newark and Jersey City areas enabling



BUS PURCHASES BY LOCATION—1968-1971
 NEW JERSEY PUBLIC TRANSPORTATION STUDY

riders to find their way throughout the North Jersey area via the then Public Service system.

4. Charter services are advertised in newspapers and other printed news media.

Recently TNJ began a market research program to determine existing ridership characteristics, identify existing and future ridership potentials and appraise the company's public image. This project has included arrangements with an advertising and sales promotion consultant to initiate a ski trip program and marketing of other new services which have been inaugurated by the company and Bergen County under the state's subsidy program. They involve realignment of several TNJ routes in Bergen County to provide direct service to the Garden State Plaza. Previously all such passengers to the shopping center had to change buses in Hackensack. The marketing program has arranged with the operator of Garden State Plaza to post and distribute literature advertising this service.

The several Independent Bus Owners associations in Hudson and Essex Counties operate a minimal marketing program. Most of these associations do not publish a standard timetable or, if they do, the timetable is merely posted at key locations along the route and not circulated to the public. It is acknowledged, however, that a bus service operating up and down a single street does not have a real need for a timetable if its headways are short.

Besides TNJ and the independent associations, other transit services provide varying degrees of marketing effort. All Class A companies⁽²⁾ publish timetables which are available to passengers at terminals, ticket offices, drug stores, and other convenient points. They also advertise special racetrack service, and package tours through the news media. An example of marketing using bus route maps, prepared by Public Service Corporation, the previous name of TNJ, is shown in Figure 18.

⁽²⁾ Annual revenues in excess of \$1,000,000.

Public Assistance in Transit Marketing - With the development of an increasing interest in public transportation, new marketing efforts are being made by local governments.

Bergen County, for example, appointed a Public Transportation Coordinator in 1970, and participated in the state's newly developed bus subsidy program. It initiated a public information effort to acquaint county residents with available transportation services.

An initial undertaking of the new agency was the preparation of a transit map of the county, identifying for citizens of any community in the county, transit links to adjacent communities. This map was a variation of the maps prepared earlier by Public Service Coordinated Transport, as shown in Figure 18. An index showed service connecting any two communities in the county, by company route numbers and symbols.

A similar effort to show a comprehensive map of available bus service has been undertaken by the City of Newark through its Model Cities Program. Figure 19, a modified street map, shows route numbers and bus companies and the exact route followed by each operating company in traversing the city. This map does not provide information on headways or limited service, but does give route names and numbers as reference for public in calling the company for additional information.

The Newark Model Cities map, though more difficult to read and understand than the Bergen County map, is effective for persons familiar with the Newark street system.

Conclusions - Despite individual localized efforts, a concerted marketing effort has not yet been undertaken in New

Jersey to inform the public of available transit service. Before people will seriously consider reducing their use of the private car, they must be educated to the convenient alternatives available by public transportation. A greatly expanded public information program along with improved service is essential if the present usage of public transportation is to be significantly increased.

Sector Designation

In this statewide study of the public transportation system, the state has been divided into seven sectors and corridors of reasonably common characteristics for analysis of services provided as shown in Table 17.

Analysis by County - To determine the most effective division of sectors or corridors for detailed inventory analysis, operating groups were reviewed in terms of their base county. Of the 62 operating groups, 42 are based in Bergen, Passaic, Hudson, and Union Counties.

Transport of New Jersey - The dominant bus operation in the state is provided by Transport of New Jersey (TNJ). Based in Maplewood, and as one of the 12 Essex County operating groups, TNJ provides service to all counties of the state except Sussex County in the far northwest corner of the State.

Since TNJ operates 52 per cent of all buses in regular route operation and provides one-half of the entire service in the state, it is treated separately.

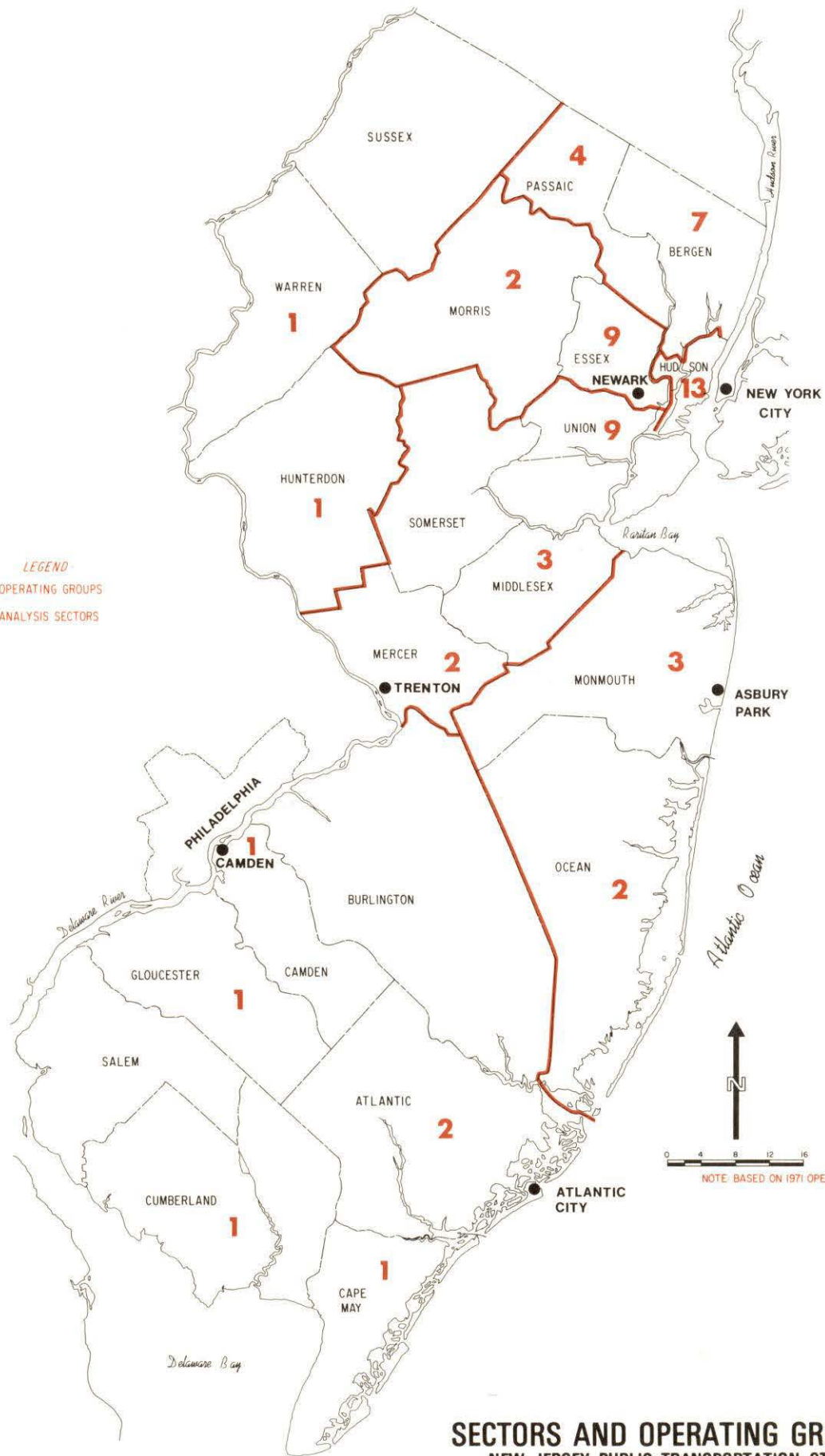
Apart from the Tri-State Region, the Delaware Valley Regional Planning Commission includes Mercer, Burlington, Camden, and Gloucester Counties and accounts for three of the remaining nine operating groups. Each of the other counties is considered separately in the regional concept. Salem County is part of WILMAPCO (Wilmington Metropolitan Area Planning Coordinating Council). Each of the remaining seven counties, Atlantic, Cape May, Cumberland, Hunterdon, Ocean, Sussex, and Warren has been established as an individual region for approving projects for federal funding.

The recommended distribution by the eight sectors identified earlier, however, is preferable to the subdivision by regional planning agencies for the purposes of this study. The ongoing analysis of existing public transportation facilities has therefore been organized on the basis of the sectors set forth in Table 17 and Figure 20.

Sector Reports on Bus Transportation

Separate reports are presented outlining the public transportation bus facilities in each sector. The format and content of each report is consistent with respect to the operating groups and their constituent companies. Each report develops basic characteristics of the service offered in each of the corridors and provides information which has been obtained from the PUC reports, from contacts with operating officials of each of the companies, and from public officials responsible for public transportation in each of the counties or regional organizations.

LEGEND
 O OPERATING GROUPS
 — ANALYSIS SECTORS



SECTORS AND OPERATING GROUPS
 NEW JERSEY PUBLIC TRANSPORTATION STUDY

Chapter 4

ADMINISTRATION OF PUBLIC TRANSPORTATION

The bus industry's structure is complicated by wide variations in the size of operating companies. Transport of New Jersey, through its own operations and through its control of Maplewood Equipment Company, accounts for 54 per cent of the transit revenues in the State. On the other hand, there are many single proprietor companies operating one bus generally in association with a number of other small private operators. These companies often provide a high frequency coordinated service along a single route in Jersey City, Newark and other North Jersey communities. Outside of this area and Atlantic City, with its jitney operation, the independent associations are not found elsewhere in New Jersey.

Publicly-Owned Bus Systems in the United States - In recent years there has been a growing trend toward public take-over of local transit systems in the United States. The position of publicly owned systems in the total transit industry in 1972 is shown in Table 18.

It will be noted that 160 publicly owned transit systems represent only 15 per cent of the total systems or companies in the transit industry. However, these publicly owned systems account for 85 per cent of the operating revenue, 73 per cent of vehicle miles operated, 86 per cent of revenue passengers carried, and 70 per cent of vehicles owned in the total United States transit industry.

Table 18

PUBLICLY OWNED TRANSIT SYSTEMS
IN THE UNITED STATES IN 1972

		<u>PER CENT OF INDUSTRY</u>
Number of Systems	160	15
Operating Revenues (Thousands)	\$1,469,225	85
Vehicle-Miles Operated (Thousands)	1,281,588	73
Revenue Passengers (Thousands)	4,533,060	86
Number of Employees	119,041	86
Passenger Vehicles Owned (Total)	42,499	70
Motor Buses	30,917	63
Subway and Elevated	9,423	100
Surface Railway	1,129	96
Trolley Coaches	1,030	100

SOURCE: Transit Fact Book, 1972-1973: American Transit Association.

In New Jersey, however, publicly operated systems exist only in Mercer County (Mercer Metro) and in Hoboken where a token public service is maintained. Over the last few years the state has supported private ownership by initiating its subsidy program designed to provide operating subsidies to carriers which document their needs and demonstrate that the public transportation service they are providing justifies governmental support.

Recent and Present Administration

As with most political jurisdictions in the United States, the governmental role in transportation system operations in New Jersey has been, until recently, regulatory and judicial, expressed through the New Jersey Board of Public Utility Commissioners.

In the past few years, the trend of governmental policy is to provide a level of public transportation service of a magnitude and scope beyond the capability of private enterprise on a self supporting basis.

In New Jersey the Department of Transportation (DOT) has been given the responsibility to broaden the scope of its predecessor agency from that of planning, design, construction and maintenance of highways to include financial assistance for rail and bus public transportation.

Jurisdictional Issues - The present delegation of responsibility for dealing with transportation problems in New Jersey results in duplication of effort, and conflicting interests. This is particularly true in delineation of jurisdiction between the Commuter Operating Agency (COA) of the Department of Transportation and the New Jersey Public Utilities Commission (PUC). The COA is responsible to the Commissioner of Transportation through the Assistant Commissioner for Public Transportation. It can function effectively only if levels of responsibility and jurisdiction are well defined, and if it is properly staffed to carry out its assigned tasks.

Present DOT Responsibilities

The responsibility of the New Jersey Department of Transportation for bus operations is derived from the Transportation Act of 1966 (P.L. 1966, c. 301) which created the Department. This Act also established the Commuter Operating Agency and authorized it to enter into contracts with bus companies to maintain existing, or to establish new routes, services, and fares.

The Act further provided that these responsibilities would be removed from PUC jurisdiction for any contract service but that safety and inspection would continue to be a PUC responsibility.

It was not until the passage of P.L. 1969 c. 134 that the 1966 Bus Service Contract provision was implemented with an appropriation. Subsequently, P.L. 1971, c. 147 and P.L. 1972, c. 100 provided for joint funding of contract service by the State and counties or municipalities.

Service Criteria - As defined in the Transportation Act of 1966 (P.L. 1966, c. 301), the Commuter Operating Agency shall determine the level of passenger service which would "(a) be necessary to provide or encourage adequate commuter or intercity bus service, or (b) not otherwise be provided or made available without state assistance.

The Commuter Operating Agency thus is entrusted with full determination of all aspects of service criteria: public necessity and convenience, routes, and fares. There is no other definition of "service criteria".

Approval of Financing - An application by a transit operation for approval of financing requires statements of purpose, amount and terms of the financial aid, and its security, if any. In addition, financial statements are required to show details as to the security and the ability to meet required payments.

Fare Increases - For fare increases of subsidized operations, public hearings are held on applications to the DOT. These hearings may be completed in one or two days for small operators with one route, and may take months for larger companies with several routes. Comparative balance sheets and income statements for three years and pro forma statements showing the effect of the proposed fare change, must be submitted, as well as details of the investment in plant and equipment.

Present PUC Responsibilities - The New Jersey Board of Public Utility Commissioners (PUC) is presided over by three commissioners appointed by the Governor. It recently has been reorganized into three Divisions, each under the supervision of a Director. The three Divisions are:

1. Rates and Accounting.
2. Engineering and Energy Resources.
3. Common Carriers.

The Common Carrier Division of PUC is comprised of two Bureaus:

1. Household Movers and Refuse Disposal.
2. Rail and Motor Carriers.

The jurisdiction of the Rail and Motor Carriers Bureau covers:

- a. Rail--Safety of track and equipment.
- b. Bus--All aspects of operation: franchises, routes and service; equipment specifications; safety requirements and regulations; safety inspections of vehicles and shop (garage) machinery; maintenance of approved vehicles, and; inspection, and investigation of complaints and accidents.

Rates and finance are under the jurisdiction of the Rates and Accounting Division, which also is responsible for approval of transfers of ownership or control, mergers, consolidations, conditional sales agreements, insurance, and annual financial reports.

Areas of PUC Authority - The scope of authority of the New Jersey PUC is very broad regarding bus operation on regular

routes between points in New Jersey. The PUC has no jurisdiction over school buses but was given control of intrastate charter bus operations in 1973. Interstate buses or operation of routes subsidized by the New Jersey DOT are also beyond the control of the PUC.

Its responsibility for equipment safety inspection and insurance certification, however, covers buses used on routes subsidized by the DOT, as well as those under its own jurisdiction. (Safety inspection of school buses, formerly under the PUC, has been transferred to the State Department of Education.)

The PUC exercises its initial authority over a bus company in many ways. The issuance of stocks or any bond, mortgage, conditional purchase agreements or other evidence of indebtedness must be approved by the Commission.

Transfer of controlling capital-stock interest in a transit company, as well as mergers and consolidations, require statements of the reason for the change as well as a listing of the proposed company directors and officers, together with their qualifications to provide the required service.

With its request for approval of a new route, or transfer or change of an existing one, a company must submit a street-by-street description of the route and a route map, the names of other bus lines or railroads operating in the service area; and operating restrictions, names of officers, owners or partners, and a statement of financial conditions and qualifications to operate and maintain the bus service.

Reassignment of Administrative Responsibilities

In 1969, the State initiated a bus subsidy program to be administered by the New Jersey Department of Transportation.

The authorizing legislation removed the regulation of fares, routes and schedules for bus carriers receiving state subsidy from the jurisdiction of PUC and assigned it to DOT.

Extension of the subsidy program to more than 20 carriers over the last few years has resulted in sometimes conflicting regulations for the still solvent companies, which remain under the jurisdiction of the PUC and for the ever-growing number of subsidized companies subject to DOT control.

Bus Subsidy Legislation - The Transportation Act of 1966 (P.L. 1966, c. 301) provides that the Commuter Operating Agency of DOT may contract with a motor bus carrier to operate a service considered necessary to the public, and that payment by COA shall be based on actual cost plus six per cent return on investment.

Section 24 of the above act (N.J.S.A. 27:1A-24) was amended in 1971 to specifically give COA authority to discontinue, curtail, abandon, or change fares or service during the contract period, without regard to reference to jurisdiction vested in the PUC.

An Interim Emergency Bus Subsidy program was incorporated in legislation as P. L. 1969, c. 134 introduced on May 5, 1969. The bill was passed on July 2 and signed by then Governor Hughes on July 3, 1969.

Determination of Subsidy - In addition to provision for subsidy payments, the COA also may contract to acquire, purchase, or rehabilitate motor buses for lease, to be operated in specified passenger service, provided that any state funds expended for such programs are at least matched by federal funds.

Amount of Subsidy - The need for P.L. 1969, c. 134 was stimulated by the increasingly critical financial

difficulties of individual bus companies. The Act authorized DOT "to contract with any motor bus carrier operating bus or rail transit service in the state which is in imminent danger of terminating all bus services or all rail transit services, provided by said motor bus companies to insure the continuance of that portion of the bus and rail transit services which is essential." ("Rail transit" in this Act was a specific reference to the Newark Subway, operated by Transport of New Jersey.)

"Payment by the Department under such a contract shall not exceed the actual cost to the motor bus carrier for providing such services and shall not include any return on investment."

Action on Service Abandonments - P.L. 1969, c. 134 further provided that DOT could negotiate a contract with any carrier to render "minimum essential" service on a route abandoned by another carrier, and that any such service should not be subject to PUC regulations; and that contract payments for service are to be considered as revenues by the PUC in any application for decreasing or abandoning service.

In addition, no contract could remain in force more than 30 days unless the county or municipality in which the contract services were to be provided agreed to reimburse DOT for at least 25 per cent of the contract cost.

The legislature appropriated \$750,000 to carry out the purpose of the Act through June 30, 1970. This appropriation has been amended each year, on a year-to-year basis.

Contract Service Payments - A 1971 amendment to Section 19 of the Transportation Act of 1966 provided that payment for contract service "shall be based on the actual cost of such service to the motor bus carrier plus a six per cent return on investment."

Amendments to Section 24 of the same act enumerate specific factors to be considered in reviewing subsidy requests:

- (a) Availability of alternate means of public transportation.
- (b) Potential cost of continuing the service sought to be curtailed or discontinued.
- (c) Cost to the State of providing alternative transportation facilities, either by common carrier or highway improvement.
- (d) Resulting effect on state and local population trends, economic values, and tax revenues.

Basis for Subsidy - Aside from the factors for consideration designated in P.L. 1971, c. 216, there are no guidelines on which to justify subsidies.

In the last analysis, the subsidy is dependent on the judgement of the DOT Commissioner and his staff. Their decision is based on information furnished by the applicant on a form report after the report has been checked by state auditors.

This procedure has evolved with the growth in number of companies seeking subsidy relief, but much of the information is vaguely presented, and is subject to misinterpretation unless given careful analysis.

Method of Payment - Under current practice, subsidy payments are made in monthly lump sum contract amounts. Carrier subsidy requirements are submitted on the same calendar year basis as their reports to PUC.

DOT payments are budgeted in the state's fiscal year and are settled monthly. DOT audits the carriers' accounts at the end of the State's fiscal year before payment of the June 30th monthly subsidy installment. The contract amount is reduced if earnings for the full fiscal year have exceeded contract estimated.

Fare Regulation - Legislation authorizing payments of subsidies has specifically transferred jurisdiction over fares from the PUC to DOT for all subsidized operations. The legislature, in assigning this authority to DOT, has considered the transfer of authority over fares as emergency legislation in extending the authorization and appropriations on a year-to-year basis.

While this is a new and unfamiliar responsibility for DOT, the statutes under which PUC operates have been in effect for over 60 years, with modifications from time to time, and the agency has developed administrative procedures for operating within the framework of these laws.

Provisions in the old law which are particularly important to bus operators permitted the PUC to grant rate increases on the basis of need to overcome an experienced operating loss and without the traditional finding of rate base and rate of return.

Providing that the increase was not prejudicial to the public interest, bus operators were able to obtain emergency or temporary negotiated rate increases with minimal regulatory lag.

Impact of Subsidy Programs - Initiation of the state's bus subsidy program has altered former transportation regulatory concepts in New Jersey. Whereas the PUC has followed common utilities practice in approving rate adjustments, the legislature through the subsidy program, has given priority to public convenience and necessity, apart from the effect on corporate rate of return.

The implications of fare increases and solvency of individual companies are matters of general public concern.

The stated objective of the bus subsidy program has been to assure continuation of the present level of bus service state-wide, and to expand service to meet needs of the growing population. Increasing public reliance on bus transport is implicit in these objectives.

Available ridership records do not fully support the subsidy program in terms of public convenience and necessity, but DOT can expect considerable clarification from continuing studies of the critical corridors in the public transportation system.

Labor and the Bus Industry

Since the operation of transit vehicles is highly labor intensive, the role of labor in transit is important. Where federal funds are sought under the Urban Mass Transportation Act of 1964, as amended, the rights of labor are expressly safeguarded under the provision of Section 13 (c) of the UMTA Act. In view of these circumstances, the labor situation among the New Jersey operating companies was examined to achieve a better understanding of existing conditions.

Although a majority of the small individual bus operating companies in New Jersey are not covered by union agreements, most transit employees work for the larger unionized firms. These include the largest privately operated transit firm in the United States, Transport of New Jersey, which carries more than 50 per cent of transit riders in New Jersey.

An analysis was made of labor agreements of six randomly selected systems from a variety of geographical areas in New Jersey. Five privately owned transit systems and the state's only publicly owned system, the Mercer County Improvement Authority, (Mercer Metro) were reviewed.

Table 19 summarizes salient features of these six representative New Jersey contracts and compares them with contracts in eight major metropolitan areas outside New Jersey. Driver wage levels and vacation policies are generally consistent with those of other large operators (\$4.26 to \$5.05 per hour and 4-5 weeks of vacation after 12-25 years of employment). New Jersey operators typically have a higher number of paid holidays (12-13) than elsewhere (from seven in Chicago and Los Angeles to eleven in Boston). The maximum time over which a split shift may extend without overtime pay is typically not covered in New Jersey labor agreement while limits as low as 10 hours are found in Chicago and Los Angeles and 10.5 hours in Detroit, Baltimore, and Pittsburgh.

Strikes, Arbitration and Wage Levels

Until 1972, labor relations of the large transit operations in New Jersey were relatively free of industrial type labor action. In that year, however, TNJ employees were on strike from March 1 to about May 15, a total of 75 days. As a result of passenger volumes lost during the strike and the fare increase resulting from the settlement, average daily riding on TNJ routes decreased by about 20 per cent in 1972 from 1971 volumes. Decreases in riding of a similar order of magnitude were experienced following extended bus strikes in London, England (1958)

Table 19

COMPARATIVE WAGES AND WORKING CONDITIONS OF SELECTED TRANSIT OPERATIONS
New Jersey and Selected U.S. Cities

<u>COMPANY</u>	<u>HIGHEST OPERATOR RATE</u>	<u>HIGHEST MECHANIC RATE</u>	<u>COST OF LIVING ESCALATOR</u>	<u>MAXIMUM PAID VACATION</u>	<u>NUMBER OF PAID HOLIDAYS</u>	<u>MAXIMUM SPREAD OF RUNS (HOURS)</u>	<u>UNION</u>
<u>New Jersey Companies</u>							
Transport of N.J. (TNJ)	\$5.05	\$5.29	.29 ⁽¹⁾	5 wks./25 yrs.	12	N/A	Amalgamated Transit Union.
N.Y.-Keansburg-Long Branch	4.72	N/A ⁽²⁾	No	4 wks./12 yrs.	13	(3)	Highway & Local Motor Freight Drivers, Dockman & Helpers.
Rockland Coaches, Inc. et al	4.70	5.18	Yes	N/A	12	N/A	United Transportation Union.
So. Hudson County Blvd. Bus Owners Assn. and Boulevard Transit Lines	4.26	N/A	Yes	4 wks./5 yrs. 5 wks./25 yrs.	12	11½	Amalgamated Transit Union.
Manhattan Transit Co. Mohawk Coach Lines, Inc. Consolidated Shore Lines, Inc.	4.90	6.03	N/A	4 wks./20 yrs.	13	N/A	Transport Workers Union of America.
Mercer County Transit Authority	4.65 ⁽²⁾	N/A	No	5 wks./20 yrs.	12	N/A	Amalgamated Transit Union.
<u>Other U.S. Transit Operations</u>							
Detroit (D.S.R.)	\$5.06 ⁽⁵⁾	N/A	Yes	4 wks./15 yrs.	10	10½	Amalgamated Transit Union.
Baltimore (M.T.A.)	4.18 ⁽⁶⁾	\$4.59	Yes	5 wks./20 yrs.	8	10½	Amalgamated Transit Union.
Pittsburgh (PAT)	4.89	5.44	Yes	5 wks./20 yrs. 6 wks./40 yrs.	10	10½	Amalgamated Transit Union.
New York (NYCTA)	5.54 ⁽⁵⁾	5.99 ⁽⁵⁾	No	N/A	N/A	N/A	Transport Workers Union of America.
Chicago (CTA)	5.27 ⁽⁷⁾	5.62 ⁽⁷⁾	Yes	5 wks./22 yrs.	7	10	Amalgamated Transit Union.
Boston (MBTA)	5.37	N/A	Yes	6 wks./20 yrs. 6 wks./37 yrs.	11	12	Various unions for dif- ferent skills, not covered by single Union.
Los Angeles (RTD)	5.10	N/A	Yes	5 wks./20 yrs.	7	10	United Transportation Union.
Cleveland (CTS)	4.97	N/A	Yes	5 wks./25 yrs.	8	13	Amalgamated Transit Union.

N.A. = Not Available. (1) Not part of basic rates.

(2) Maintenance employees not part of Union Agreement.

(3) Nothing is contained in contract that limits run spread.

(4) Top drivers rate, \$4.65 per hour effective September 1, 1974.

(5) Plus seniority bonus.

(6) April 1, 1972.

(7) Expired December 31, 1972.

and Hartford-New Haven, Connecticut (1972-1973), even though fare increases did not immediately follow agreements. There is a strong argument for arbitration of all transit labor disputes, because of the loss in ridership following a transit strike, the severe loss of mobility by handicapped and economically disadvantaged people during the strike, and the crowding of other transport modes as regular bus riders seek alternative transportation.

Realistic labor agreements must allow for wages and conditions comparable with those in industries requiring similar skill and training. Otherwise, the transit industry would experience increasing staff shortages as their most mobile workers leave the industry for more remunerative employment. As long as productivity gains allow increasing wages in other industries, transit wages will probably have to be increased in proportion.

As a result, driver wages and other bus operating costs will tend to continue to increase even if bus productivity does not. Productivity and level of service improvements within the industry are, therefore, essential if existing transit employment levels are to be preserved without a continually accelerating subsidy need.

Statutory Requirements - Improvements in service and economics of operation may require mergers of duplicating or overlapping operations under public or private ownership. Such mergers must comply with Sections 3 (e) and 13 (c) of the Urban Mass Transportation Act of 1964, as amended, if part of the acquisition costs are funded by UMTA grants. Section 3 (e) is intended to protect the interests of existing private transit operators. It requires that:

1. UMTA assistance for facilities or equipment competing with or supplementing the services of existing companies, must be found essential to implement a program for a unified or officially coordinated urban transportation system as part of the comprehensively planned development of the urban area.
2. This program, to the maximum extent feasible, must provide for the participation of private mass transportation companies.
3. Just and adequate compensation must be paid for acquisition of private franchises or property.
4. Section 13 (c) of the Act must be complied with, to the satisfaction of the Secretary of Labor.

Section 13 (c) requires that the interests of employees affected by UMTA grants be protected, with regard to jobs, seniority, wage levels, pension rights, and collecting bargaining rights. The employees of acquired mass transportation systems who had been terminated or laid off are to have priority for re-employment. Paid training or retraining programs may be required for current transit employees.

The main intent of Section 13 (c) is to protect the jobs and wage levels of bus operators when rapid transit lines are built with Federal Aid which would have the effect of reducing the number of operators required to move peak passenger volumes. This section also applies where a public transit body acquires the assets of one or more private operators if UMTA matching funds are involved in the transaction. For example, if PATCO were to take over the TNJ operations in the Camden-Burlington-Gloucester area, Section 13 (c) would govern employee status on the acquired lines.

In such instances, all employee wages and fringes would have to conform to the most generous labor agreements covering any one of the bus operations acquired. Employees of any non-union firms would have to join the union representing the merged organization after a specified period of time. The total labor force could be reduced only by attrition (no mass dismissal of redundant staff).

The operating costs of a merged system are, therefore, likely to exceed the total of the original component companies, at least until turnover and retirements have brought labor force back into balance with merged system requirements. During this interim period, deficits can be minimized by making full use of available staff and equipment to experiment with new routes or increased service frequencies.

Essential Elements of Bus Network

The existing statewide network of bus service in New Jersey is strongly related to the patterns of population density. The network appears to serve reasonably well areas of population development which exceed 3,000 persons per square mile. Areas with development densities of less than this level can generally not support a profitable bus transit operation.

In view of the apparent correlation between the present patterns of population density and the service provided by the many private and independent bus operators, it could be suggested that the present bus transit network is in all respects essential to the continued growth and economic development of the state. In several areas where bus service is provided, however, the service is minimal and the status of local development may have little relationship to the level of bus service. Under these conditions, where the bus transit operation appears to have little chance of succeeding, the essentiality of continuing the service should be seriously questioned.

On the other hand, an underlying objective of this study is to seek to maintain and preserve the existing system to the maximum extent possible, and to extend and build upon that system to provide a more comprehensive system which would be responsive to the growing demands of the State's population. The idea that all existing bus service in New Jersey is essential, however, should not be accepted blindly.

Critical corridors throughout the State have been identified in terms of competition and coordination which exist between independent private operators. The examples of competition are more numerous than cases where coordination is achieved. Another stated objective has been to sort out, identify and develop rationale for eliminating undesirable competition and for promoting greater coordination among private carriers. Evaluation of significant competing services has been outlined elsewhere. In some cases competition has been found to produce greater public service. Because of this it has been difficult to identify one or the other of the independent carriers as providing a non-essential service and to recommend its elimination. This type of action would reduce the level of service provided to the public in the corridor and be counter-productive to the goal of maintaining and preserving the existing system until more precise guidelines and definitions can be established to identify the relative merits of competing independent carriers.

Criteria for Determination of Essential Service

The identification of essential elements of bus transportation service in a densely developed corridor state such as New Jersey is not easily accomplished. Consideration should be given to developing a series of criteria which provide guidance in the identification of essential services. The character of public transportation in New Jersey, however, is considerably different than that in many of the adjacent states. The proximity of much

of New Jersey to New York City results in a very high percentage of interstate suburban travel on a statewide basis. In Pennsylvania, which has just undertaken a major effort to upgrade its public transportation in urban areas, a detailed set of criteria for acceptable bus transit service in metropolitan areas has been developed. While such criteria can be applied in the densely developed urban areas in New Jersey including Hudson, Bergen, Passaic, Essex, Morris, and Union Counties as well as the Trenton, Camden, and Atlantic City areas, there remains a need for development of additional criteria with which to measure the need for suburban commuter service.

The need for such criteria is pointed up where recent extensions of suburban commuter bus service have shown rapid growth in the same areas where the State is currently subsidizing commuter rail operations. While the bus services in the competing corridors are not generally being subsidized at this time, they represent competition to the financially weakened rail system. Major questions are raised concerning the validity of such competing bus service as an essential part of the State's network in view of the availability of rail service. Identification of criteria for the establishment of a commuter bus service is made more difficult by the presence of the commuter rail system which remains in operation in spite of continuing hardship.

Many of the smaller bus operators are approaching the brink of closing up their operations for lack of patronage. The Department of Transportation, beginning in 1970, has provided funds to be used at the discretion of the Commuter Operating Agency to support bus services which appear to be essential for local circulation. During the fiscal year 1973, 21 companies in the state were receiving some type of subsidy to maintain their operation. It is suggested that these companies have been determined to be providing essential services by the mere virtue of the COA's

approval of subsidy support for these operations. Although this action by the COA is consistent with the intent to maintain and preserve all existing bus transportation, it does not address the problems of the coordination and maximization of the utility of the total system.

Funding Sources and Subsidy Programs

After the bus subsidy program in New Jersey was initiated in July 1969 by passage of Senate Bill 778, a series of applications were received from the bus companies with the first request coming from the Atlantic City Transportation Company on August 5, 1969. Through Fiscal 1972, the subsidy program increased by approximately a half million dollars each year. The 1970 fiscal year subsidy program amounted to \$531,383. However, estimated subsidy for fiscal year 1973, just completed, more than doubled fiscal 1972 reaching \$4.26 million. A chronological history of the bus subsidy program which highlights the key dates from the start of the program through July, 1973, is contained in the Appendix.

While the bus subsidy program has steadily grown and has aided in the stabilization of the bus industry in the state, bus subsidies are relatively small in comparison to the rail subsidies, as shown by Table 20. Rail subsidies were initiated in New Jersey by the Department of Highways in the early 1960's. In the years 1970 and 1972, rail subsidy programs grew from \$10 million to \$12.6 million, respectively. Fiscal 1973 rail subsidies were just over \$19 million. An analysis of the ratio of rail subsidies to passengers carried compared to the same ratio for buses, shows a major disparity of payments to the rail operations. For the four year period 1970 through 1973, buses have received less than twenty per cent of the amount awarded to rail carriers although the bus system carries about eight times as many passengers. This does not suggest, however, that ratios based on passenger miles would be disproportionate.

Table 20

BUS AND RAIL SUBSIDIES
NEW JERSEY DEPARTMENT OF TRANSPORTATION

<u>FISCAL YEAR</u>	<u>BUSES</u> ⁽¹⁾	<u>RAIL</u> ⁽¹⁾
1970	\$ 531,383	\$10,155,968
1971	1,159,473	10,239,182
1972	1,672,882	13,045,354
1973 Est.	4,258,224	19,423,913
TOTAL	\$7,621,962	\$52,864,417

(1) Figures rounded to nearest dollar.

SOURCE: New Jersey Department of Transportation, Division of
Commuter Services.

Table 21 shows the allocation of the fiscal 1973 bus subsidy program by three different accounts. The 502 account involves the 25 per cent financing by the counties with 75 per cent state financing. In fiscal 1973 this account provided nearly \$2 million of bus subsidies with the state paying slightly over \$1.5 million and the county governments contributing \$469,486. The 503 account, a service improvement account, funded three operators in fiscal 1973 for a total of \$175,775.

The 534 account for demonstration projects, was participated in by three companies, TNJ and Rockland Coaches in Bergen County, and the Atlantic City Transportation Company, in providing a Mays Landing service. In each of these cases the county and the state shared equally in the subsidy amount. The total spent under this account was \$104,500.

The 546 account was established during fiscal 1973 to provide for the state support of the PATCO feeder bus system, a realignment of TNJ's southern division routes interfacing with the PATCO.

Necessity for Subsidy

The criteria for justification of a subsidy is a demonstrated need for service on a specific line or route. The fact that a bus company is losing money is not in itself justification for subsidy. Continuation of the operation can be justified if it can be shown that fare box revenue on the route for which the subsidy is being sought is, or can be made to be, sufficient to cover direct costs of operating the service. Allowable direct costs include:

- (a) Drivers' wage expense, including all welfare benefits and employer's wage tax obligations.
- (b) Fuel and lubricants.

Table 21

FISCAL 1973 BUS PROGRAM⁽¹⁾
New Jersey

502 Account

	<u>TOTAL</u>	<u>COUNTY</u>	<u>STATE</u>
Associated	\$ 79,000	\$ 19,750	\$ 59,250
Brigantine (ACTC)	3,000	750	2,250
Atlantic City	350,000	87,500	262,500
Boro Busses Co.	176,000	44,000	132,000
Coast Cities	180,000	45,000	135,000
Community Bus	154,000	38,500	115,500
Garden State	27,600	6,900	20,700
Garfield-Passaic Bus	37,000	9,250	27,750
Garfield-Passaic Transit	88,781	22,195	66,586
Jersey Bus Inc.	120,000	30,000	90,000
Marathon Bus Co.	68,000	17,000	51,000
Passaic-Athenia	75,000	18,750	56,250
Plainfield Transit	36,568	9,142	27,426
Trackless-Mtn.	139,750	34,937	104,813
TNJ Subway	176,000	44,000	132,000
Watchung Mtn.	67,250	16,812	50,438
TNJ B72 Bergen	100,000	25,000	75,000
Mercer Metro	<u>100,000</u>	-	<u>100,000</u>
	<u>\$1,977,949</u>	<u>\$469,486</u>	<u>\$1,508,463</u>

503 Account

Amboy Coach	\$ 39,660	-	\$ 39,660
Asbury Park-NY Transit	90,000	-	90,000
Somerset Bus	<u>46,115</u>	-	<u>46,115</u>
	<u>\$ 175,775</u>		<u>\$ 175,775</u>

534 Account

TNJ Bergen County	\$ 94,000	\$ 47,000	\$ 47,000
ACTC Mays Landing	4,500	2,250	2,250
Rockland Coaches Inc.	<u>6,000</u>	<u>3,000</u>	<u>3,000</u>
	<u>\$ 104,500</u>	<u>\$ 52,250</u>	<u>\$ 52,250</u>

546 Account

TNJ-PATCO Feeder Bus	\$2,000,000	\$ -	\$2,000,000
	<u> </u>	<u> </u>	<u> </u>
TOTAL - All Accounts	\$4,258,224	\$521,736	\$3,736,488

(1) All costs rounded to the nearest dollar.

(2) Mercer County Improvement Authority pays remaining deficit arising from operation of company.

SOURCE: New Jersey Department of Transportation,
Division of Commuter Services.

- (c) Tires
- (d) Tolls
- (e) Premiums for property damage and liability insurance.

Fare box revenue is credited with the route's portion of fare box supplements, such as State payments of the difference between student and regular adult fares and the difference between senior Citizen fares and regular adult fares.

Subsidy Criteria

The final decision on a company's eligibility for a State subsidy to the DOT. If a subsidy application is accepted, a PUC an application to discontinue service because of imminent bankruptcy in addition to its submission of an application for subsidy to the DOT. If the application is accepted, a subsidy contract is drawn and DOT advances payments quarterly on the basis of the submitted estimates of quarterly losses. Present applications for subsidies require supplemental information such as revenue other than passenger revenue. This information is not in sufficient detail, however, to segregate strictly above-the-road expenses nor to identify operating results for individual routes, a particularly important factor in evaluating the need for and amount of an operating subsidy.

Additional Company Responsibilities

In addition to route statistics, the Bureau of Motor Bus Transportation's "Application for Subsidy" requires presentation of the following additional information for its analysis of the company's qualifications for a subsidy.

1. Quarterly profit and loss reports for previous calendar year and estimates for the current year.
2. Trip statistics for the previous year.

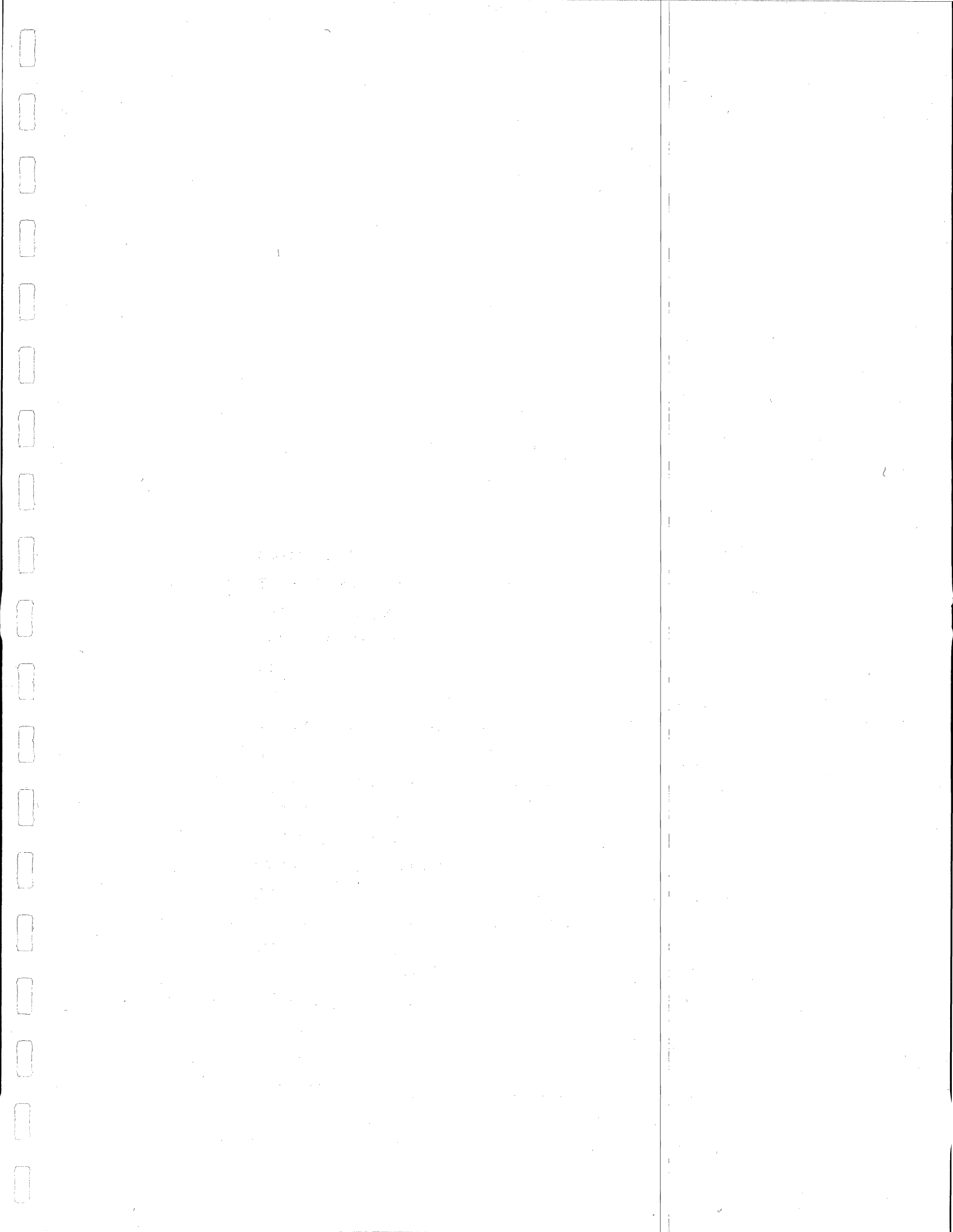
3. Ownership information.
4. Labor and union data.
5. Route identification information.
6. Insurance and maintenance costs.
7. Fare structure.
8. Bus fleet data including both vehicles owned and leased.
9. Most recent annual passenger statistics.
10. Operating ratio.

It is also incumbent on the applicant company to show that it has taken prior action to improve efficiency and attract more riders.

Granting an initial subsidy may be necessary as a temporary measure, but justification for an extension of the subsidy may be contingent on an examination by DOT into the following matters related to each route involved in the subsidy application:

1. Possible change in the demographic pattern since the route was established, walking distances to the route, etc.
2. Passenger counts at maximum load point and on each bus to determine load-time characteristics for efficient scheduling and routing.
3. A review of schedules for possible route modification, short-looping, or possible elimination of one or more buses.
4. The possible value of a good public relations program to enable potential riders to know the route location and stops. Bus stops should be clearly identified with signs or markers and schedule and other pertinent route information posted at strategic locations.

5. The need to institute a personnel retraining program. A courteous, neat, clean driver in uniform, well informed on company matters, makes a good company salesman in selling the service.
6. Review of the appearance of the buses. Passengers are attracted to a clean vehicle in good exterior condition.
7. A review of the number of spare buses on hand. An excessive number of buses to maintain causes unnecessary operating costs. The number of spare buses should not exceed ten per cent of the fleet.
8. A review of the maintenance program and procedures. A clean and orderly garage work area should be maintained. Overall maintenance charges should be kept within an acceptable procedure of about 30-man hours per 1,000 vehicle miles. An excessive supply of spare parts should be avoided.
9. If excessive land is available at a garage or terminal, it might be used for a park-ride lot.



Chapter 5

IMMEDIATE-ACTION RECOMMENDATIONS

The immediate action program identifies managerial, financial, and operational proposals for implementation by the State of New Jersey in coordination with bus companies during the next 12 months. The proposals establish a framework for longer-range transit management and operational improvements, to be identified in continuing studies.

Emphasis is concentrated on immediate actions available to state and local governments, as well as to private operators, to provide better transit service. Actions are designed for implementation as initial efforts with the expectation they will often be superseded by more extensive improvement measures over time. They are measures which will not be capital-intensive and which attempt to maximize use of existing facilities. Implicit is recognition of bus operations as an essential community service.

Sources of Action Proposals

Proposals for immediate action were identified through many sources. Field observations, discussions with transit operators, local and State officials, and previous reports indicated potential projects to improve service.

Many of the alternatives were investigated to establish that either:

- a. The project would require capitalization and would not fit into the immediate-action time-frame, or

- b. Inadequate information was available to fully evaluate the desirability of recommendations as initially proposed.

Criteria applied in evaluating alternative proposals include:

1. Available immediate-action funds,
2. Responsive to demonstrated or perceived needs,
3. Consistent with planning objectives,
4. Prototypical development (for extended application),
5. Minimum service duplication,
6. Improved service quality,
7. Anticipated benefits would exceed costs.

Immediate Action Proposals

Immediate action recommendations contained herein are:

Clarification of Responsibility between the Department of Transportation and the Public Utilities Commission.

- a. Regulation of fares (regardless of the financial status of the carrier) should be placed under the jurisdiction of the Commuter Operating Agency (COA.) This control, however, should be subject to the publication of procedures by the New Jersey Department of Transportation which would guarantee adequate public notice for conveniently located and scheduled public hearings similar to those in force for rail services under NJAC 16:50-2.1 et. seq. Implementation of this recommendation will require some strengthening of the Department of Transportation including the reassignment of personnel from one agency to another.
- b. The responsibility for safety inspection of the bus fleet as well as investigation of accidents involving buses should be transferred to the COA. Again, this will require the reassignment of personnel.

- c. Route and schedule changes should be developed by the Department of Transportation through the COA. This control, however, should be subject to the publication of procedures by the New Jersey Department of Transportation which would guarantee adequate public notice and opportunity for conveniently located and schedule public hearings. Implementation of this recommendation will require some strengthening of the Department of Transportation including the reassignment of personnel from one agency to another.

Marketing Bus Transportation - A statewide public transit information and promotion bureau should be established within the framework of the COA. Its functions would include market research, transit service planning, review of fares and scheduling problems, promotion and advertising. This bureau should also undertake the printing and review of standardized timetables, distribution of timetables, review and coordination of scheduled operation, and maintenance of a service information center.

Labor and the Bus Industry - State transit improvement plans should be developed within the institutional framework of existing franchises and labor agreements whenever federal aid is involved. Where public subsidy is required to maintain the service, arbitration clauses should be a part of the labor agreement with the subsidized company. Unsubsidized organizations and employees should be free to bargain collectively.

Transit-Regional Planning Coordination - DOT review of transportation impact statements provided by developers should assure that state, regional and local planning coordination is achieved and non-conforming projects can be modified or accommodated. This would enable DOT to encourage new public transportation services as development occurs so that modal split can be influenced to a major extent in newly developing areas.

Essential Elements of Bus Network - A series of bus routes comprising an essential network be identified for the purpose of establishing priorities in maintaining essential services.

Funding Sources and Subsidy Programs - The continuing growth of the subsidy program and the increasing numbers of bus companies availing themselves of public support to retain a valuable public service,

dictates the broadened scope and source of funding for the subsidy program. Detailed review of present subsidized operators in terms of the essential network elements should permit the trimming of subsidy budgets and minimize major new funding requirements.

Route Supervision Improvements - It is proposed that the DOT undertake to establish field inspection crews for the purpose of providing route supervision to many of the smaller independent bus operators around the State. Utilization of the State's communications network for the purpose of coordinating public transportation would be an important and useful contribution to the present private operation of the bus system.

Cluster Service Concept - Several methods of operation have been evaluated for improving driver and passenger security for evening or weekend operation of buses. A "cluster service concept" is proposed in response to declining patronage in the evening hours and resulting reductions in service in many key corridors. The attraction of additional patronage through demonstrated efforts to assure safe transportation in inner city areas is the central theme of this proposal.

Duplication of Services - TNJ and IBOA's in Newark - Transport of New Jersey and independent operators have duplicate routes in four areas. It is recommended that in the three situations where the total bus service along the corridor is reasonably well-split between TNJ and the independent bus owners, present service be continued. However, in these cases, uniform operational headways should be maintained for both operating companies and both companies should provide service during all normal service hours. The fare structure difference between the two services should be recognized. The Clinton Avenue operation, which involves an independent single bus operation, should be taken over by the major operator on this line, TNJ. In this case, this action appears to be mutually attractive to both parties.

Express Buses on I-280 - Proposals have been developed for the routing of several buses of the TNJ service, as well as Mountain Coach Route 144 and the DeCamp Bus Routes 145 and 146, to Interstate Route 280, to provide service to downtown Newark from the western parts of Essex County. Two services are proposed for all-day operation. These include TNJ Route 24 from

Harrison and Mississippi Streets in West Orange to the Newark-Elizabeth City Line, and Route 116 from Lake Hiawatha to Newark. For Route 24, an anticipated six-minute time savings for the bus operation is projected to nine minutes if a direct transfer to the Newark subway can be developed near the end of the I-280 ramps at Orange Street. Peak-hour service would be proposed for TNJ's Route 114 from Butler and Singac to the Penn Station in Newark and TNJ's Route 116 between Dover and Penn Station. Mountain Coach's Route 144 from the Caldwell Loop to Newark is also proposed for peak-hour only utilization of I-280. DeCamp Routes 145 and 146 from Morristown and Livingston to Penn Station would also be proposed to use I-280 in peak hours along with the DeCamp Route 177 from Morristown to New York. These proposals should be evaluated for traffic and revenue potential in continuing studies.

Park and Ride Services - Park-and-ride proposals for several locations in New Jersey have been developed over recent years. Programs have been funded for the development of the park-and-ride facilities, but legal implications involving joint use of parking space have often held up their implementation. Continued efforts are recommended for expansion of the park-and-ride program. Specific project locations would be identified as a result of continuing study work.

Consolidation of Atlantic City Bus Terminals - It is recommended that Lincoln Transit join TNJ and other inter city bus carriers in the utilization of the Atlantic City Union Station bus terminal. Increased efficiency of the combined operation would be of benefit to the traveling public and would release the existing Lincoln Transit Terminal real estate for other uses in the center of Atlantic City.

Analysis of Immediate Action Proposals

Each of the proposals identified in the preceding pages has been developed in the course of the formulation of this Immediate Action Program. Pertinent operating data and rationale leading to the proposals as set forth above are included in the discussions and analyses which follow. Supporting documentation and information to clarify the intent and scope of the proposals is also presented as are related costs, patronage estimates and other supporting information as applicable.

Presented first are statewide proposals, affecting all aspects of the state's bus program, while more localized proposals, dealing with individual routes, companies, or sectors are presented later in this chapter.

Proposed Administrative and Jurisdictional Changes

Based on the present administrative structures and experiences encountered during conduct of this study, proposed modifications in the jurisdiction of PUC and COA/DOT are outlined as follows:

1. Regulatory Recommendations - Although DOT now has jurisdiction over rates, level of services, routes and schedules, when it subsidizes route operations of a bus company, it lacks the statutory and procedural framework for administration of fares and fare changes. Accordingly, it is recommended that:

- a. Regulation of fares, whether or not the company is being subsidized, should be placed within the jurisdiction of the Commuter Operating Agency of the New Jersey Department of Transportation.

The attainment of a strengthened COA/DOT requires administrative changes which would make the staff records and expertise of the PUC available to COA/DOT for this purpose.

- b. The transfer of responsibility for safety inspection, accident investigation and insurance certification from PUC to the COA/DOT. This transfer would also require some reassignment of personnel.

It is recommended that the PUC's force of qualified bus inspectors be transferred to the jurisdiction of the COA/DOT because of the volume of physical work involved in the inspection and investigation functions.

- c. Corporate and company financial regulation should be transferred to COA/DOT jurisdiction, thus providing an integrated system of review of bus company performance and financial stability. This consideration is important because, with its authorized jurisdiction over subsidy funds, COA/DOT can be considered a comprehensive regulatory agency.

2. Vehicle Registration Records - As a result of the foregoing regulatory recommendations, the maintenance of vehicle registration records, essential to bus inspection scheduling, should become the responsibility of the COA/DOT.

3. Proposed COA/DOT Operating Responsibilities - Coordination of COA/DOT responsibilities with those transferred from the PUC is essential in administering a statewide bus system and subsidy program.

It is recommended that changes in routes and schedules be transferred to the jurisdiction of the COA/DOT, subject to the following:

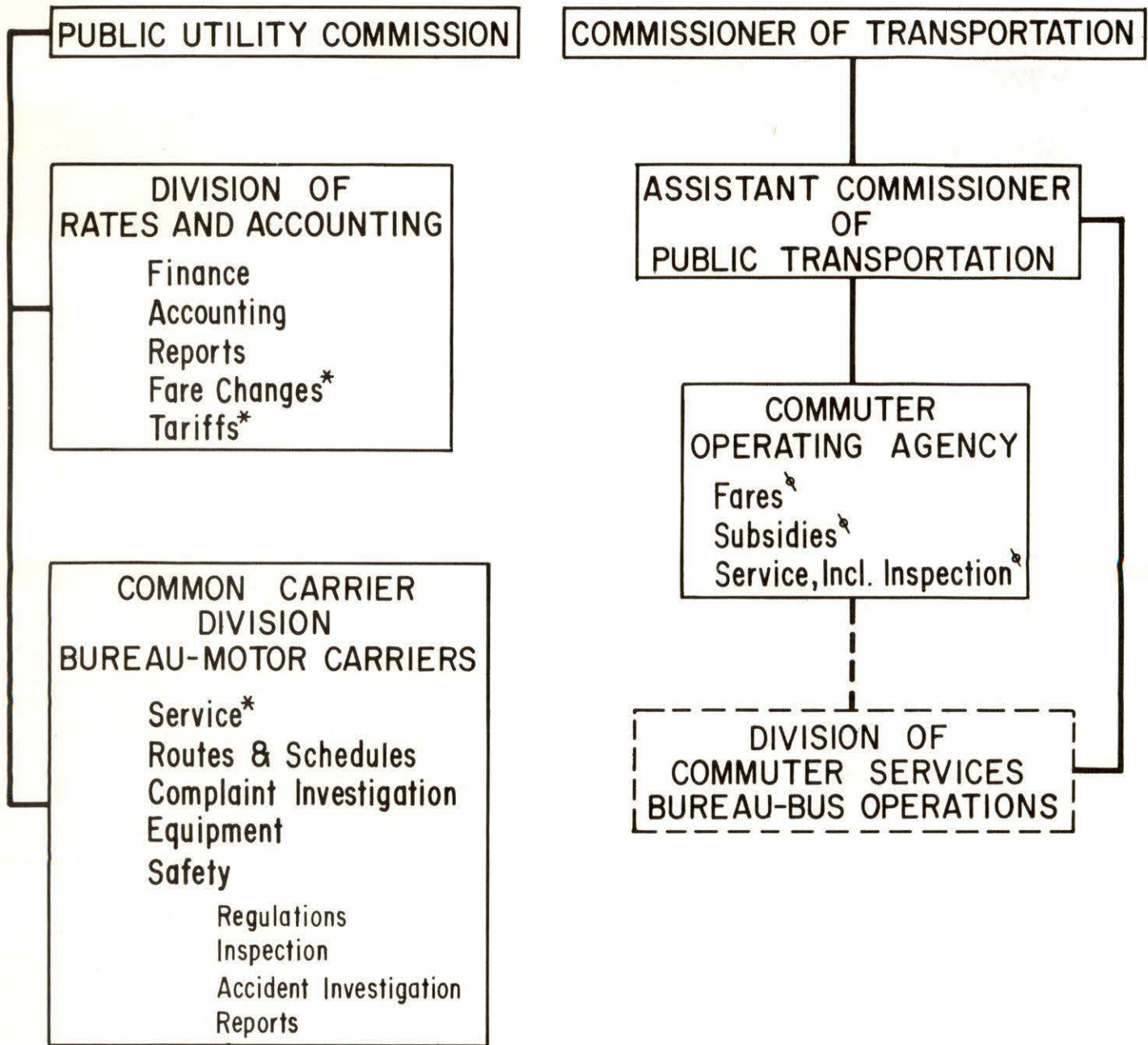
- a. Establishment of new routes, or changes in routes or schedules, may be initiated by either COA/DOT or the carrier.
- b. Reassignment of personnel from PUC to COA/DOT to ensure a public hearing process similar to those specified for rail service hearings under NJAC 16:50-2.1 et. seq.

- c. The conduct of such hearings should be the responsibility of the Commissioner of Transportation, or his designated representative, and such hearings shall consider the matters specified as conditions to change in Section 24 of the Transportation Act of 1966.
- d. COA/DOT decisions, after hearings, are to be final, subject only to legal procedures in courts of law.

A chart showing the existing and proposed responsibilities of the Public Utilities Commission and Commuter Operating Agency and Department of Transportation is shown in Figures 21 and 22.

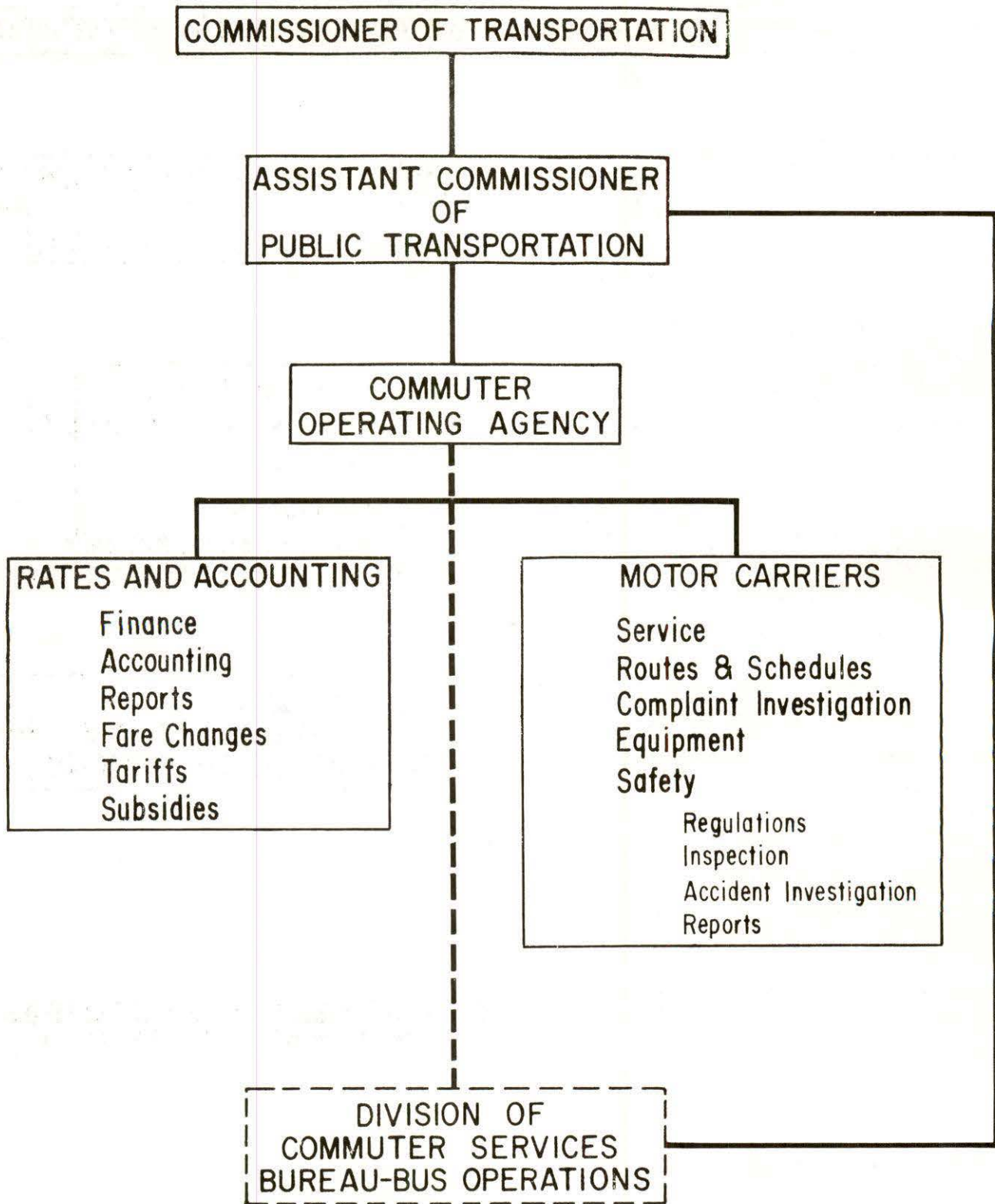
4. Financial Reports

- a. Annual financial reports should be transferred to the jurisdiction of the COA/DOT. The annual report (Form A and Form C) includes financial and operating information essential to COA/DOT in regulating utility operations, rates and earnings.
- b. Administration of annual reports should continue basically unchanged although amplification of revenue and expense detail in these reports for both large and small companies should be considered.



EXISTING DIVISION OF RESPONSIBILITIES
NEW JERSEY PUBLIC TRANSPORTATION STUDY

- * Excluding companies receiving state subsidy
- ↘ Applies only to companies receiving state subsidy



PROPOSED DIVISION OF RESPONSIBILITIES
 NEW JERSEY PUBLIC TRANSPORTATION STUDY

Marketing Bus Transportation

One product of the fragmentation and lack of unification of the public transit system in New Jersey is a general lack of public awareness concerning the availability of public transit service.

Through the subsidy program, and in its role in coordinating available transportation facilities, the state should initiate a coordinated market development program to assist private carriers in the state and to enable the public to conveniently utilize available services.

Since the private transit companies generally are not financially capable of expanding their marketing and public relations activities at present, DOT, through its increasing responsibility for and familiarity with private operations, would be the logical coordinator for a statewide program.

Establishment of an organization to handle public transportation information and promotion within the DOT is recommended. Local companies should continue their efforts and, under state coordination, improvement in local information services should be accomplished.

The Public Transportation Marketing Bureau would have overall jurisdiction over transit marketing. As viewed by the Urban Mass Transportation Administration of the U.S. Department of Transportation, the marketing of transit services encompasses:

- a. Market Research including identification of various groups of potential riders, and determination of consumer attitudes and motivations,
- b. Transit Service Planning, aimed at making the service fast, comfortable, convenient and safe,

- c. Fares and Scheduling programs aimed at increasing transit use and acceptance,
- d. Promotion including use of news media, printed materials, and other techniques to effectively inform the public about services available, and to motivate them to use it.

At the outset, a unit, under a qualified supervisor and sufficient support personnel, should be established in Trenton. A highly advertised toll-free telephone service should be arranged from all points within the State. Alternatively, building up a statewide program by broadening the function of TNJ's information center to make it responsive to North Jersey requests and initiation of a South Jersey center in Trenton or based in the TNJ operation in Camden is a possibility.

In any event this program should build on the on-going efforts of TNJ, Bergen County and the Port Authority Bus Terminal in establishing a broader public information program.

Functions of a Transit Marketing Unit - It is recommended that the DOT agency for transit marketing be assigned the following functions:

1. Supervise preparation, publication and distribution of all timetables and condensed schedule leaflets.
2. Provide general information concerning bus and train operations and specific information on fares and schedules.
3. Provide special assistance to aged and disadvantaged citizens.
4. Provide special assistance to community planners, involved in both governmental and commercial planning ventures.

5. Contact civic groups and service organizations to promote mass transportation usage.
6. Promote use of park-and-ride facilities in the state.
7. Promote Dial-A-Ride usage in areas where it is established.
8. Act as clearinghouse for complaints or suggestions from the public, referring problems to proper agencies for response.

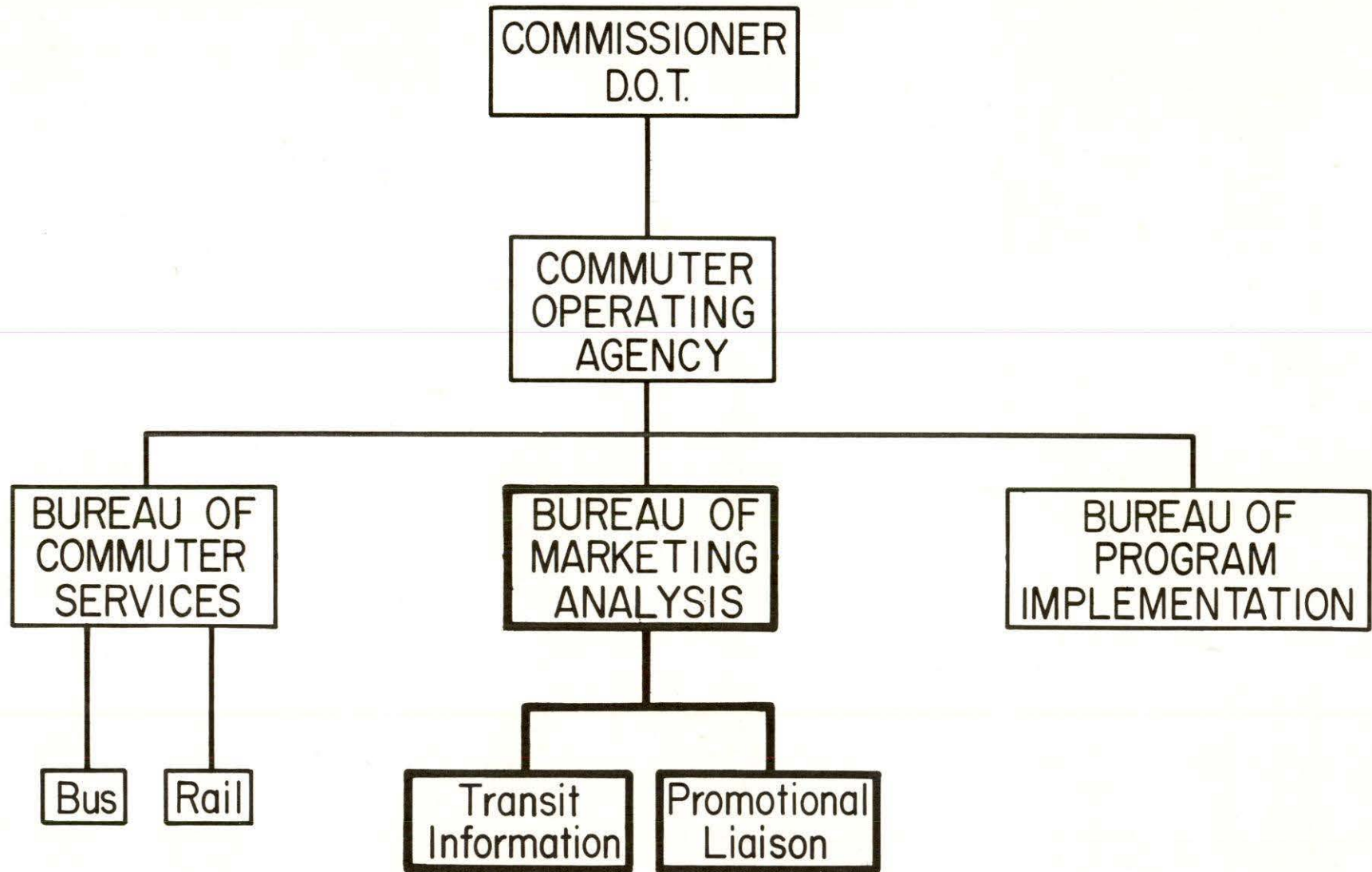
A suggested organization chart for the marketing operation within the Commuter Operating Agency of DOT, is shown in Figure 23.

Public Relations Program - A public relations program similar to that instituted by SEPTA in the Philadelphia area is recommended to acquaint residents of New Jersey with mass transportation facilities.

Under funds made available by the Pennsylvania Department of Transportation for promotion of public transportation, a campaign of television, radio and newspaper advertising was inaugurated in April, 1973, through an advertising firm.

The campaign was not addressed to any particular group of residents, or any particular city areas. Its entire premise is "awareness"--and most of the spot advertising involves acquainting the public with a toll-free telephone number for information.

Results were reported by SEPTA officials who recorded a seven to ten per cent increase in telephone inquiries. SEPTA interpreted these calls to represent serious investigation of the potential of mass transportation usage.



**PROPOSED ORGANIZATION
TRANSIT MARKETING**
NEW JERSEY PUBLIC TRANSPORTATION STUDY

This program involves radio spots of 15 to 30 second intervals over ten stations, alternating among five each week. Television spots have been made on Philadelphia channels 3, 6 and 10 and ads have been placed periodically in the local press.

Approximate cost of the program for the period from April 1 through June 30, 1973 was:

TV	\$50,000
Radio	30,000
Newspapers	<u>20,000</u>
TOTAL	\$100,000

Preparation and Distribution of Timetables - Most transit companies publish some type of printed schedule for public use. Timetables are generally available at terminal or ticket-office locations, in buses, or are supplied by the drivers.

For certain of the independent operations with very short headways, there is no need for timetables other than to advise patrons when service begins or ends, or of weekend variations.

In most cases, patrons must seek out the timetables, rather than having them conveniently available. Exceptions to this are ticket offices of the larger intercity operators, where all types of travel literature, including timetables, are easily obtainable.

It is recommended, therefore, that the DOT lend assistance to bus companies by preparing and distributing timetables.

In addition to the financial aid involved, there are other benefits to be gained by state issuance of timetables, including:

1. Development of standard timetable formats;
2. Assurance of an adequate supply for all patrons;
3. Opportunity to control or monitor schedule changes;
4. Motivation of citizens to increase usage of public transportation facilities;
5. Ability to identify the state with public transportation improvement efforts;
6. Capability of combining data for several bus services, available transfer opportunities, and coordinated line service in a particular area;
7. Monitor headways to maintain even multiples of 60 minutes for ready recollection by riding public; and,
8. Foster policies on timetable changes to minimize printing costs and assist public in understanding operations.

Unless major revisions are required, schedules should be issued by DOT on prearranged dates with requirements for the bus company to furnish changes with reasonable anticipation. Control of printing and distribution should be a cooperative effort with supervision by a special organization within DOT.

Timetable Formats - Requirements for timetables vary. Where a local transit line operates on frequent headways and can be boarded at a nearby street corner, a timetable is of little value. However, as headway intervals become greater during evening hours, it would be reassuring to potential riders to know the bus schedule.

At the other extreme, schedules for suburban and inter-city lines are most important. Every commuter relies on some form

of timetable, especially when work starting or ending times vary. Headways on longer hauls also are less frequent, and lack of schedule knowledge results in serious inconvenience to riders.

It is recommended that a simple card type of timetable, approximately three by six inches, printed on both sides, would be the most appropriate format for portability. Consideration should also be given to distribution of the present 8½ by 3-3/4 inch timetable, printed by TNJ, for the south Jersey feeder bus routes, shown in Figure 24. In addition, it is suggested that regional or county combined schedules be compiled for key areas such as Newark, Elizabeth, Jersey City and Trenton.

The examination of timetables has shown that there are some definitive qualities of a good schedule leaflet. These are:

- a. Easy readability, with legible print;
- b. Logical sequence of information;
- c. Minimum of confusing notes and symbols;
- d. Saturday and Sunday schedules shown separately from weekdays;
- e. Portability: easy to carry in wallet or purse; and,
- f. Brief description of route and/or map.

The negative side of timetable printing is the problem of remaining current with frequent schedule adjustments and attempts to tailor service to demand. Guidelines for priority in timetable development should be set forth so that the effort can be controlled and results can be observed on a limited basis before a broader program is undertaken.

Schedule Changes - The policing of common carrier adherence to franchise obligation does not appear to be effectively done.

For example, one company reduced service to one city on its intrastate route to one trip per day and to another city to one trip per week. Such evasion of franchise obligation can readily be scrutinized under this plan for routine monitoring of timetable changes.

Consequently, it is recommended that the state have the opportunity to control, approve or deny proposed schedule changes. This important function influences both ability to promote patronage as well as customer satisfaction and relates directly to costs of operation.

It is also recommended that changes of schedule be permitted, at most, four times each year. Advance-notice display cards advising of changes should be placed in buses and schedule leaflets are best distributed by being placed in buses.

Transit Maps - It is recommended that part of the market development program include preparation of updated maps for the Newark, Jersey City and Paterson areas and for Bergen County. Second priority should be given to Union, Middlesex and Morris Counties in any follow-up program.

A distribution plan for placing these maps before the public to provide timely, updated information should be developed by the public information office. Map publications for the market improvement program should tie in directly to the public transit information service proposed for the DOT. Public information telephone numbers for obtaining detailed information not on maps would be particularly important.

Cost, Benefits, and Priorities - The marketing program outlined herein has many facets and each of these will involve funding. Initial funding would be required for personnel to

establish the public information office and to organize the program. Subsequent costs would include printing and development of advertising. The campaign could be managed by a consultant, as in the case of SEPTA, or by in-house personnel, if retained in the Public Information Office.

Priority in marketing efforts should be given to areas where the subsidy program is supporting a transit operation. A coordinated effort should be made to convert subsidized operations into self-supporting systems by increasing patronage.

Priorities beyond the subsidy program should go to densely developed areas where greatest reliance is placed on public transportation and where potentials for even greater usage are best.

Third priority should be given to attractive suburban services which can benefit soon from public awareness of services. Limited schedules operated in the suburban service emphasize the importance of distributing timetables and maps.

Labor Agreement

The relationships among unions, large bus operators, and owner-operators in small firms, have arrived at their present balance over a period of many years. The rights of present companies and their employees are protected by the UMTA Act. Mergers, route revisions and rescheduling arrangements, carried out as part of a comprehensive plan to improve urban transportation, must be implemented within the institutional framework of labor agreements which may differ in detailed provisions. In circumstances where there are numerous labor agreements, it is recommended that instead of merging within the institutional framework of existing franchises and labor agreements whenever federal aid

will be involved. It must be recognized, however, that transit plans acceptable to a multiplicity of companies and unions will take longer to prepare than those developed purely on an economic or technical basis.

It should be possible to maintain transit service through the process of collective bargaining. Mandatory arbitration proceedings are offensive to labor interests as well as management, and legislation for such arbitration will probably not pass unless it becomes absolutely necessary. Whenever a public subsidy is required to maintain a service, however, the public has a right to participate in labor agreement decisions. It is, therefore, recommended that the state administratively require an arbitration clause in the labor agreement of any subsidized company as a precondition for subsidy payments. This clause should provide for arbitration of all disputes on wages and working rules. The subsidy should terminate if either owner-management or labor representatives refuse to accept the arbitrators' decision. Unsubsidized firms and their employees should be free to bargain collectively, as should the smaller independent firms where labor-management matters can be handled on a personal basis.

Transit - Regional Planning Coordination

There continues to be in New Jersey, as in other states, a demonstrated lack of coordination between land use and transportation planning. Many recent cases can be cited to support this conclusion. Ideally, all public decisions which bear on land use-transportation relationships would be analyzed together as part of a single comprehensive planning effort. While it is unusual for transportation plans to recommend specific land-use controls, such as zoning ordinances, there is need for greater participation in land-use planning by transportation planners.

It is strongly recommended that the transportation planners be fully informed, in advance, of new major community developments

as well as on-going commercial and industrial projects throughout the state. This can be brought about by administrative action in the total planning process.

In order that the New Jersey Department of Transportation might be in a position to be aware of proposed developments on a timely basis, it is proposed that developers of all commercial and industrial sites, including office buildings, shopping centers and major generators such as local or regional government buildings and residential areas of 50 units or greater, be required to file with the local planning agency and the Department of Transportation a transportation impact statement which analyzes the volumes of traffic to be generated by mode, direction, time of day, season, and on an annual average day basis, and assesses the impact of these volumes on present transportation facilities in the immediate area and the region around the proposed development.

The impact statement could provide the developer with a better set of data with which to approach the planning bodies and would, in turn, alert the planners to the potential problems facing them in proposed development. The processing of the transportation impact statement, which should cover impact in terms of public transportation as well as trucks and private cars expected to be generated by the site, could be handled in the same fashion as the A-95 review at the regional level. The planning review of water and sewer requirements is presently effectively achieved through this process at present.

Given the review power outlined above, DOT should promote and encourage private transit operators to initiate new services to projected land development and to plan for required route and schedule changes.

Other than direct representation at meetings of the regional bodies where the transit planners would become familiar

with key local and regional planners in the state, improved internal communications should be instituted to ensure that actions taken by all regional planning commissions are required to be reviewed by the public transportation planners.

Advance Planning Requirements - Through the regional planners, the public transit planning staff should become acquainted with local planning agencies and staff personnel in the developing communities. Thus, advanced public transportation planning could provide bus linkages to major employment centers or transportation terminals for transfer to express service. Opportunities to develop integrated park-and-ride facilities within new developments should be identified and pursued as a part of development planning.

As areas of maximum growth and increased density continue to spread in the large metropolitan regions around New York and Philadelphia, development of transportation service to the new communities similar to some of the more attractive present bus transit activities in the state should be accomplished.

Suburban Transit Company, operating out of New Brunswick and by virtue of its proximity to major growth areas in nearby Monmouth and Middlesex Counties, has been able to capitalize on that growth in establishment of significant new services to New York commuters.

The role of the public transportation planner in this type of activity should be to coordinate and promote efforts by the private transit operators to achieve orderly initiation of transit services in new communities.

Regional - Local Planning Coordination - Regional and local planning should be coordinated with transit operators to provide responsive service adjustments of other types in the local communities in the state. For example, the introduction of a new corporate headquarters or major office building in a suburban community may result in a significant change in commuter habits in nearby corridors.

Transportation planners, in cooperation with the builders or tenants of the new developments, should do such advance planning as might be required to establish the need for special transit services, to be provided initially through a partial subsidy by the employer.

Service Criteria

In the interest of initiating a program by which bus services throughout the state can be measured as to their essentiality, a set of criteria has been adapted, from those being applied by other agencies throughout the country, for the purpose of application in New Jersey.

The criteria outlined in Table 22 respond to two types of services:

1. Intrastate local transit service provided in metropolitan areas throughout the state.
2. Suburban commuter service with elements of intercity operation which provides an interstate type of service for commuters from New Jersey to both New York and Philadelphia.

Table 22

PROPOSED SERVICE CRITERIA FOR LOCAL AND SUBURBAN BUS OPERATIONS
New Jersey

ITEM	TYPE OF SERVICE	
	Local	Inter-City/Suburban
Headway	Based on demand	
Peak	5 min. minimum*	30 min. maximum
Off-Peak	30 min. maximum	60 min. maximum
Scheduled Speed- Avg.	10 m.p.h. min.*	25-35 m.p.h. min.
Fares and Collection	40 cent maximum plus 10¢ per zone	minimum + rate per mile
Accommodation:		
Maximum Load Factor	150 per cent seat capacity	100 per cent seat capacity
Reliability	Minimum of 70 per cent headway maintenance	90 per cent time arrival and departure \pm 5 min.
Comfort and Convenience	Clean vehicles; lighted stops	Clean, air-conditioned vehicles; well-lighted stops, shelter at major stops.
Public Information	Stops-schedules-fares	Time tables, stops, clearly designated fares
Competing Service		
Bus	None within 1500 feet	None within 2500 feet
Rail	Bus operates as feeder to rail	Bus operates at a disadvantage except under unusual circumstances of highway accessibility

* If demand seems to exceed 5-minute headway or if peak period speeds fall below 10 m.p.h. consider interspersing express runs or skip-stop schedules.

It is proposed that these criteria be reviewed, modified as required, and adapted for consideration in on-going studies. Future deliberations concerning subsidies and their merits as applied to individual companies should include the test of essential services.

Concept of Essential Network

The network of bus services in New Jersey that appears to meet the basic criteria of essential services is conceptualized in Figure 25. The three basic types of service reflected in this concept are:

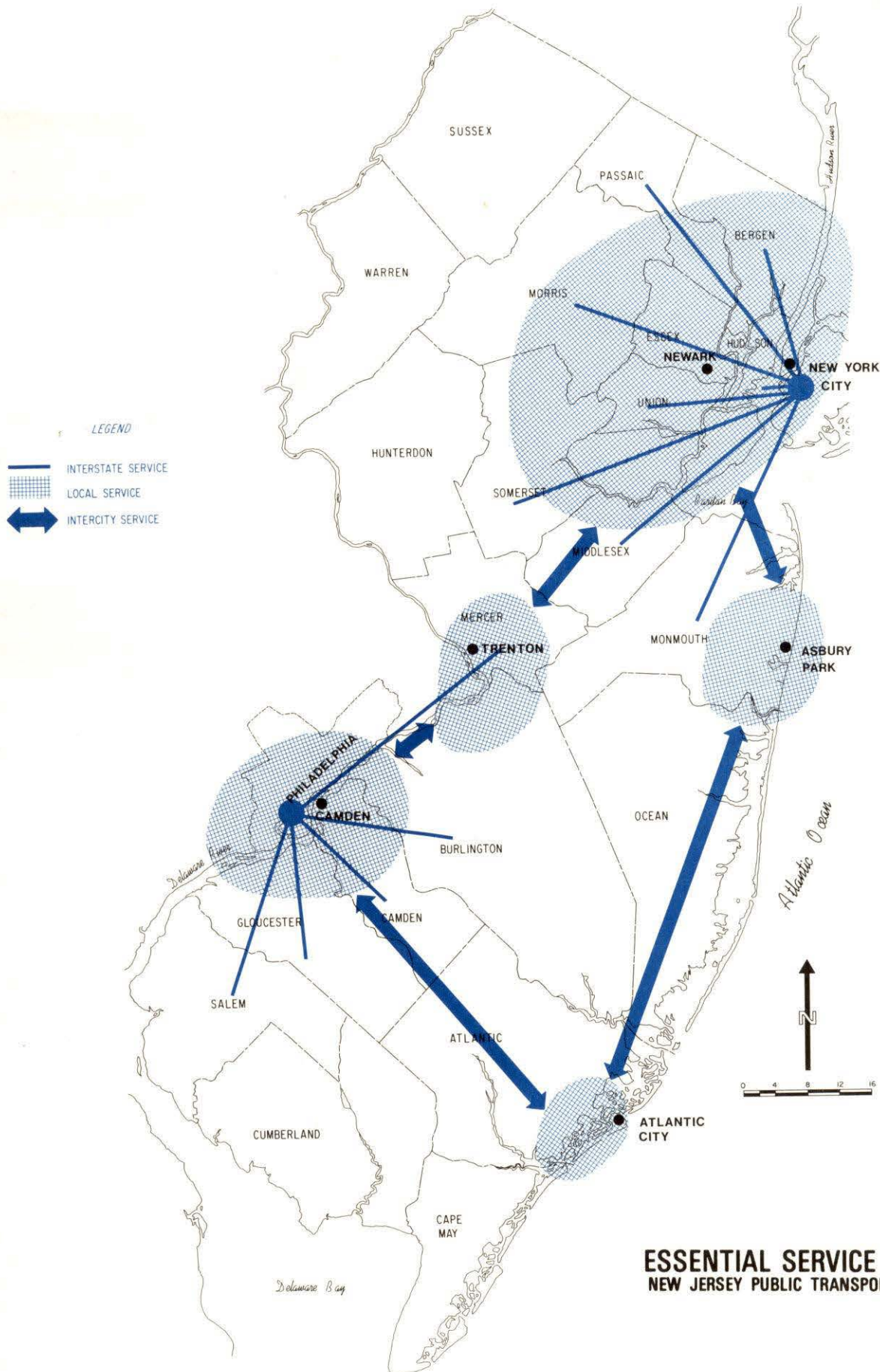
- Intrastate local;
- Intrastate-intercity;
- Interstate commuter.

With a few possible exceptions, the areas of essential service are identified. Determination of essential elements in addition to those shown may be made in cases of special trip generators, or decisions to support a service with marginal demand as a standby or back-up service. Areas of heavy local reliance on transit services by captive users should also be included in the essential system.

Appropriate integration of rail and bus service within the essential transit network appears to be a critical element of the continuing study on this project.

Local or Sector Proposals

Operating problems observed in the course of this study and immediate action recommendations responding to these problems are noted in the following pages.



ESSENTIAL SERVICE NETWORK
 NEW JERSEY PUBLIC TRANSPORTATION STUDY

Hudson County - A major operation problem identified in the Hudson County sector is the stopping of buses to load and unload in the moving lanes on the major arterials, As a result, traffic is delayed, bus entry and exit movements are frequently hazardous, and the bus is exposed to additional accident potential. This problem is related to a lack of sufficient off-street parking space and the curb parking space demand, affects the identification of bus stop locations and frequently results in shorter bus stops than can be used safely and efficiently. While more rigid enforcement of parking regulations might aid bus operations, the real need is for additional off-street parking space. Enforcement programs should be related to the availability of off-street parking space.

Installation of a number of bus shelters is recommended. Few shelters are available for the bus-riding public at present and their construction would match new facilities at the Journal Square transportation center. These should be provided at key on-off points along the major north-south routes from Journal Square. Colleges, hospitals, high schools or grade schools and other points where large numbers of passengers may be anticipated would also be appropriate candidates for installation of bus shelters.

Utilization of standardized bus stop signs supplemented by pavement marking for better bus route and bus stop identification is also proposed.

Bergen-Passaic - A major impact in this sector of the state has been initiation of the exclusive bus lane operation along Interstate 495 on the approach to the Lincoln Tunnel. The exclusive bus lane has resulted in significant decreases in travel time for many of the bus riders destined to mid-Manhattan from Bergen and Passaic Counties.

Consideration should be given to extension of the exclusive bus lane to the west from the New Jersey Turnpike east alignment to either New Jersey Route 17 or to the New Jersey Turnpike west alignment. Here the exclusive lane could intercept traffic from the proposed park-and-ride facility to be developed as a part of the New Jersey Sports Complex, in addition to traffic from the present Port Authority Park-and-Ride facility under I-495 at U.S. 1 and 9. Extension of the exclusive lane facility to Route 17 would permit the possibility of more directly serving other proposed park-and-ride facilities.

The initiation of a bus shelter program for high-volume bus stop locations is also recommended for both Bergen and Passaic Counties. Particular emphasis should be addressed to transfer points and major generators.

Morris-Essex - Several specific projects have been identified in this very heavily developed corridor in the central part of the Tri-State region.

The first project on this list is utilization of I-280 for express bus service to Newark from the nearby suburban communities to the west. Recommendations have also been developed with respect to the continuation of the transfer program for the independent buses and TNJ buses operating in Newark and the Oranges.

The competitive situation along South Orange Avenue, Springfield Avenue, Clinton Avenue and North Broadway between Independent Bus Owners Associations and TNJ has also been reviewed.

As in the other counties, the shelter program is recommended in Essex County where some shelters already exist on approaches to the downtown Newark area.

Union-Somerset-Middlesex-Mercer - In this central corridor of the State two major rail-bus conflict situations exist. In the U.S. Route 22 corridor the Central Railroad of New Jersey is paralleled by the bus service of Somerset Bus Company and a number of smaller local carriers, and along the U.S. Route 1 corridor between Newark and Trenton, the Penn Central main line provides for local and express service in competition with the buses of Suburban Transit Company, TNJ and local operators.

Key issues in this corridor are additional park-and-ride facilities for both railroad and bus service. Several facilities are in operation in the corridor, notably the one at Route 18 (Exit 9 of the New Jersey Turnpike) just to the east of U.S. Route 1, utilized to capacity virtually every day, and the Metro Park park-and-ride facility in Iselin.

Monmouth-Ocean - One of the major growth areas in the state is along U.S. Route 9 between Sayreville and Lakewood. In this area, growth during the past ten years has been brisk and at the present time there is heavy competition for bus patronage. Much of the development in the corridor has been at a density level supported by garden-type apartments. The resultant volume of people destined for Newark or New York offices creates a heavy demand for bus service.

Park-and-ride facilities have been previously proposed by others at the New Jersey Turnpike Exit 8A at Jamesburg and also at the Turnpike-Garden State Parkway Interchange in Woodbridge. The timing of these new facilities is not fixed at this point but it is likely that both of these facilities would be initiated as well as a new facility at the Twin Rivers Community outside of Hightstown and on New Jersey Route 33 and other potential locations along U.S. Route 9.

There are a number of longer-range potentials for service improvement in this corridor including future rail facilities to replace or upgrade the New York-Long Branch line through the shore communities. Continuing studies designed to investigate the bus service provided in the local shore communities of Red Bank and Asbury Park and some of the commuter bus operations in these communities in competition with the rail service of the New York and Long Branch Railroad, should provide short-range plans dealing with these problems.

Southern Sector - Feeder bus operation of most Southern Division routes of Transport of New Jersey to serve the Lindenwold Line of PATCO have been in operation a little over a year. Experience has not been sufficient to provide a reasonable evaluation of its success.

It is recommended that the Atlantic City Union Bus Terminal be used by both the TNJ and Lincoln Transit operations. Lincoln operates a separate terminal almost across the street from the Municipal terminal, which has adequate space for both operations.

Consideration was given to the possibility of exclusive bus lanes on the Ben Franklin Bridge. However, analysis of peak-hour operations, running time, delay time and toll plaza operations

indicated no significant advantages would accrue from an exclusive lane operation.

Northwest Counties - In Sussex, Warren, and Hunterdon Counties the number of regular bus route operations is limited. There are no proposals for these counties herein, although potentials for park-and-ride appear to be good due to freeway access expected within the next few years. This will greatly reduce running time to New York City from these counties. Park-and-ride facilities should reduce automobile trips into the New York-Newark area from these counties which expect major growth in the next decade.

Cluster Service Concept

Several methods of operation have been evaluated for improving driver and passenger security during evening operation of buses. A "cluster service concept" is proposed in response to declining patronage in the evening hours and resulting reductions in service in many key corridors. Attraction of additional patronage through demonstrated efforts to assure safe transportation in inner city areas is the objective.

Radio-Controlled Buses - Use of radio-controlled buses in the cluster service permits two approaches to the problem. In the first, city routes could operate in the established pattern until dark, and switch to the "dial-a-ride" concept at the direction of the radio dispatcher for all or a portion of the route.

Upon a request for diversion of a bus from the regular route, the driver would inform the radio dispatcher. This operation would disrupt established schedules but with demand service in operation, fixed schedules would not be needed.

In the second concept, buses would continue to operate on the established route and schedule as at present, but after dark, or at a set time after the evening peak period, passengers on the outbound trip could request the personal service from the bus driver, who in turn would inform the radio dispatcher.

The radio dispatcher would instruct the driver of a service car, or a road supervisor, or a coordinating taxi service to meet the bus at a pre-selected, well-lighted waiting area, where passengers would board the waiting car to be taken home.

Extra fares might be collected for this service. The advantage to this concept is the continuance of operation on the regular route and schedule. The disadvantage is the need for the transfer to the service car and the cost of standby service.

Bus Diversion Plan - This concept applies to buses without radio, on selected routes after dark, or at a set time after the evening rush period, responding to meet a passenger's request on the outbound trip over a portion of the route.

The driver would leave the established route to permit the passenger to leave the bus at or near his home, after which the bus would return to the established route. Although there is an advantage to some passengers under this plan, other passengers on board might find their trip lengthened in both time and distance. Principal disadvantages are disruption of the regular schedule and lack of dispatcher control without radio.

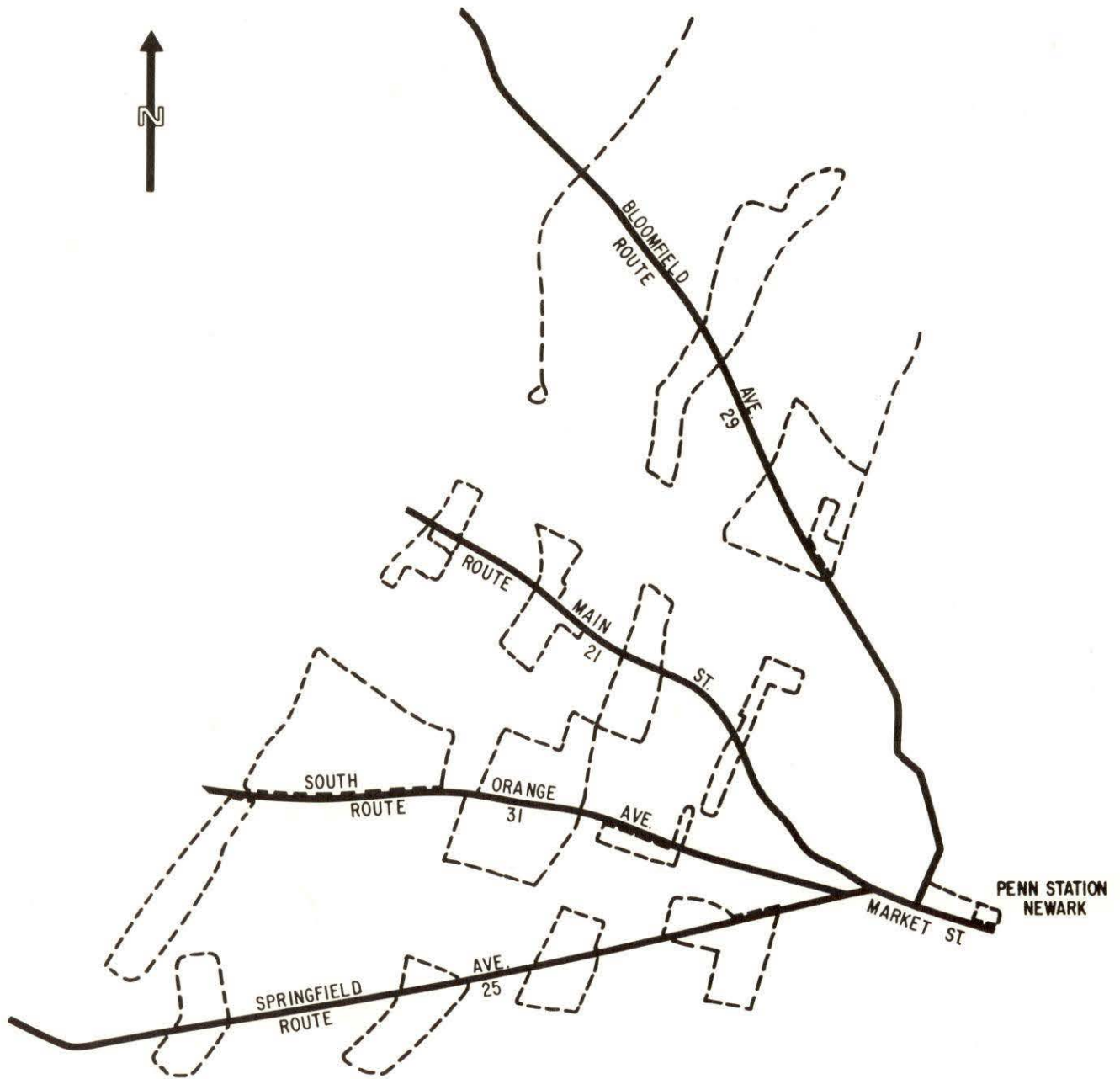
To overcome disadvantages of this plan, a second concept would continue buses on established routes and schedules and to install telephones at selected locations, with connection to either a local taxicab company or to the central dispatcher who would dispatch a service car to that point.

Shuttle Service - This alternative plan would operate only on trunklines after the evening rush period. Service would be increased to make riding more attractive. Service on feeder and circumferential routes would be discontinued or reduced at that time.

All regular stops would be maintained on the trunklines, and in addition, well-lighted, safe and convenient waiting areas would be provided at selected transfer point locations. During these evening hours, a shuttle bus or service car would operate from these selected waiting areas to take passengers to their homes in the areas of the discontinued service.

As an example, in the Newark area, Routes 25-26 (Springfield Avenue) 23-24 (Central-West Orange-Elizabeth), and 29-60-114-116 (Newark-Caldwell-Dover), would be the trunklines in their respective traffic corridors, and other lines in the corridors would be adjusted to conform to the plan, to provide demand service. The concept is shown schematically in Figure 26.

Although some passengers living on or very near the discontinued or adjusted service routes might object to this plan, the increased service on the trunklines, and the personal service given by the shuttle, should be attractive to many evening passengers. The total transit system may find some economic advantage in this plan.



LEGEND

- TRUNK LINE
- - - CLUSTER SERVICE ROUTES

**CLUSTER SERVICE CONCEPT
NEWARK AREA
NEW JERSEY PUBLIC TRANSPORTATION STUDY**

Operations Plan - It is recommended that, in Newark, trunkline transit routes such as Routes 25-26 (Springfield Avenue), 23-24 (Central-West Orange-Elizabeth), and 29-60 (Bloomfield Avenue-Montclair) be selected for late evening operation on short headways.

Remaining routes in these corridors should cease running after the evening peak period. Special small buses, mini-buses, or chartered taxicabs, should be stationed at selected well-lighted, safe, convenient stops. Police patrol of these locations should also be considered. Other normal stops on the trunkline routes should be maintained.

From the selected transfer points, passengers would be taken directly to their homes by a smaller shuttle vehicle in areas not having night service. Passengers living in car-owning households could be picked up by family members if they desire, instead of using the shuttle service. Shuttle service may require an extra fare, or transfers from the buses may be honored.

Facilities Required - No change is necessary in the existing bus fleet, bus terminals, or present garage facilities. No passenger shelters would be required although they would be desirable. However, some non-revenue vehicles or small buses would be required in order to provide door-to-door service to bus riders. These might be chartered taxicabs, mini-buses, or supervisor automobiles, stationed at key locations.

Impacts - Since this service would be operated after normal commuting hours, the "captive" rider (non-car owners

and non-drivers) would benefit most. Their improved personal safety, owing to minimum walking and waiting time, would add to their mobility, particularly for shopping, social visits, and recreation trips.

The inconvenience of the transfer should be more than offset by direct doorstep service. Senior citizens and female passengers would receive the greatest benefits from the cluster service arrangement. There may also be some increase in accessibility.

Bus companies will benefit from being able to close down some routes after the evening peak. It should be possible to engage and/or retain drivers for the short-headway trunk routes, whereas at present, evening runs frequently have to be cancelled because of reluctant drivers.

If a chartered taxi service is used, the taxi operators would be paid by the hour, and no money will need to change hands. Although the shuttle service may involve additional expense, it is believed that this will be more than offset by bus-mile reductions on the early closing routes and by the increase in system revenues.

Sources of Financing - The trunkline operation should be financed internally by the bus operators. However, initial demonstration grants may be necessary to underwrite the shuttle service until its viability can be established.

Implementation Responsibility - New Jersey DOT would have responsibility for bringing together the bus and taxi operators (if required) for generally implementing and designing the program. The operators would have responsibility for implementing trial runs, once financing was assured.

Summary - The radio-equipped bus or the shuttle-bus plans appear to offer the best opportunity to improve night service to transit passengers.

In view of the type of areas served by these lines, it is quite likely that the Urban Mass Transportation Administration would be receptive to assistance in the way of demonstration grants, or possible capital grants to install two-way radio communication for shuttle buses, for improved safety, efficiency of operation and possible expansion of this type of service.

Duplication of Service: Transport of New Jersey and Independent Bus Owners

In several cases, independent bus owners and Transport of New Jersey operate over the same or parallel streets for all or major portions of their routes. A desirable requirement where two or more lines are operated by the same or different companies over a common street section is that the schedules be coordinated to better serve the public. Competition between operators need not be destructive, but each individual case must be studied. Questions to be considered include:

1. Is service to the public adequate and attractive?
2. Can the service be operated more efficiently by one operator or by two or more operators?
3. Would consolidation result in a monopolistic type of operation, leading to a service loss to the public?
4. Would consolidation result in need for subsidy or where subsidy exists, would it increase the amount of subsidy?
5. Could an attractive type of service be operated at reduced cost? (In most cases, cost of operation varies from one company to another.)

These questions are most pertinent when one or more present operators desire to continue their operation. In the event that all operators over routes or portions of routes desire to discontinue service either by abandonment or by sale of rights, a decision must be made either to eliminate the service or to offer the operating rights on a bid basis, probably resulting in financial assistance by one or more governmental agencies.

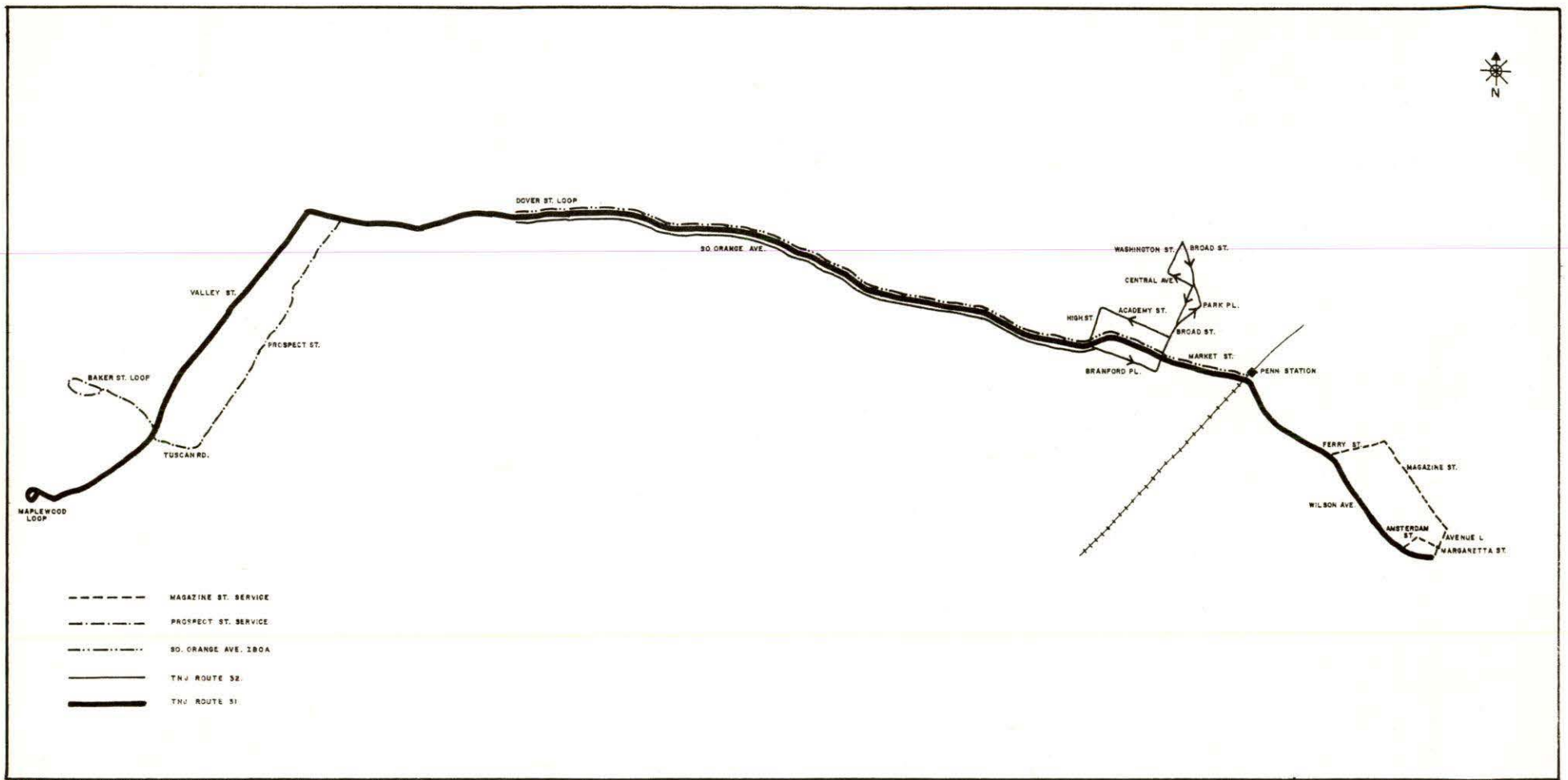
In most cases, the routes operated by TNJ extend in length beyond the routes of the independent bus owners. It is thus difficult to make exact comparisons between the operations. However, available data are sufficient for reasonable comparisons. Each operation has been reviewed separately and recommendations made based upon the individual findings.

Four routes operated by independent bus companies were selected for study. These routes wholly or partly duplicate routes operated by TNJ. They are as follows:

1. South Orange Avenue IBOA - TNJ Routes 31-32;
2. Springfield Avenue IBOA - TNJ Routes 25-26;
3. North Newark IBOA - TNJ Routes 13 and 18; and
4. Clinton Avenue Bus Company.

Analyses of these routes follow.

South Orange Avenue IBOA - TNJ Routes 31-32 - Because the two operations have coordinated schedules, with nearly equally divided services, and because both services appear profitable, it is recommended that the combined operation not be changed at this time. The general alignment of the alternative services is shown in Figure 27.



**SERVICE DUPLICATION
SOUTH ORANGE AVENUE
NEW JERSEY PUBLIC TRANSPORTATION STUDY**

Wilbur Smith and Associates
FORD, BACON & DAVIS, INC.

FIGURE 27

Fares differ for the two operations, but no change is proposed.

If TNJ were to take over the entire operation, transit fares would be increased for passengers now using independent buses. TNJ, however, could cover the service area with little change in routing.

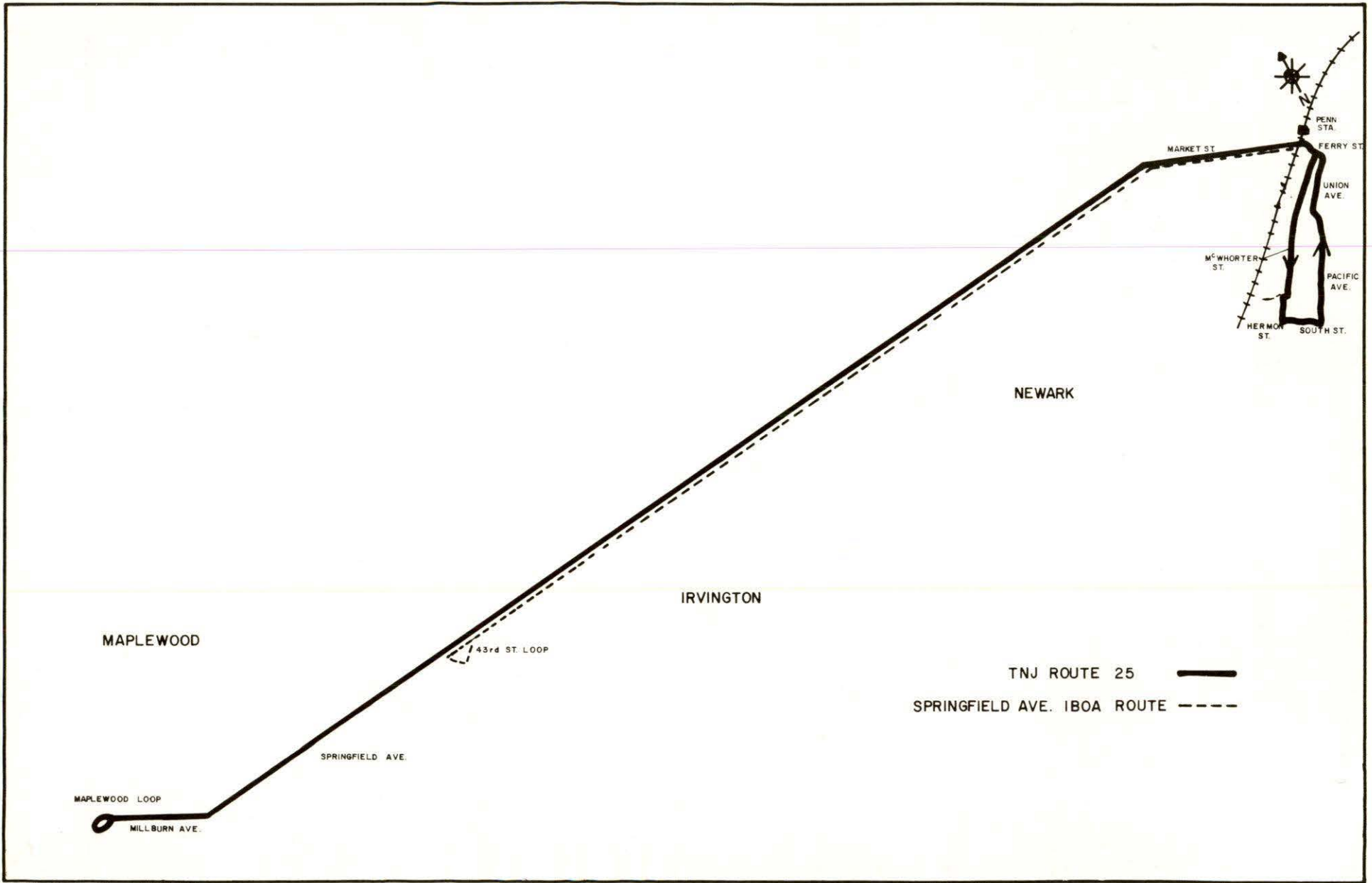
If the independents took over the entire route, it would be necessary merely to extend the present independent route to match present TNJ coverage. Alternatively the independent could operate its present service and TNJ could operate a "closed door" service to Dover Street. This alternative, however, takes much of the local service in the heavier utilized parts of the route from TNJ.

While the maintenance of this competition does not appear destructive, it may approach that level as operating costs rise. Some resolution of a basically inefficient, although publicly attractive, conflict should be developed.

Springfield Avenue IBOA - TNJ Routes 25-26 - Because TNJ operates 69 per cent of the trips on this line, and carries approximately 83 per cent of the passengers, it appears that they could operate the total service with little difficulty.

Alternatively, the independents could operate all the local service, with TNJ operating "closed door" service to Irvington Center, and local service beyond this point. (During the work stoppage by TNJ in 1972, the independents were able to provide service to TNJ riders.) Figure 28 shows the extent of the competing service along Springfield Avenue.

While the existing difference in fares is undesirable, it is recommended that the two organizations continue to operate



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SERVICE DUPLICATION
SPRINGFIELD AVENUE
 NEW JERSEY PUBLIC TRANSPORTATION STUDY

FIGURE 28

the service for the benefit of the riding public until such time as one of the operators expresses a desire to discontinue service or requests a subsidy for the service. When this occurs, arrangements for consolidation should be made.

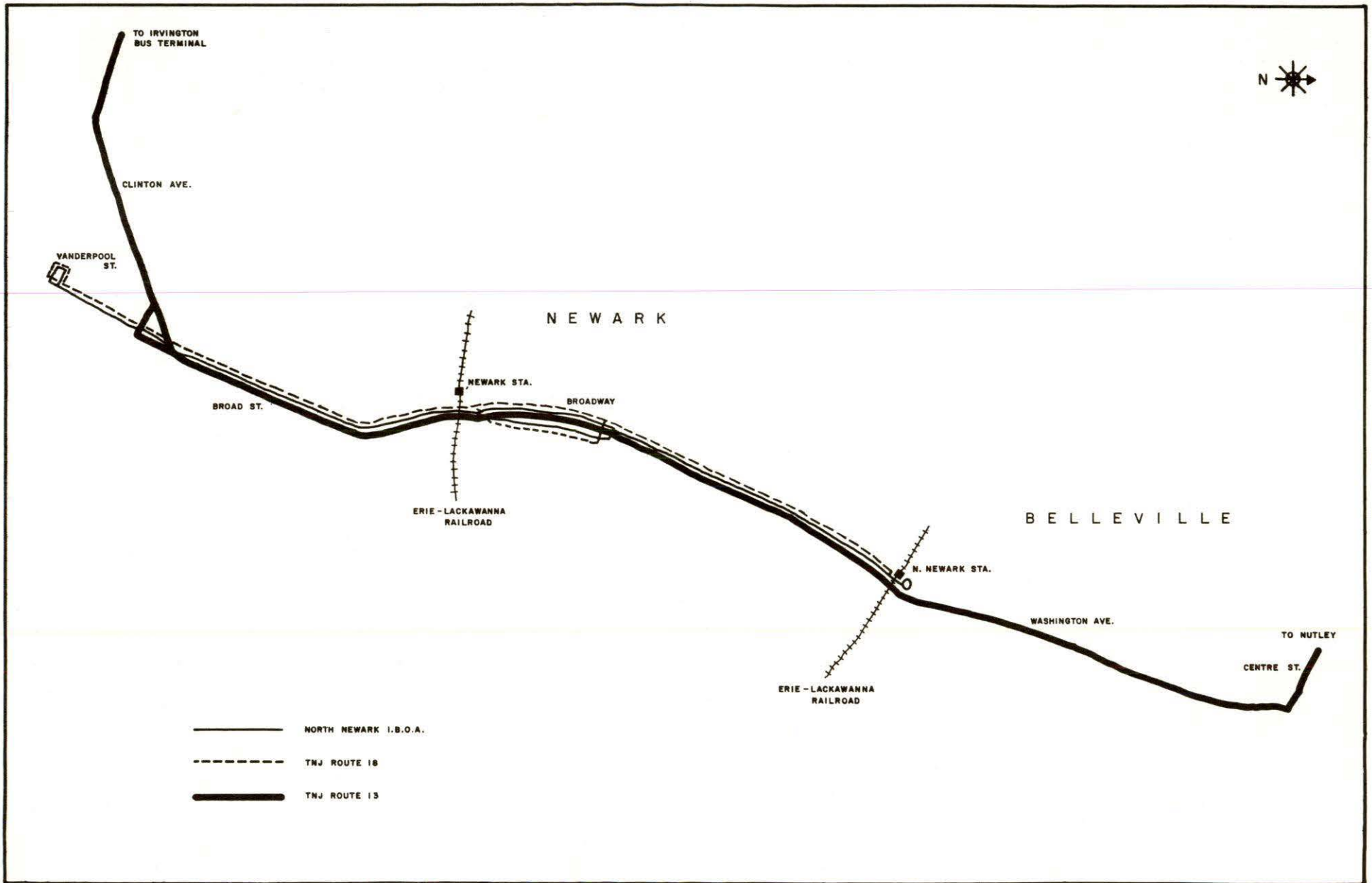
Regarding schedules, TNJ and the independents should be coordinated. Such schedules should be a requisite for continuation of the combined present operation, with services by both operators shown on one public timetable.

North Newark IBOA - TNJ Routes 13-18 - The independent's and TNJ's Route 18 meet a definite need in the low-income residential and commercial area served. In downtown Newark, the independents afford low-cost service for short trips along Broad Street. The basic fare for TNJ is \$0.40; for the independent the fare is \$0.25, with no transfers issued or accepted. There is also a \$0.15 student fare on the independent buses.

TNJ Route 18 has terminals in Belleville as do the independents, while TNJ Route 13 continues to Nutley as shown in Figure 29. The independents operate all day while TNJ's service is in the peak hours only.

Some members of the IBOA have indicated willingness to dispose of their operating rights, which would permit consolidation of the IBOA operation. However, it is proposed that the independents continue to operate over the present route. If the service needs to be supplemented, it appears logical to have the independents provide the additional service.

Clinton Avenue Bus Company - The Clinton Avenue Bus Company operates a very small portion of service over the line, whereas TNJ covers the entire service area of the Clinton Avenue Bus Company as well as some additional areas. TNJ carried 5.5 passengers



SCALE: 1 IN. = 2250 FT. (APPROX.)

**SERVICE DUPLICATION
NORTH NEWARK**
NEW JERSEY PUBLIC TRANSPORTATION STUDY

Wilbur Smith and Associates
FORD, BACON & DAVIS, INC.

FIGURE 29

per mile as compared to 2.1 passengers per mile for the Clinton Avenue Bus Company in 1971. The details of the TNJ and Clinton Avenue routes are shown in Figure 30.

It appears that service to the public would not suffer if the entire operation were run by TNJ. The smaller company does not appear to be financially impacting TNJ.

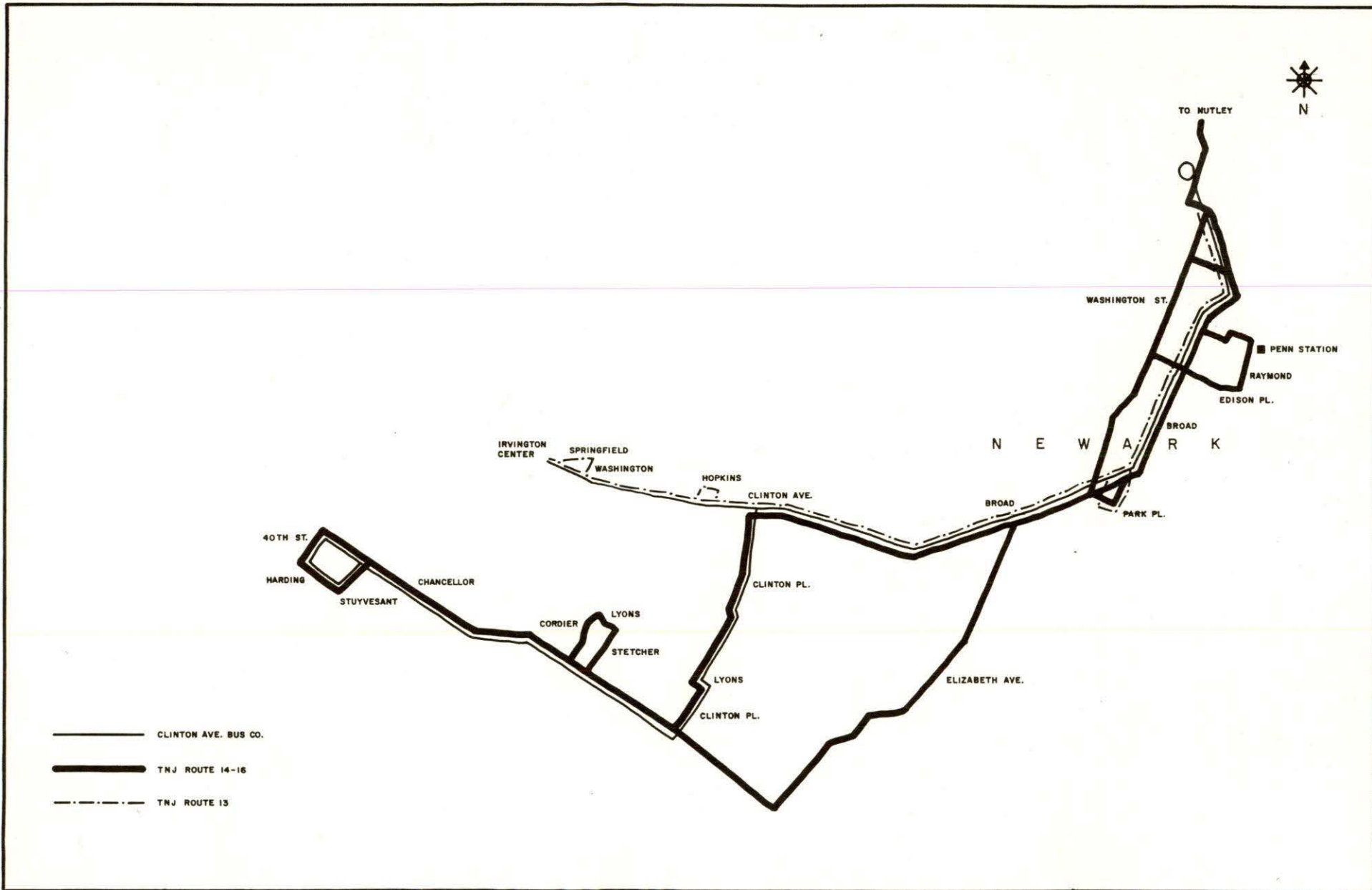
It is understood that the owners of the Clinton Avenue Bus Company are willing to sell their operating rights. It would appear desirable for TNJ to purchase these rights, at a reasonable figure, eliminate the uncertain headways created by a one-bus operation, and pick up the approximately 2.1 passengers per mile now using the independent bus.

It is recommended that if the Clinton Avenue Bus Company continues in operation, it should be required to operate on a published schedule. This would improve service to the public.

Summary of Recommendations - The recommendations herein involve three Independent Bus Owner Associations and one small company operating one bus. In each case, the independents operate over the same streets as TNJ. In some cases the routes are identical.

In the three duplications of service involving independents operating more than one bus, it is proposed that the operations remain as they now exist. In the case involving the single bus operation (Clinton Avenue Bus Company), elimination of the small company by purchase of its operating rights is recommended.

These recommendations are based upon operations information available for 1971. Conditions since that time have probably



SCALE: 1 IN. = 2250 FT. (APPROX.)

CLINTON AVENUE-IRVINGTON BUS SERVICE
 NEW JERSEY PUBLIC TRANSPORTATION STUDY

Wilbur Smith and Associates
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altered the situation to the point where it would be advisable to either (a) consolidate the entire service under one operator, or (b) divide the service between the operators, with route duplications eliminated.

When conditions are such that service could be improved or operated more economically by making changes, a thorough investigation would be warranted, to develop a factual basis upon which changes can be recommended.

General Policy Guidelines - Following are recommended general guidelines for situations where several carriers serve all or portions of the same localities:

1. In any situation where service is provided by two or more carriers over all or part of a route, a single public timetable should be developed and distributed. Schedules should be prepared and coordinated by the appropriate regulatory agency, to insure maximum service to patrons.
2. In cases of fare structure differences, changes usually result in financial and passenger loss to the carrier making an upward change. Fares should not be changed merely to equalize charges over a given route.
3. Transfer privileges should exist wherever feasible. However, neither the carrier issuing the transfer nor the carrier receiving the transfer should suffer a financial loss.
4. A maximum load-point check is desirable for each route operated by more than one carrier. This would reveal the amount of schedule coordination

existing, and the number of passengers using each service. It would provide a factual basis for initiating changes in the number of carriers or amount of service provided by each carrier.

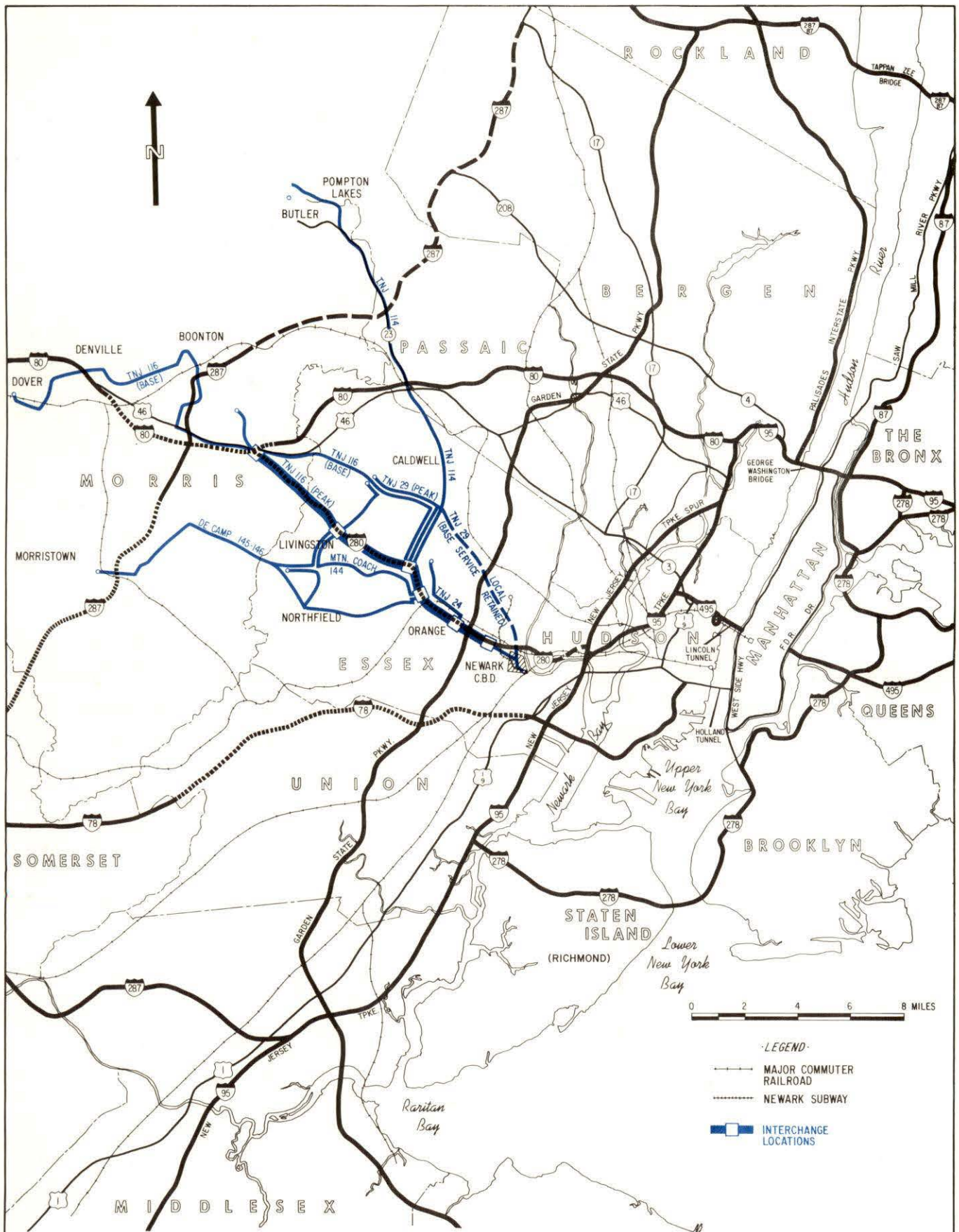
5. When and if either carrier in a duplicate service situation reaches the point where subsidization is considered, steps should be taken to consolidate the operations under the stronger operator.

Express Buses on I-280

Opening the I-280 freeway from Harrison to its I-80 connection near Parsippany has created an opportunity for increased bus service and development of additional commuter bus patronage. Failure to take advantage of this opportunity could result in increased orientation of the Newark central business district to automobile trips, increasing demand for parking in Newark and a further decline in transit riding in this sector of the state. The location of the I-280 freeway is shown in Figure 31.

In planning a I-280 bus service, consideration must be given to the needs of passengers now using existing express services which could be diverted to I-280. Since some of the present passengers are oriented to Montclair or Orange rather than downtown Newark, a careful analysis of potential routes is essential before final recommendations are made. Origin-destination surveys on these routes should be made before and after implementation of any alternate service.

In planning an express bus service, the desire of passengers for a fast point-to-point journey must be compromised with the need to collect enough passengers to justify running a mass transportation vehicle. Generally, express bus service has been successful when:



**RECOMMENDED BUS SERVICE
I-280 CORRIDOR
NEW JERSEY PUBLIC TRANSPORTATION STUDY**

Wilbur Smith and Associates
FORD, BACON & DAVIS, INC.

FIGURE 31

1. One end of the route is in a concentrated, high-employment area;
2. Total route length, including the express portion of the run, exceeds five miles;
3. The express portion of the run exceeds three miles (two miles minimum);
4. Passenger densities are sufficient to fill the bus during the local portion of the trip; and,
5. Express buses do not directly compete with commuter rail operations.

Available information on bus routes in the I-280 corridor has been evaluated with reference to the five criteria above. The first criterion defined the potential routes as those centering on downtown Newark or Manhattan. The second criterion highlighted the routes listed in Table 23. More detailed study of potential patronage will be necessary before the third criterion can be evaluated. Future corridor studies should determine the extent and impact of competition between a possible I-280 express bus service and the Erie-Lackawanna rail service, and with local bus service in the same corridor.

Immediate action recommendations for an I-280 bus service address:

1. Operations and maintenance;
2. Coordination with the total transit system;
3. Coordination with private auto;
4. Traffic operations;
5. Facilities;
6. Management;
7. Impacts;

Table 23

CANDIDATE BUS ROUTES FOR I-280 EXPRESS SERVICE

New Jersey

Company	Line Number	Outer Terminal	Inner Terminal	Freeway Ramp Usage		Suggested Period of I-280 Operation	Length of Line		Distance On Freeway	AM Peak Hour Running Time		I-280 Time Savings	
				Entry	Exit		Present	Via I-280		Present	Via I-280	Bus Only	City Subway
TNJ	24	Harrison & Mississippi, West Orange	Newark-Elizabeth City Line	Clinton St.	First St.	All day	6 mi.	6 mi.	1.5 mi.	44 min.	38 min.	6 min.	9 min.
	29	Caldwell Loop	Newark, Penn Station	Prospect Ave.	First St.	Peak only	11 mi.	13 mi.	5 mi.	50 min.	38 min.	12 min.	15 min.
	114	Butler	Newark, Penn Station	Prospect Ave.	First St.	Peak only	20 mi.	22 mi.	5 mi.	72 min.	60 min.	12 min.	15 min.
	114	Singac	Newark, Penn Station	Prospect Ave.	First St.	Peak only	13 mi.	15 mi.	5 mi.	--	--	12 min.	15 min.
	116	Dover	Newark, Penn Station	Boonton	First St.	Peak only	34 mi.	31 mi.	16 mi.	98 min.	60 min.	18 min.	21 min.
	116	Lake Hiawatha	Newark, Penn Station	Prospect Ave.	First St.	All day	18 mi.	20 mi.	5 mi.	60 min.	48 min.	12 min.	15 min.
Mountain Coach	144	Caldwell Loop	Newark, Penn Station	Mt. Pleasant Ave.	First St.	Peak only	14 mi.	14 mi.	4 mi.	64 min.	53 min.	11 min.	14 min.
De Camp	145 -) 146)	Morristown	Newark, Penn Station	Livingston Ave.	First St.	Peak only	21 mi.	22 mi.	9 mi.	63 min.	49 min.	14 min.	17 min.
	145 -) 146)	Livingston Link	Newark, Penn Station	Northfield Ave.	First St.	Peak only	13 mi.	14 mi.	4 mi.	49 min.	38 min.	11 min.	14 min.
	177	Morristown	New York City	Livingston Ave.	Harrison Ave.	Peak only	37 mi.	32 mi.	11 mi.	--	--	--	--

SOURCE: Route Inventory Data, Wilbur Smith and Associates and Ford, Bacon & Davis, Inc.

8. Promotion and advertising;
9. Budget implications for fiscal year 1974;
10. Source of financing; and,
11. Implementation responsibility.

Operations and Maintenance - Opening I-280 will increase bus operating efficiency in the corridor by accelerating deadhead or lightly loaded reverse direction runs. In the morning peak period, TNJ's Routes 21, 24, and 44 can save time by running at least half of their outbound buses express on the freeway to Prospect Avenue and to Harrison and Mississippi via Eagle Rock Avenue. Turning the Route 24 express service at the Orange Street Subway Station, instead of operating it through downtown, will free at least two and possibly six buses for other operations. The Mountain Coach buses now consume half an hour in getting from their garage on South Orange Avenue to their terminal in Caldwell. If half this journey were on freeway, at least ten minutes could be cut from the journey times. These buses, although operated in the contra-peak direction, should remain in revenue service except where prohibited by franchise agreements. Although traffic will be light, some reverse commuting to domestic employment or outlying industrial park and shopping centers may offer potential riders.

As long as the buses employed in these freeway services are governed as to maximum speed and prudently operated, maintenance costs should not be any higher than at present. Wear and tear on transmissions and brakes should be reduced as a result of freeway operations.

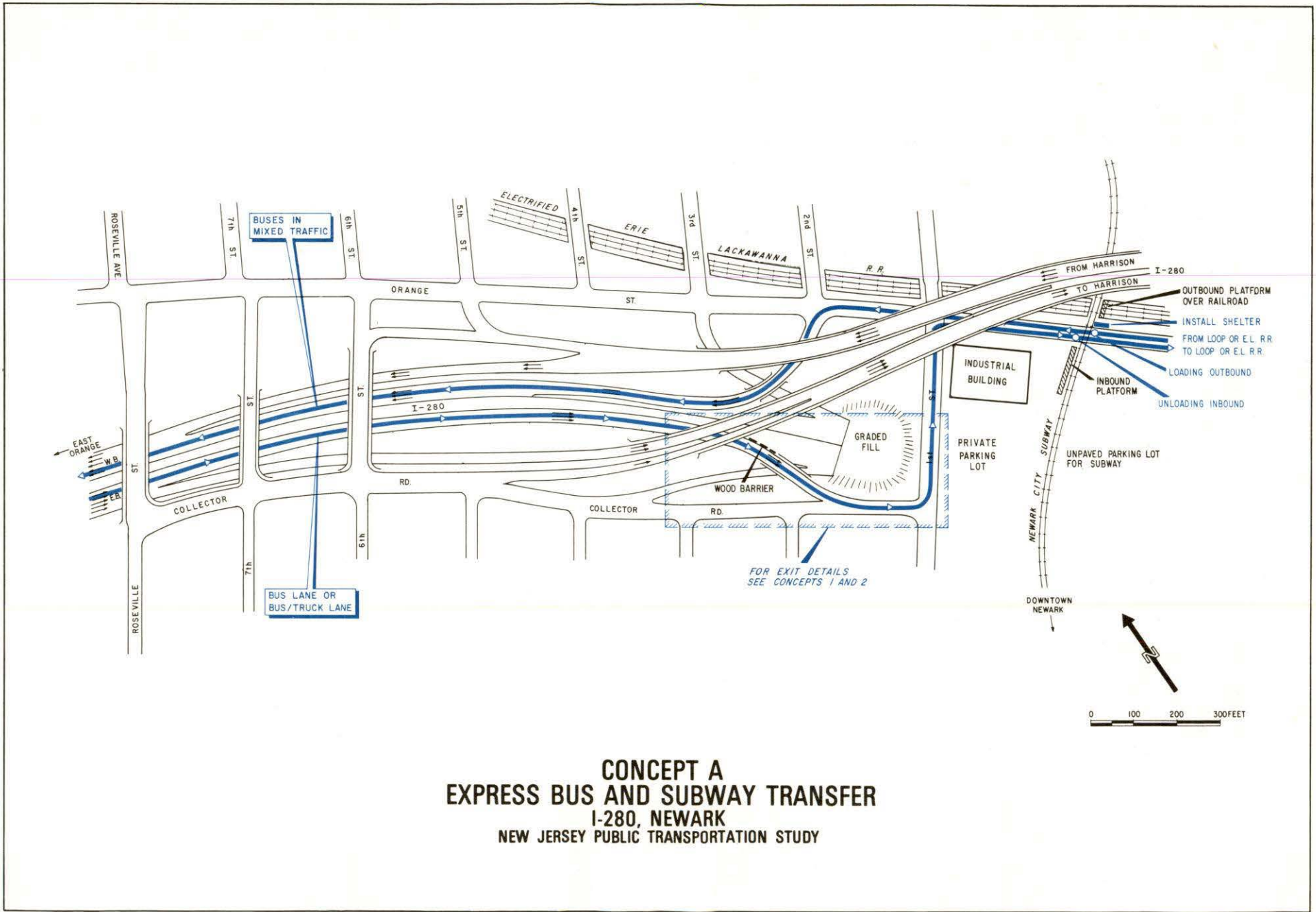
Coordination Within the Total Transit System - The I-280 freeway presents an opportunity to coordinate two forms of rapid transit, freeway buses and the Newark Subway. The temporary ramps giving access to Newark from eastbound I-280 connect into First

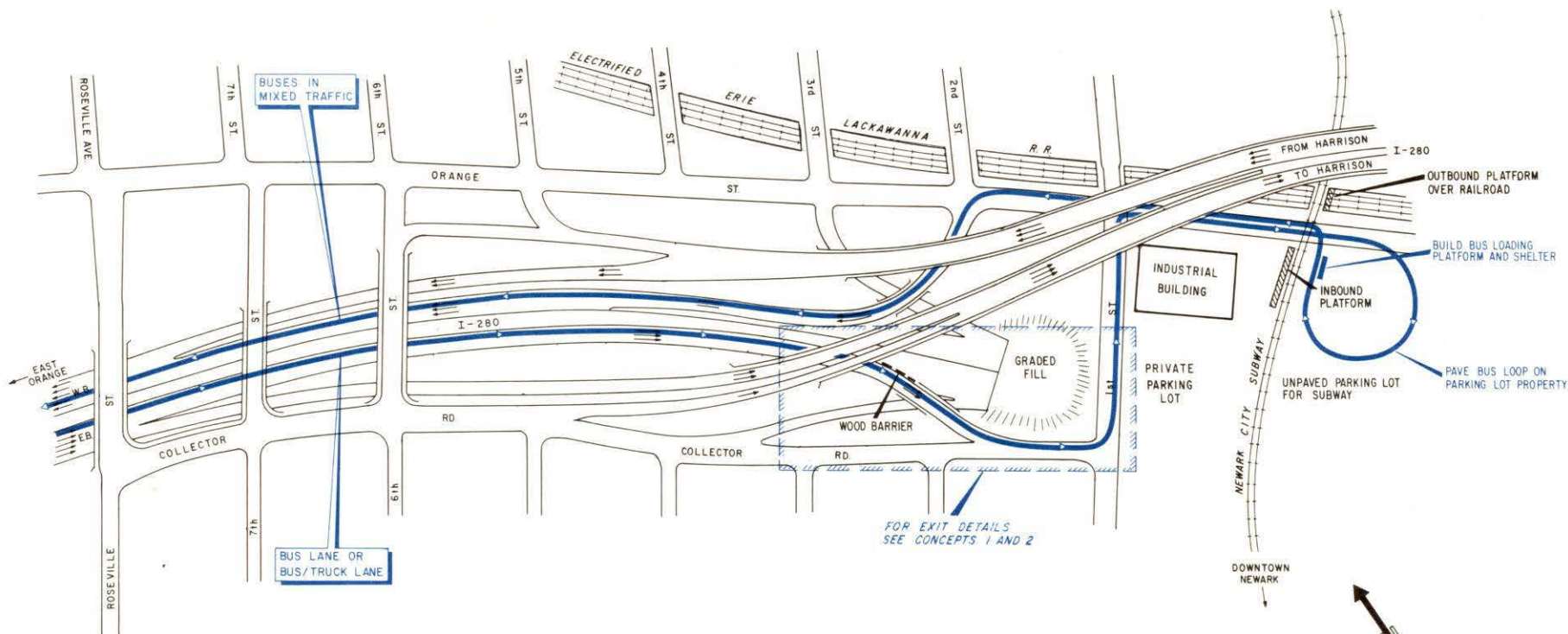
Street a little over a block from the Orange Street station on the City Subway, as illustrated in Figure 32. The subway tracks cross Orange Street at a signalized grade intersection. The signal is actuated by the subway streetcars. As the platforms are on the far side of Orange Street in each direction, subway cars experience little or no delay at this crossing. Therefore, it is recommended that same-level transfers be permitted between express buses and subway cars at this point.

Speed and delay studies have shown that Penn Station is 13 minutes by bus from the Orange Street Station, while the subway cars require only eight minutes for the same trip. Both times are measured during the off-peak. The advantage of the subway is even greater during peak traffic hours. Even with the transfer, the subway is likely to be three to five minutes faster than buses between Orange Street and the Broad-Raymond Boulevard intersection. Tending to offset this time advantage is the high probability that some passengers will have to stand. Therefore, it is recommended that the long-distance express buses continue to enter Downtown Newark by their traditional routes, after stopping to discharge passengers at the subway station.

It may be feasible for some short-distance express buses (Route 24) to loop at Orange Street Station during the peak hours in order to secure quick turnaround and enable a short headway to be maintained with a smaller number of buses. Turning back these buses short of downtown will also ease the pressure on Center City bus lanes (Figure 33). It is believed that the transfer and standee trip will have less adverse impact on this five-mile journey of under 38 minutes, including transfer than on a 40-to-60 minute trip from the outer suburbs.

Before operation is initiated, however, patrons of the present Route 24 service should be surveyed to establish the need for through running from Orange Street into downtown Newark.





CONCEPT B
EXPRESS BUS AND SUBWAY TRANSFER
I-280, NEWARK
 NEW JERSEY PUBLIC TRANSPORTATION STUDY

It will also be necessary to verify that the City Subway can absorb an additional 20-25 bus loads of passengers per hour boarding at Orange Street. The constraint on the subway's capacity is its limited fleet of aging PCC cars, rather than the capacity of tracks or signals. It is believed that the schedule could be augmented from the present 30 cars (3,000 people) per hour to 40-45 cars per hour by making full use of the additional 24 serviceable cars understood to be presently available.

In the longer term, new equipment of the type now being developed for San Francisco and Boston will be essential for the subway's continued operation and possible extension.

Coordination with Private Auto - As trip length by bus increases and land cost decreases, the balance between park-and-ride and direct bus service shifts strongly in favor of park-and-ride. For this reason, park-and-ride shuttle service has a strong potential in the I-280 corridor. Time will be required for negotiation, acquisition, site preparation and construction. Therefore, it is recommended that an initial shuttle service between downtown Newark and the Essex Shopping Center in Pleasant Valley be implemented. Headways of 15-20 minutes in the peak and 40-60 minutes off-peak are suggested for further investigation. Off-peak service to the Center, especially in the evenings, will also be needed for car recovery by overtime workers. Buses should stop on the outer periphery of the center in order to avoid attracting commuter cars to prime close-in parking spaces.

Traffic Operations - Because the temporary ramp at First Street is the only eastbound I-280 exit in Newark, interim bus priority treatments may be necessary to assure viability of the freeway express services. Freeway volumes have already increased to the point where significant backups develop from the

stop sign at First Street. The exit has become overloaded, and buses bound for downtown Newark are delayed by queues of other motor vehicles.

Under these circumstances, a bus lane on I-280 is recommended to expedite bus flow without reducing total exit capacity as shown conceptually in Figure 34. The bus lane would be a little over one mile in length, delineated by signs and cones or posts, preferably on a 24-hour basis, and should extend from a point near the Garden State Parkway overcrossing, just west of the interchange ramps to the lane drop at the diversion of the temporary off-ramp from the freeway stub. At that point, buses should have a priority merge into the bottleneck area, and would stay in the left lane to make the left-turn into First Street. Pending signalization of the intersection, it should be made a four-way stop to avoid excessive delays.

It also may be appropriate to consider implementation of a bus-truck lane on I-280, a concept illustrated in Figure 35. This appears feasible because no trucks are permitted on the Garden State Parkway and no bus routes are recommended to enter I-280 from the Parkway. A similar arrangement may be warranted at the exit into Harrison Avenue.

Facility Investment - The initial I-280 bus service recommended for immediate implementation, has been designed to require a minimum investment in buses and other facilities.

No additional transit-type buses (two-door TDH series, for example) would be required. Possible changes in Route 24 may save two or three buses in the peak periods, owing to faster round trip times. These buses would be available to operate a service between a park-and-ride station and downtown Newark. One or two additional buses of the high-speed suburban or parlor

coach type will probably be necessary to cover new long-haul runs. On a short-term basis, these runs might be covered from the charter bus pool of TNJ or other carriers in the area. It may prove feasible on further detailed study to develop these extra buses by more productive utilization of the present fleet.

No new terminals will be needed, at least until a park-and-ride station can be established at a convenient point. New loading zone markings and short-time passenger shelters will be needed on Orange Street at the Newark Subway Station. No new garage will be needed, but special signs and markings for bus priority measures at the temporary freeway ramps will be required.

Management - Management of the various I-280 services should be vested in the appropriate private operators, with monitoring and control of service in the hands of the New Jersey DOT. The monitoring should include schedule checks, on-and-off counts of passengers, revenue and cost estimates, and possibly collection of origin-destination data.

Impacts - Impacts of the I-280 express bus service will need to be fully established. However, Table 24 indicates some of the major interests and how they would be affected.

Bus services using I-280 would experience time savings of 5 to 25 minutes. Total bus ridership would increase but, changes in modal split need further investigation. Highway congestion would decrease although this would be significant only at the Newark off-ramps from I-280 because of the road's low volume-capacity ratio elsewhere.

Special groups would benefit from the new service. Captive transit riders in the West Orange and outer suburban areas would realize noticeable time savings, and their mobility

Table 24

SUMMARY OF IMPACTS OF I-280 EXPRESS BUS OPERATION
New Jersey

<u>Operators</u>		<u>Other Interests</u>		<u>Community</u>		<u>Users</u>	
<u>Type</u>	<u>Description</u>	<u>Type</u>	<u>Description</u>	<u>Aspect</u>	<u>Description</u>	<u>Type</u>	<u>Description</u>
Owner- Manager	TNJ - Reduce buses on the #24 West Orange-City Line run.	NJ DOT	Better Utilization of freeway by people.	Bus Service	Time savings of 5 to 24 min., depending on route length.	Captive	Reduce door to door time, greater choice of trip destinations.
	TNJ . Increase bus operation Dover/Denville/Boonton to Newark with present fleet.	Newark	Extended potential area for downtown workers, especially middle & low income.	Ridership	Up, amount to be estimated	Choice	Viable alternative to auto travel to Downtown Newark from Dover-Boonton and Butler-Pompton Lakes.
	De Camp - Save 1 bus on Livingston-Newark run.		Higher labor force accessibility for downtown Newark.	Highway Congestion	Slightly reduced, especially at temporary off-ramps at Newark.		
	Mountain Coach - Improve driver productivity.	Suburbs	Easier marketing of residential property in the catchment area of express services.				
	All - faster reverse direction runs to make extra trips in peak, improved bus productivity.	Railroads	Freeway auto alternative may kill E-L rail service north of Morristown. Buses would not compete with trains.				

would be increased. There would be a viable alternative to private auto travel in the corridor. TNJ would be able to economize on buses on Route 24 and increase express operations between Newark and Dover/Boonton and Butler/Pompton Lakes without an increase in labor force or total number of buses. DeCamp might be able to reschedule one bus from the Livingston-Newark run to augment peak-hour service in the corridor. The Mountain Coach Line should experience increased driver productivity and might be able to reduce their peak hour headways within existing bus and driver time limitations.

Benefits to Newark and its downtown are other major justifications for establishing I-280 bus service. For example, if fast transit service were not provided on I-280, the road's availability would tend to unbalance the present equilibrium in transportation, and land uses in downtown resulting in traffic congestion, dispersion of activities, environmental damage from exhaust emissions, and loss of taxable property. More land would have to be allocated for parking spaces and structures. Express bus services in the I-280 corridor would also strengthen Newark's accessibility within its traditional labor market area and business hinterland of Essex and Morris Counties. Downtown Newark's ability to compete as a good location for office and service business would be enhanced.

In suburban areas, marketability of residential property near the corridor would be improved by the availability of express bus service to the Newark employment center. Therefore, non-users of the bus service would benefit from it as well as users.

Bus operators would be able to realize higher driver productivity on express runs and increase total revenues.

Promotion and Advertising - To develop revenue as rapidly as possible, the new express services should receive appropriate promotion and advertisement. Timing is important. It may be desirable to operate the new routes for a few weeks without publicity other than news items and printed schedules so that any operating or origin-and-destination problems can emerge and be remedied before wide passenger exposure is promoted. However, an intensive promotional campaign with professional guidance should be launched as soon as the services are operating and schedules fixed. Promotion should include:

- . A printed brochure with colored route maps, timetables, and photographs printed on coated paper. Copies could be distributed through real estate agents and mailed to electric utility customers in the areas served. Business groups in Newark and the Oranges could also aid in distributing the brochures.
- . Press releases and demonstration rides for reporters, including photographs of the bus priority treatments on the I-280 ramps and the interchange with the City Subway.
- . Radio spots on programs with traffic reports from helicopters, highlighting the park-and-ride service.
- . Television news coverage using films on opening runs and rerun from time to time in the first few weeks of the service.

Proposed Operating Budget- All of the possible I-280 express bus operations should attract enough auto users to be fully self-supporting and not detract from the viability of existing routes, however, further investigations are needed to verify this. Operators may have to be compensated if losses occur in excess of present deficits. The impact of such losses, if any, will be considered in the next year's budget preparation.

The principal additional costs for New Jersey DOT will be for promotion and advertising, monitoring, and traffic operations at the temporary ramp exits from I-280 in Newark (Table 25). No funds have been specifically identified for this project in the DOT budget.

Sources of Financing - Principal expenses to be financed will be promotion and monitoring of the service, installation and maintenance of I-280 traffic controls, and, possibly the cost of underwriting deficits. All of these should be state responsibilities. In view of the time needed for processing federal grants, it may be advisable to initiate this project entirely with New Jersey DOT funds.

Federal matching grants would be available and should be utilized for the following improvements to be implemented after the I-280 bus operations have proven to be feasible:

- Park-and-ride facilities near the Prospect Avenue, Pleasant Valley, and I-280/I-80 interchanges.
- Additional high-speed air-conditioned buses to replace spare equipment used in starting up the services.
- Semi-permanent bus priority traffic controls at the eastbound temporary exit of I-280 in Newark (traffic signals, etc. pending construction of the Raymond Boulevard Connector).
- Additional equipment for the City Subway in Newark.
- Improvements to the Orange Street Subway Station.

Implementation Responsibility - The three affected bus operations, TNJ, DeCamp and Mountain Coach will be responsible.

for operating and managing the I-280 express bus services. The initiative for sponsoring the services, providing necessary bus priority treatments, and securing (leasing if necessary) sufficient buses to operate the service, however, will be a State responsibility.

Park-and-Ride Facilities

The park-and-ride concept of transportation, utilizing private automobiles for the trip from home to convenient transfer points for continuation via public transportation, is not new to New Jersey. Limited park-and-ride facilities are available at many of the commuter rail stations serving North Jersey and also along the PATCO rail line in Camden County. The park-and-ride concept has been explored in detail in several recent studies.⁽¹⁾

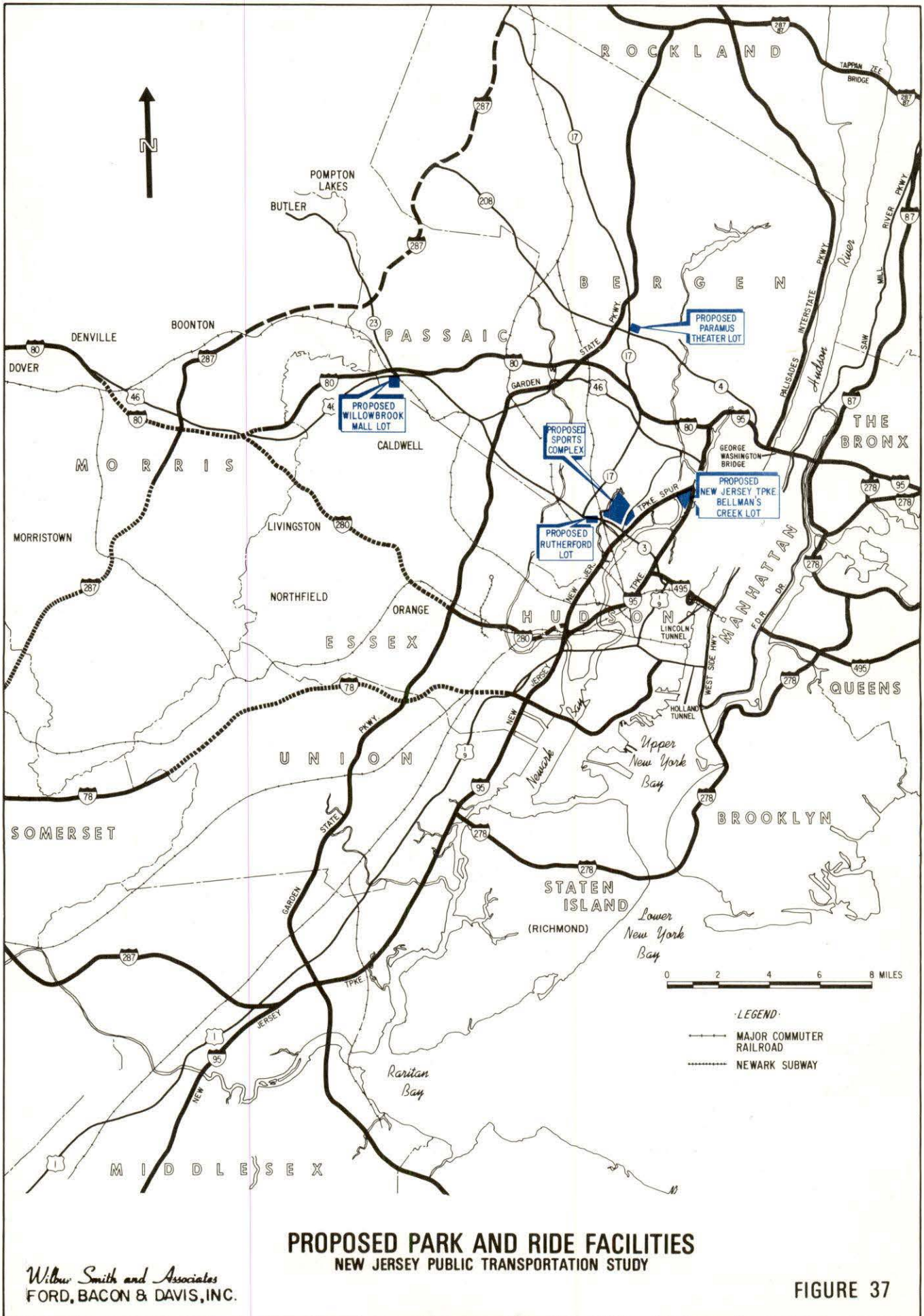
Figures 36 and 37 show the more important existing and proposed park-and-ride lots in New Jersey. Tables 26 and 27 provide supporting details.

Although details on all of the proposed facilities in Table 27 are not yet available, their total planned capacity is less than 10,000 vehicles.

Proposed Park-and-Ride Facilities - The only new park-and-ride facility currently being built (to open in 1973) is the New Jersey Turnpike's Ridgefield Park Lot. Work on the New Jersey Turnpike Woodbridge Lot may be done jointly with the Garden

(1) Tri-State Regional Planning Commission, "Urban Corridor Demonstration Program, Manhattan CBD - North Jersey Corridor," November, 1971.

Wilbur Smith and Associates, "Feasibility Report, Proposed Park-and-Ride Facility, New Jersey Sports Exposition," November, 1972.



LEGEND

- MAJOR COMMUTER RAILROAD
- NEWARK SUBWAY

PROPOSED PARK AND RIDE FACILITIES
 NEW JERSEY PUBLIC TRANSPORTATION STUDY

Wilbur Smith and Associates
 FORD, BACON & DAVIS, INC.

FIGURE 37

Table 26

EXISTING PARK AND RIDE STATIONS IN NEW JERSEY

<u>NAME</u>	<u>LOCATION</u>	<u>OPERATOR</u>	<u>CAR CAPACITY</u>	<u>AVERAGE WEEKDAY USE</u>	<u>HOURS OPEN</u>	<u>PUBLIC TRANSPORT AVAILABLE</u>	<u>PARKING COST</u>	<u>R - T COST TO CBD</u>	<u>TOTAL COST PER DAY</u>	<u>REMARKS</u>
1. Lincoln Tunnel	N. Bergen	TNJ for PA	1450	1840 ⁽¹⁾	6 AM to 1 AM	Bus	\$0.80	\$1.20	\$2.00	Opened 1955, expanded twice since.
2. Weehawken	Lincoln Tunnel Adm. Bldg.	Commuter's Parking	450	190	24	"	1.25	1.00	2.25	Monthly parking \$22
3. East Brunswick	NJ Tpke Exit 9	Suburban Bus	400	420 ⁽²⁾	24	"	0.50	2.70	3.20	Opened Feb. 22. To be expanded to 700 spaces in 1973, weekly ticket \$11.60 Weekly \$13.95 Monthly \$50.50
4. Metro Park	Iselin	P-C Ry	820	600	6 AM-10:30 PM	Rail	Free	3.30	3.30	Weekly \$15.15 Monthly \$54.25
5. Jersey Avenue	New Brunswick	P-C Ry	433	367	24	"	"	4.50	4.50	Weekly \$15.15 Monthly \$54.25
6. Dover	E. Blackwell St.	Lakeland Bus	75	125 ⁽³⁾	24	Bus	"	4.20	4.20	Ten trips \$17.00
7. Mahwah	Bus Garage	Hudson Transit	30	30 ⁽⁴⁾	24	"	"	4.50	4.50	10 trips-\$15.35, 40 trips-45.30 50 trips-62.65
8. New Brunswick	Somerset & Van Dyke	Suburban Bus	250	250	24	"	"	2.80	2.80	10 trips \$11.60
9. Kendall Park	Roller Rink	"	150	150	24	"	"	3.30	3.30	10 trips \$14.25
10. Princeton	Shopping Center	"	50	50	24	"	"	3.90	3.90	10 trips \$16.95
11. Hightstown	Rte 33 & Exit 8	"	275	275 ⁽⁵⁾	24	"	"	3.60	3.60	10 trips \$27.90
12. Lindenwold	PATCO Rail Station	DRPA	2197	2059 ⁽⁶⁾	24	Rail	0.25	1.50	1.75	2/3 of spaces free, 1/2 \$0.25
13. Ashland	"	"	1303	1216 ⁽⁶⁾	24	"	"	1.50	1.75	"
14. Haddenfield	"	"	1185	1174 ⁽⁶⁾	24	"	"	1.20	1.45	"
15. Westmont	"	"	1219	1097 ⁽⁶⁾	24	"	"	1.20	1.45	"
16. Collingswood	"	"	775	698 ⁽⁶⁾	24	"	"	1.20	1.45	"
17. Perry Avenue	"	"	1912	1653 ⁽⁶⁾	24	"	"	1.00	1.25	"
18. Cherry Hill Mall	Rte 38, Exit 4	Cherry Hill Transit	5945 ⁽⁸⁾	2400 ⁽⁸⁾	24	Bus	Free	9.15 NYC 1.00 Phila.	9.15 NYC 1.00 Phila.	Shopping Center
19. Cherry Hill Inn	Rte 38 Hatfield	"	1000	500	24	"	"	9.15 NYC	9.15 NYC	Inn Operated
20. Mt. Laurel	Rte 73, Exit 4	Trailways	818	400 ⁽⁷⁾	24	"	"	9.15 NYC 1.65 Phila	9.15 NYC 1.65 Phila.	10 trip Phila. \$6.40 10 trip NYC \$31.00
21. Westampton	Exit 5	Garden State Coachways	400	250	6 AM-9:15 PM	"	"	6.55 NYC	6.55 NYC	

NOTES:

- (1) Spillover parked outside lot, Fare raised 5/1/73
- (2) Additional spillover uses nearby Motel lot
- (3) Spillover parks in streets
- (4) Additional space badly needed in area
- (5) Additional 38-acre site available nearby
- (6) Occupancy figures for week ending June 1, 1973
- (7) Occupancy figure low due to Trailways strike
- (8) Shopping Center operated. Most spaces occupied by shoppers.

SOURCE: New Jersey DOT and Wilbur Smith and Associates.

Table 27
PROPOSED PARK AND RIDE STATIONS IN NEW JERSEY

<u>NAME</u>	<u>LOCATION</u>	<u>PLANNED BY</u>	<u>PLANNED SPACES</u>	<u>HOURS OPENED</u>	<u>PUBLIC TRANSPORT AVAILABLE</u>	<u>ESTIMATED BUILDING COST</u>	<u>REMARKS</u>
1. Ridgefield Park	NJ Tpke, I-95	Turnpike	1025	24	Bus	\$2-million	Scheduled to open in October, 1973.
2. Woodbridge	Tpke and Garden State Parkway	Tpke and G S Parkway			Bus		Possible in 1974,75
3. Hightstown	NJ Tpke	Tpke and Suburban Bus	1000		Bus		Possible in 1975-76, both the turnpike and suburban have plans for Hightstown, and plans are not joint
4. Jamesburg	Driscoll Expressway	Tpke			Bus		Not likely before 1975
5. Lakewood	Driscoll Expressway	Tpke			Bus		Not likely before 1975
6. Freehold	Routes 9 and 23	DOT			Bus		
7. Hackensack	Routes 3, 17	NJ Sports Auth	2000		Bus		Proposed Sports Complex
8. North Hackensack	Route 4	Tri-State	660		Bus		
9. Willowbrook Shopping Center	I-80, US 46, NJ 23	DOT	500	6 AM to 9 PM	Bus		Expected r-t fare to CBD \$1.40 to \$1.60
10. Paramus Theater	NJ 4- 1 mile E of NJ 17	DOT	300	6 AM to 9 PM	Bus		" " " " " "
11. Wayne	NJ 23, I-80, US 46	Tri-State			Bus		

SOURCE: New Jersey DOT and Wilbur Smith and Associates.

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State Parkway next year, while the proposed Hightstown lot is at least two years in the future. The Turnpike Authority may drop its plans for the Hightstown park-and-ride station if Suburban Transit (with DOT assistance) develops a 38-acre lot nearby.

In December, 1973, Transport of New Jersey in cooperation with shopping center officials initiated a park-and-ride service from Willow Brook Mall in Wayne Township to New York's Port Authority Bus Terminal.

New park-and-ride facilities are recommended for New Jersey's immediate action program to improve bus transportation in the state. A plan to build additional new facilities over a five-year period is also recommended. Because of environmental factors and the fuel shortage, the need for these stations is critical.

The new park-and-ride facilities should vary in capacity from 500 to 1,500 spaces. Wherever possible, the lot should be capable of expansion to hold as many as 2,000 cars within the next decade.

Since the need is greatest along the corridors leading to New York City, the northern counties of the state should be given priority in the construction of new facilities.

The 10 recommended facilities will keep 10,000 automobiles off the congested access roads to, and the city streets of New York City, Philadelphia, and local metropolitan areas, free an equal number of parking spaces in their central business districts, save fuel, and greatly encourage the use of buses in the state.

Metro Park Shuttle Bus Service - There is no direct bus service either to this park-and-ride facility or to the

industrial complex adjacent. In addition to the four employers presently located there, the Prudential Insurance Company of America is planning to relocate a major portion of its Newark operation to the site and already has made inquiries about establishing bus service.

A modification of TNJ Route 134 would provide some bus service. This line operates on N.J. 27 but there is no convenient location for alighting from buses nor a safe walkway for pedestrians. If the route were changed to turn right from N.J. 27 on South Wood Avenue to Middlesex-Essex Turnpike, thence left to Oak Road where the present route would be picked up, the bus could serve Metro Park Station.

Examination of other nearby bus routes concluded that none of them could be used as feeders.

A survey at the Metro Park Station by the New Jersey DOT on September 11, 1972, of origins of travelers arriving in 561 automobiles revealed that 75.9 per cent were from within a three-mile radius; 66 per cent within a two-mile radius; and 27 per cent within a one-mile radius. The average drive to the station was 1.38 miles.

It is recommended that a shuttle bus operation be developed within the two-mile area, with headways related to commuter train schedules during commuter periods. A 30-minute headway in the morning peak and approximately 20 minutes in the evening peak would be required. Further study will be needed to ascertain the most productive route. Potential advantages would be:

- a. Reduction in number of cars of present users, thereby increasing capacity for new users.
- b. Development of new users by virtue of bus service.

- c. Ability to serve those persons not having access to automobile usage, especially the young, the old and the handicapped.

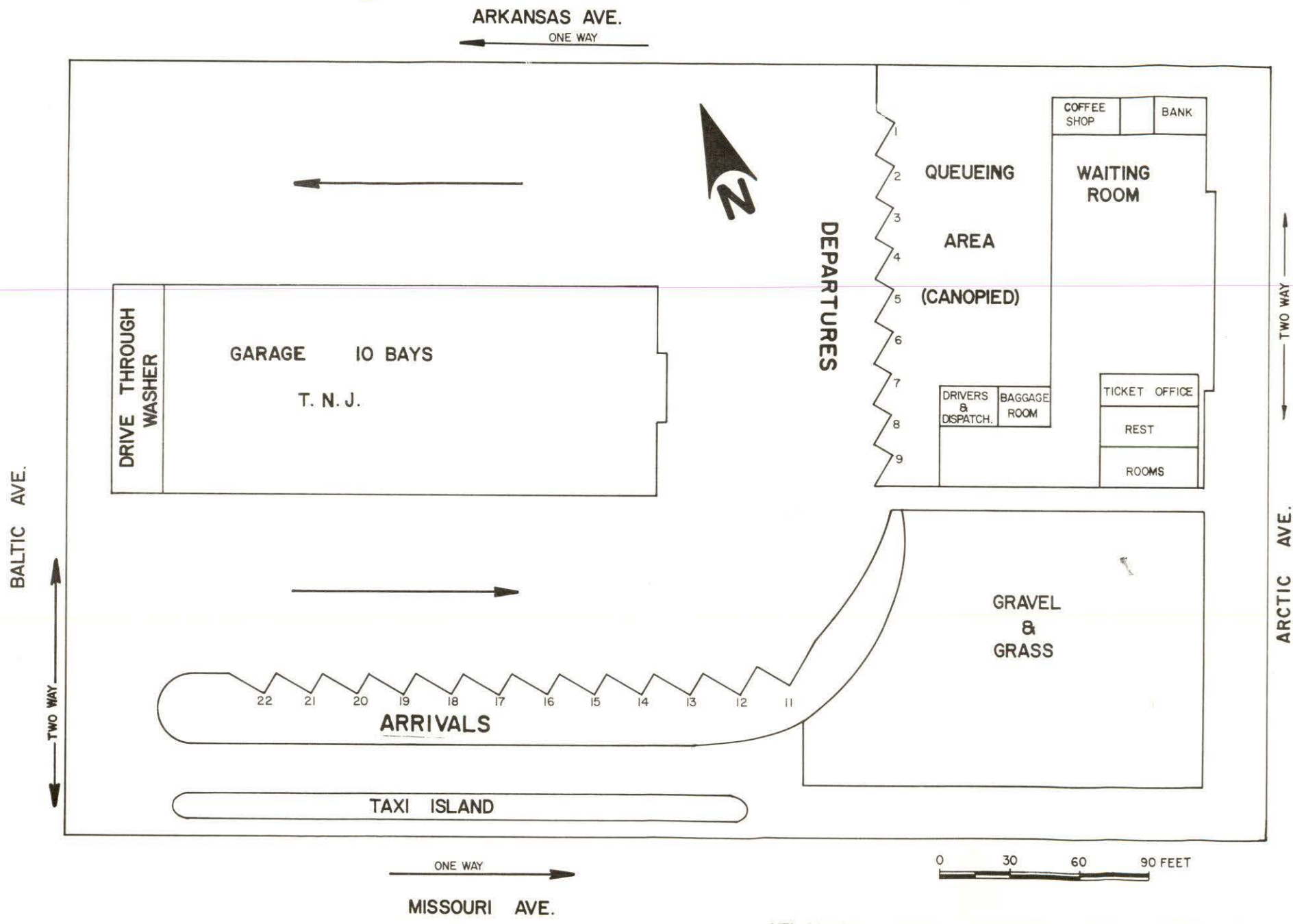
Consolidation of Atlantic City Bus Terminals

The Atlantic County Improvement Authority operates the Atlantic City Municipal Bus Terminal at Arctic and Arkansas Avenues. It is located almost at the entrance to the Atlantic City Expressway. This terminal was the former station of the Pennsylvania-Reading Seashore Lines which has been attractively converted. It has 22 berths plus adequate waiting room and toilet facilities and a 10-bay garage capable of storing approximately 40 buses. Opposite the terminal on Baltic Avenue is a large parking area capable of storing up to 100 buses. It is also used as an automobile parking lot. The plan for this facility is shown in Figure 38.

Diagonally across the street from the Municipal Bus Terminal at 49 N. Arkansas Avenue is the depot of Lincoln Transit Company. The building, formerly a bank, has four ticket windows, adequate waiting room, but inadequate off-street space for buses.

It is recommended that the Atlantic City Municipal Bus Terminal be utilized by Lincoln Transit as well as by TNJ and other intercity bus carriers. A similar merger of facilities at Lakewood could be made with TNJ moving into Lincoln facilities to aid in achieving a cooperative coordinated operation of these two carriers in serving south and central Jersey shore areas.

Consolidation benefits are summarized in Table 28. Patrons, the City and the bus companies would all be favorably affected.



ATLANTIC CITY MUNICIPAL BUS TERMINAL

ATLANTIC CITY MUNICIPAL BUS TERMINAL
 NEW JERSEY PUBLIC TRANSPORTATION STUDY

Wilbur Smith and Associates
 FORD, BACON & DAVIS, INC.

Table 28

BENEFITS OF CONSOLIDATION

Lincoln Transit Terminal and Atlantic City Municipal Bus Terminal
New Jersey

<u>TO PATRONS</u>	<u>TO CITY</u>	<u>TO BUS COMPANIES</u>
1. One convenient location for all services	1. Provides tourist travel center	1. Economy inherent in joint facility usage
2. Larger more comfortable for Lincoln patrons	2. Concentrates policing	2. Adequate docking space for peaks
3. Cleaner rest rooms for present Lincoln patrons	3. Aids traffic conditions	3. Servicing available within terminal
4. Coffee shop	4. Provides single cab stand for bus patrons	4. During off season-possible reduction of station fares by use of joint employees
5. Easier transfer to cabs and buses	5. More attractive building	5. Frees Lincoln property for sale or other use
6. Better baggage facility for present Lincoln patrons	6. Can oversee use of facility	6. Provide better scheduling and coordination
7. Eliminates confusion when being met	7. Concentrates fueling and fuel storage	
8. Air conditioned	8. Makes property available for renewal and eliminates unattractive depot	
9. Centralized, information potential		

Disadvantages of the consolidation, primarily to Lincoln Transit would be:

1. Rental costs versus cost of own terminal;
2. Loss of independent identification;
3. Possibility of traffic diversion; and,
4. Need for equity with TNJ in operating procedures at the terminal.

In summary, the benefits of consolidated operations of the Atlantic City Terminal appear to clearly outweigh the disadvantages of the proposals.

Improvement of Bus Flow - Ben Franklin Bridge Corridor

Interviews in the Task 2 (Inventory) segment of this study developed a complaint by several bus operators that buses were being delayed on the Benjamin Franklin Bridge behind slow-moving trucks on the uphill grade of the bridge. Since buses and trucks are restricted to the right-hand lane in each direction on the bridge, the buses cannot pass the slow trucks. Passenger complaints have led to the operators' concern for this problem.

Preliminary investigation of this situation brought out that, in addition to being required to stay in line across the bridge, most buses turn left, or south on 6th Street at the west end of the bridge requiring them to cross three lanes of traffic to make the turn.

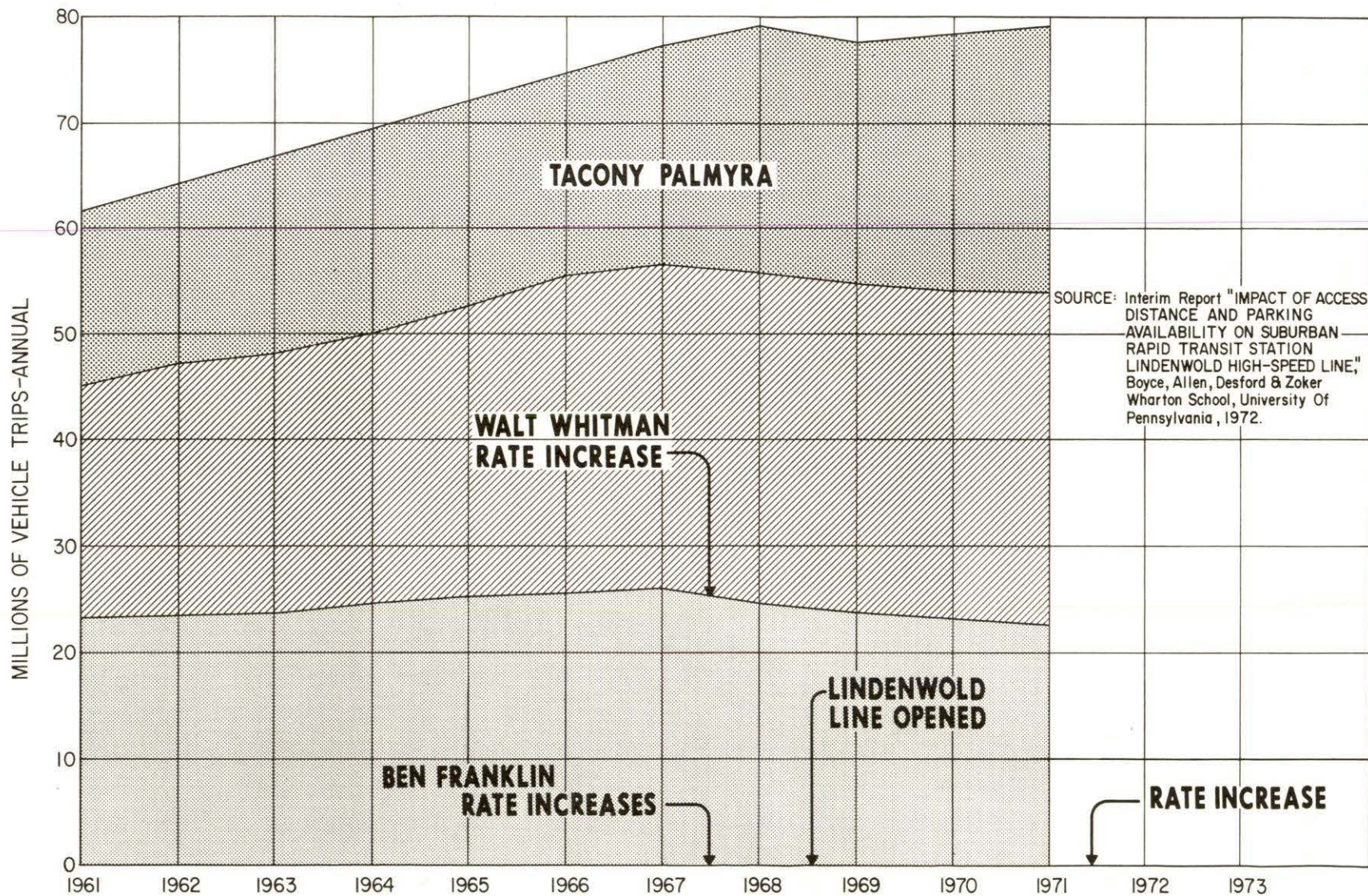
Background - Discussion with the Delaware River Port Authority planners indicated that they have no plans to change this situation. There has been no indication from accident reports, according to Port Authority officers, that the left turn by the buses at 6th Street is causing a problem. During peak periods, Vine Street traffic backs up to the bridge and traffic is slowed down at the exit from the bridge to some extent which may alleviate any accident potential at this site.

Trend of Vehicle Volumes - The Delaware River Port Authority operates the Walt Whitman and the Ben Franklin Bridge as toll bridges in the Philadelphia area. The Walt Whitman Bridge connects south Philadelphia and the Schuylkill Expressway with four major routes to the south and southeast in New Jersey; the Atlantic City Expressway, Route I-295 south, U.S. 130 south and the New Jersey Turnpike to the south. The Ben Franklin Bridge on the other hand, connects Center City Philadelphia with Camden and the major New Jersey highway routes to the northeast and east.

Two additional bridges which will be operated by DRPA are under construction over the Delaware River within the Port Authority area. They are the Chester-Bridgeport Bridge and the Philadelphia-Pennsauken Bridge. These bridges will be ready for service in 1974, but the Pennsylvania approaches for the latter bridge, including the Route I-95 connection are not approved for construction so the bridge opening will likely be delayed.

The Tacony-Palmyra Bridge is located within the DRPA district, but the toll of five cents is not collected by the DRPA but by Burlington County which operates the bridge. This bridge crosses the Delaware River some five or six miles north of the Ben Franklin Bridge and can easily be used as an alternative route to Philadelphia from points to the northeast.

Trends in vehicle use of the three present bridges are shown in Figure 39. The total number of annual vehicles rose from 62 million in 1961 to some 78 million in 1968 and remained level from that time to the end of 1971. During the last three-year period (1969-1971) patronage on the Lindenwold commuter rail line has risen from approximately 5 million to 12 million annual passengers.



The tolls during this period on the DRPA bridges have risen from a cash fare of 25 cents to 60 cents and the commuter fare from 8.7 cents to 35 cents. During the same period the fare on the Tacony-Palmyra Bridge remained at 5 cents. From 1968, the first full year before the toll increase, until 1971, the patronage on the Tacony-Palmyra Bridge increased by 5 million vehicles annually while the total of the DRPA bridges has fallen off by 5 million, nearly all of which was on the Ben Franklin Bridge. Some of this represents a shift from auto to the Lindenwold Line, some a shift from the Ben Franklin Bridge to the Tacony-Palmyra Bridge, and some a balancing of increased car-pool riding and increased auto registration. At any rate, it appears that traffic pressure on the Ben Franklin Bridge is slightly reduced and as future improvements on the Lindenwold Line are implemented, this reduction should become more pronounced. Much of the change in vehicular traffic over the bridges has been related to the restructuring of South Jersey bus operations to feed the PATCO system with the resultant elimination of many direct bus trips to Philadelphia.

Table 29 identifies buses crossing the Ben Franklin Bridge by hour during morning and afternoon hours spanning peak periods in the peak direction for a weekday in June, 1970, and for a weekday under present schedules in April-May, 1973. Summer schedules were not in effect when the analysis was made, but very few of the total buses are shore trips and most are commuter type services. Assuming that there was no reduction in shore buses the overall reduction in the last three years would be 31 per cent instead of 34 per cent. The reduction in buses during the morning peak hour (7:00 A.M. to 8:00 A.M.) is 41 per cent and in the afternoon peak (5:00 P.M. to 6:00 P.M.) the reduction is only 34 per cent. There is a much more pronounced and shorter peak in bus crossings in the evening as compared to the morning peak on an hourly basis. The 70 crossings

Table 29

SCHEDULED BRIDGE CROSSINGS - TNJ 1970-1973
AND TRENTON-PHILADELPHIA AND PHILBORO COACH - 1973
BENJAMIN FRANKLIN BRIDGE (A)

Orig. Route Number in 1970 (B)	Present Route Designation and Reference Number	A.M. Trips Westbound												P.M. Trips Eastbound								Total		
		6:00	6:59	7:00	7:59	8:00	8:59	9:00	9:59	10:00	10:59	11:00	11:59	3:00	3:59	4:00	4:59	5:00	5:59	6:00	6:59			
		70	73	70	73	70	73	70	73	70	73	70	73	70	73	70	73	70	73	70	73			
3	(2-3)	A-AA	2	1	4	3	4	3	3	-	1	-	1	-	3	1	2	2	5	3	1	-	-	
5-55	(4-5)	BB	1	-	3	-	3	-	2	-	2	-	2	-	2	-	3	-	3	-	3	-	-	
7		7-71	3	3	8	8	6	9	5	6	5	4	4	5	6	7	5	6	9	11	5	4	-	
9-9A		9-9A	4	4	16	8	16	8	7	5	3	4	5	4	5	4	8	7	21	14	7	5	-	
12-18	(12-18)	CC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
15-25	(14-15)	D-DD	2	1	6	1	6	-	3	-	2	-	2	-	3	1	3	2	8	1	3	-	-	
16-34-32	(16-34-32)	EE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
107	(27-107)	G-GG	1	-	4	-	3	-	0	-	1	-	1	-	2	-	1	-	2	-	2	-	-	
41	(41-42)	H-HH	2	1	1	-	2	1	2	-	-	-	1	-	2	-	2	1	-	1	1	-	-	
47	(47)	J-JJ	3	2	4	2	1	2	1	1	1	1	1	2	2	4	3	4	2	3	3	-	-	
65-67-69		N-O-RR	2	2	10	7	12	5	5	3	3	2	2	2	4	3	4	4	14	8	5	3	-	
21-31	(21-31)	F-FF	4	4	13	10	12	10	3	5	6	4	4	4	6	5	9	10	14	13	7	5	-	
53	(50-53)	KK	-	-	-	-	2	-	1	-	-	-	1	-	-	-	-	1	-	2	-	-	-	
51-61		LL-MM	4	1	2	3	4	3	1	2	2	2	2	2	2	3	3	4	3	3	3	3	-	
103	(103)	S-SS	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	1	3	1	1	1	-	
105	(105)	T-TT	2	1	2	3	1	3	2	2	2	1	1	1	1	1	2	3	4	2	1	1	-	
-	-	UU	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
71		6-7A	1	-	3	1	2	1	1	2	2	2	2	2	3	2	2	7	3	2	1	1	-	
101		101	1	1	4	1	0	-	3	2	2	1	2	2	2	2	3	3	4	2	2	1	-	
109		OFF	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
111		111	-	-	-	-	-	1	-	-	-	1	1	-	-	-	-	1	1	-	-	-	-	
113-115	113-115		1	-	-	-	1	-	2	1	1	1	1	-	-	1	2	-	1	1	2	-	-	
117	117		-	-	1	-	-	-	-	-	-	1	1	-	1	1	-	-	1	1	-	-	-	
125			-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	1	1	-	-	-	-	
Total TNJ 1970			34		83		77		42		36		35		44		54		106		51		562	
Total TNJ 1973				22		49		47		30		27		24		34		46		70		24		373
Percent Decrease				(35)		(41)		(39)		(29)		(25)		(31)		(23)		(15)		(34)		(53)		(34)
Trenton-Phila. Coach, No. 54				1		3		5		2		2		2		3		3		3		3		3
Philboro Coach				2		2		1		5		1		1		1		2		5		2		2
Total All Regular Scheduled				25		54		53		37		30		27		38		51		78		29		

Note: (A) Charters and special shore service not included.
(B) 1972 inventory.

in the evening peak hour would barely justify special treatment or an exclusive lane if the resulting time savings were significant. Based on limited observation, however, there is insufficient delay under present traffic volumes to require an exclusive lane for buses on the Ben Franklin Bridge. In the event of a serious delay to buses in the mixed bus-truck lane, police are authorized to divert buses into the other lanes to eliminate delays.

Several other improvements are also planned that suggest traffic delay will be further reduced on this bridge. New automatic toll gates are to be constructed which are anticipated to reduce delay. The construction of the Vine Street Expressway will ultimately eliminate any left turn off of the bridge approach at the west end.

As a result of these improvements and the present down trend in vehicle volumes, immediate action proposals to provide special treatment for buses at this location do not appear justified.

Supervision of Bus Routes

As provision of bus service over an established route is the primary function of a transit company, proper and adequate route supervision is one of the most important aspects of the company operation.

The supervision may take one of several forms. A route supervisor may at one time be a dispatcher of buses from a terminal or heavy loading point, and at another time he may observe the operation at various locations along the route or drive an auto to observe driver behavior and operating conditions. At other times he may ride the bus as a driving instructor, or

to observe passenger loading, fare collection, and riding conditions. In the case of a small company, route supervision may be one of many duties of the manager or his garage supervisor.

Industry Standards - There are no specific standards governing the number of route supervisors a company should have. The size and type of company, length of routes, population densities, traffic concentration at terminals, and other such factors, all have a bearing on this function of the operation. In general, however, a ratio of about 25 to 30 buses per route supervisor may be assumed as reasonable.

Supervision and Control - In recent years, mobile supervision of routes has replaced much of the point location supervision which was an outgrowth of streetcar operations. It is not only more economical but more effective. Using an automobile equipped with a two-way radio, the supervisor is able to observe the operation on routes over a wide sector of the system, and when necessary, he may be dispatched to a specific location where temporary assistance is needed. Transit systems with good mobile supervision usually reflect better earnings reports, more satisfied riders and more efficient operations.

There are some locations, however, where routine supervision is not only needed but advantageous. The Port Authority Bus Terminal in New York, the George Washington Bridge Bus Station and Journal Square, are examples. These are locations of high passenger concentration, where buses must be dispatched promptly to avoid costly delays. However, in locations where such concentrated activity is confined to only parts of the day, such as during one or both rush periods, terminal supervision may be combined with duties of a mobile supervisor.

The following cases are illustrative of the type and extent of route supervision.

Port Authority Terminal, New York City - The Port Authority Terminal with a passenger flow of about 260,000 persons is the heaviest passenger loading point for buses to and from New Jersey. As a high percentage of the commuter population enter and leave the terminal during the 6:30-9:30 A.M. and 3:30-6:30 P.M. rush periods, the degree of route supervision is greatest during those times.

The terminal has eight levels, with the basement and two above the ground levels for bus operation, and the upper levels for automobile parking. Both buses and cars use the direct ramps to the upper levels.

Greyhound Lines and Continental Trailways, loading on the lower level along with a few smaller operations such as Garden State Transit Lines, Inc. and Colonial Coach Lines, have several supervisors assigned for the proper dispatching of their buses.

Short-haul commuter buses ramp to the second level, and the longer-run buses unload and load from platforms at the third level.

Except for Garden State Transit Line, Inc. (16-20 bus departures per day), Colonial Coach (1), Real Transit Corp. (8), West Hunterdon Transit (7) and White Bus Company (a summer operation), each carrier using the terminal has at least one full-time supervisor at their assigned loading platforms. Several companies have from three to five such supervisors and Transport of New Jersey has eight men assigned for this work.

A staff of 12 men in the operations section of the Port Authority Terminal management staff supervise various sectors of the platform areas during the rush periods and render assistance in the queuing of passenger loading and bus flow where necessary to avoid undue congestion.

Transport of New Jersey - Transport of New Jersey with about 1,700 buses in daily operation has approximately 62 men assigned to route supervision which is in the range of one route supervisor for every 25 to 30 buses operated. In addition, there are 17 men whose duties include route supervision part of the time. In emergencies there may be more. These men may be grouped as follows:

1. Approximately eight men are assigned to platforms at the Port Authority Terminal in New York City.
2. Approximately 34 men, two from each garage, are assigned to specific locations in their area, such as Journal Square, to supervise route operation passing that point.
3. A staff of about 20 regional supervisors travel from garage to garage, or region to region, and are flexible in their supervision activity. Some of these men ride the buses while others are more mobile in that they use autos from a car pool to cover a wider range of route supervision.
4. In addition, 17 assistant garage supervisors usually spend all or part of the rush periods at some point on their lines.

Hudson Transit Company (The Short Line) - This company has four men stationed at the Port Authority Terminal of which three are at the platforms used by their buses and one man is at the nearby lot where buses are stored between the morning and afternoon rush periods.

During the peak periods, an additional four men in cars usually observe the routes. Two of these men are from the operations department, one from the personnel department and one is a dispatcher.

A dispatcher is also located in the terminal at Mahwah. During the mid-day, there is usually only one man in a car assigned to route observation. The company has 85 buses at the Mahwah, New Jersey Terminal.

Manhattan Transit Company - This company stations four of five men at their platforms in the Port Authority Terminal. One man spends about 80 per cent of his time at the Terminal while the others spend at least part of the day on the road, observing route operations. When not on the road these men work at the terminal in East Paterson. The company has a total of 124 buses operating out of the Paterson and Little Ferry Terminals.

Somerset Bus Company, Inc. - This company assigns five men to their platforms in the Port Authority Terminal. It also has five road supervisors who generally ride the buses, observing fare collection and other phases of bus operation from inside the bus. These men also relieve the night supervisor at the garage, or other supervisors who may be absent due to illness or for any other reason. There are also three radio dispatchers stationed at the Mountainside Garage Terminal. The company owns

78 buses which are operated in charter as well as in line service.

DeCamp Bus Lines - This company has six men assigned to platforms at the Port Authority Terminal, three of whom man shifts during the period from 6:00 A.M. to midnight. Three other men are assigned to the evening rush period on a part-time basis.

There are also four men on the road as route supervisors. They are flexible in that they may ride the buses, observe operations at specific locations or follow buses in their autos. These men use their personal car for this work and are paid a mileage and a maintenance fee. The company has a total of 130 buses used in both charter and line service.

Associated Bus Company - This is a comparatively small company with limited personnel in a supervisory capacity. They have no route supervisors, as such, and rely on the drivers of Real Transit Corporation, a subsidiary, to dispatch themselves at the Port Authority Terminal.

The company has one man who supervises the dispatching of the buses, and he, along with the General Manager, may observe route performance at times or in special cases. This procedure appears normal for the smaller type company.

This company has 17 transit type buses used on Associated Bus Company routes and nine over-the-road buses used primarily on the Real Transit route between Blairstown and the New York Port Authority Terminal, and on charter services.

Summary - As noted from the above cases, the extent and type of route supervision varies among companies even though,

except for the small systems, the overall ratio of supervisors to buses owned is within, or near, the suggested range. As route supervision is such an important part of the overall operation, it is incumbent on the company to periodically review the results obtained from the methods used. Except for stations like the Port Authority Terminal where supervision is extremely important, it appears that mobile supervision offers the best economic utilization of manpower.

Service Inspection - The New Jersey Department of Transportation should establish an additional corps of inspectors to monitor the performance standard of bus operation throughout the state as a public service and to provide itself feedback on bus services.

The inspection staff in monitoring the bus service, would not relieve the company of responsibility for its own supervision, but rather would act as a protector of the travelling public entitled to the best possible bus service. The monitoring of bus headways from terminals or along routes where there is a duplication of service by competing companies, or on routes of independent bus associations, would be especially helpful. Many of the smaller bus companies cannot afford a staff of route supervisors even though they recognize the importance of this function to their business. The establishment of a monitoring staff by New Jersey DOT would be a service to the small operators as well as to the public.

Chapter 6

REVIEW OF BUS PURCHASE PROGRAM

The Department of Transportation has recently purchased 29 new buses which are leased to at least 19 operating companies at a nominal fee. DOT instituted this method of subsidy in connection with its acquisition of all buses formerly operated by the Inter-City group. It is the basis of its present proposal to acquire 515 of TNJ's present transit-type buses built in 1965 or later, plus a possible 50 from other carriers, all 565 of which will be air conditioned, fitted with low pollution injectors and resold to their present owners. In conjunction with anticipated 80 per cent funding from UMTA, DOT then plans to purchase an additional 670 new buses to be leased to New Jersey carriers. The financial benefit to the carriers appears to be in the order of magnitude of their present depreciation charges since preliminary summary of all bus companies in the state indicates that their cumulative depreciation charges for 1971 approximated their reported annual deficit.

The concept of state ownership of buses in general and the implications of Parts I and II of the proposed program present the need for criteria in the allocation of this equipment.

Criteria for Allocation of State Owned Buses

It is assumed that the purpose of the program is to progressively replace the oldest vehicles in the statewide fleet. The March 31, 1973 inventory of buses is shown in Table 30 which classifies the buses by basic service type, transit, suburban, or parlor-cruiser. The number of buses of each type

Table 30

BUSES BY YEAR OF MANUFACTURE
NEW JERSEY

YEAR OF MANUFACTURE	TYPE OF BUS				Total	Per Cent Total
	Transit	Suburban	Parlor	Other		
Before 1950	47	1	7	0	55	1.6
50 - 54	261	11	21	0	293	7.1
55 - 59	756	29	33	0	818	20.7
1960	141	230	13	0	384	9.7
1961	93	155	2	0	250	6.3
1962	95	96	0	0	191	4.5
1963	118	136	0	0	254	6.5
1964	<u>17</u>	<u>174</u>	<u>40</u>	0	<u>231</u>	<u>5.9</u>
Buses Overage - Subtotal	1,528	832	116		2,476	62.5
1965	92	138	35	0	265	6.6
1966	113	157	16	0	286	7.2
1967	63	92	23	0	178	4.5
1968	176	24	50	0	250	6.2
1969	156	34	37	0	227	5.7
1970	106	45	22	0	173	4.4
1971	15	11	22	0	48	1.2
1972	13	25	26	0	64	1.6
1973	<u>1</u>	<u>0</u>	<u>2</u>	<u>0</u>	<u>3</u>	<u>0</u>
TOTAL	2,263	1,358	349	0	3,970	100.0

over 8 years old is indicated as a subtotal, with the percentage of each age category to the fleet total.

Included in this tabulation are 397 TNJ buses stored at various locations throughout the state, of which 394 are overage.

Overage Buses

Bus styles changed substantially in 1959-60. Accordingly, it is assumed that priority would be given to phasing out buses manufactured prior to 1960. Although the above table indicates nearly one third (31.2 per cent) of the statewide fleet falls within this age group, it is pertinent to note that 396 (36.1 per cent) of buses manufactured prior to 1960 belong to TNJ and are stored. Not all of the remaining 650 buses are in daily service.

Ownership of Buses Over Eight Years Old

With respect to the older buses, a further criterion for replacement is that the bus is in daily scheduled service. Analysis of company interview data indicates that many of these older buses are being retained as spares, or, in some instances, solely as sources of repair parts.

Retirement of older buses seems particularly apt in relation to companies now being subsidized by the Department of Transportation. Table 31 has been prepared to show the distribution of buses by total and peak requirement across the state.

Even though older buses may be in daily service, a direct replacement with a new state-owned bus may not affect maximum public benefit. In some cases it will be found that these older vehicles are operated by one-bus owners, who are incapable of adequately maintaining an air-conditioned bus. The interests of both the operator and the public would be better

served by a 10-year old bus in good condition. Thus a further criterion is the use to which the new state owned buses will be placed and the ability of the assignee to properly maintain them.

Table 31

BUSES IN FLEET AND REQUIRED PEAK PERIOD SERVICE BY SURVEY SECTORS
NEW JERSEY

SECTOR DESIGNATION	NUMBER OF BUSES					
	Total	Transit Buses		Suburban/Parlor-Cruiser Buses		
		Required in Peak Period	Per Cent Total	Total	Required in Peak Period	Per Cent Total
Hudson County	408	286	70	172	133	77
Bergen-Passaic	258	171	66	716	716	100
Morris-Essex	612	506	83	30	25	83
Union-Somerset- Middlesex-Mercer	296	179	60	283	199	70
Sussex-Warren- Hunterdon	--	--	--	2	2	100
Monmouth-Ocean	55	23	42	186	136	73
South Jersey	143	93	65	226	169	75
TOTAL	1,772	1,239	70	1,615	1,380	86

SOURCE: Wilbur Smith and Associates and Ford, Bacon and Davis, Inc.

Under normal economic consideration, a company would undertake replacement of older buses to meet current or immediately anticipated requirements of base scheduled service. Replacement would be premised also on such economic considerations as savings in maintenance costs versus increased finance charges for the new buses. In this evaluation, the company normally would reserve its older, yet serviceable buses for use in peak-hour service. These considerations apply equally in transit, suburban or inter-city service.

The adaptation of this policy to the allocation of state-owned buses is desirable. Programming such a procedure to equably treat affected companies and at the same time assume maximum public benefit is not simple.

A program for replacement of specific buses or a class of buses under a private operating management can be developed based on funds available and other economic factors. Establishment of criteria for a state administered program for replacement involves the competitive and financial concerns of several companies or operators' associations. With respect to companies now being subsidized by the Department of Transportation, it would be reasonable for DOT to initiate a bus replacement program based on data submitted by individual companies in their applications for subsidy. From the same sources DOT has records of patronage, competition and financial status. If bus companies are to benefit from the state's new bus allocation program, it appears that those not receiving state subsidy must file an application for state-owned buses and support it by data necessary for DOT to evaluate the request. To the extent that private companies or IBOA's elect to participate in the state's bus purchase program, the matter of allocation priorities is avoided.

However, this tends to be a doubtful inducement since a solvent operating company must still obtain PUC approval of the purchase and the financial terms. A private leasing company probably could not qualify for this type of purchase agreement.

Furthermore, the bus program, as now written, makes only a limited number of new buses available to bus companies in associations. The prime beneficiary at this time appears to be Transport of New Jersey. In Hudson County, these companies traditionally have operated with vehicles released by larger operating companies in their former bus up-grading programs. Buses older than eight years, but still serviceable, seem to offer a desirable solution to needs of many one-bus operators.

Allocation Criteria

The following criteria are relevant to programming the allocation of state-owned buses, not necessarily in the order of priority. The criteria relate to any company and presumably to transit type vehicles.

A. Character of the fleet

1. Number of buses by year of manufacture.
Suggested classification
 - (a) Before 1950;
 - (b) 1950 - 1954 inclusive and subsequent 5 year periods.
2. Number of buses by seating capacity.
Suggested classification
 - (a) 36 seats or less;
 - (b) 37 to 44 inclusive;
 - (c) 45 to 49 inclusive;
 - (d) 50 or more seats.
3. Number of air conditioned buses.

B. Fleet utilization

1. Number of buses required for
 - (a) Maximum peak period;
 - (b) Base operation
2. Bus miles operated per year in daily scheduled service
3. Bus-miles operated per year in charter and school service
4. Number of revenue passengers carried per bus-mile in scheduled service.

C. Revenue

1. Passenger revenue per bus-mile of scheduled service
2. School and charter revenue per bus-mile
3. Total revenue per bus-mile

D. Maintenance characteristics

1. Bus maintenance expense
 - (a) Per Bus-mile
 - (b) Per bus operated in daily service
2. Quality of maintenance
(Observation and inspectors' reports)
3. Appearance on street

E. Current Costs of Bus Fleet

1. Depreciation;
2. Bus Rental Expense; and
3. Effect on State subsidies

F. Population and Density Aspects of the Service Area by County

For use in establishing priority, age of buses can be assigned a factor recognizing desirability of eliminating older buses, but weighted in respect to the number of transit type buses in the suggested age groups. Bus allocation on this basis would be the ratio of overage buses of each company to overage buses statewide. Overage buses are understood to be those manufactured before 1960.

In developing the actual allocation of a limited number of buses to individual operating groups, a preliminary basis might relate the percentage of overage buses in each fleet to those in the statewide fleet. Modifications of this simple ratio, however, will make the allocation more equitable, such as (a) the ratio of buses used to total operated, and (b) the actual usage of buses, i.e., bus-miles per bus. On this premise, a tentative formula could be expressed as:

$$A = B_n \times \frac{bR \div b}{BR \div B} \times \frac{Mpb}{MpB} \times \frac{b \text{ (overage)}}{B \text{ (overage)}}, \text{ where:}$$

A = Allocation (number of buses to the company)

B = Total transit buses in statewide fleet

B_n = Number of Buses to be allocated

b = Transit buses in company fleet

bR and BR = Buses required (for either base or peak operation)

MpB and Mpb = Average annual miles per bus.

The above formula does not suggest that replacement buses are to satisfy only peak hour requirements. It has been developed to provide an index of the service provided by individual operating groups so that the oldest buses can be replaced on the basis of fleet utilization as well as age. Buses required in either peak or base operation can be utilized in this determination. The end objective of this effort is the upgrading of the total statewide fleet and the distribution of the new vehicles throughout the state. The key element in application of the formula would be inconsistent utilization of data on the various operating groups.

Although one would normally allocate new buses to base service needs, the critical need is to replace seriously overage buses (over 12 years old) in both base and peak services. This formula therefore incorporates peak service needs. After these immediate needs are satisfied, priorities should be directed to equipping all base services with buses eight years old or less.

Application of the proposed formula, requires adjustment of total transit bus fleet statistics to eliminate TNJ buses which are in storage at their various garages.

Table 32 reflects this adjustment indicating the transit-type buses by age group as of March 31, 1973.

Table 32

TRANSIT-TYPE BUSES IN SERVICE AS OF MARCH 31, 1973
NEW JERSEY

YEAR OF MANUFACTURE	NUMBER OF BUSES			
	Total	Stored	In Service	
			Number	Per Cent
Before 1950	47	--	47	3
1950 - 1954	261	57	204	10
1955 - 1959	<u>756</u>	<u>337</u>	<u>419</u>	<u>23</u>
Overage Total	1,064	394	670	36
1960 - 1964	464	3	461	25
1965 - 1969	600	--	600	32
1970 - 1973	<u>135</u>	<u>--</u>	<u>135</u>	<u>7</u>
TOTAL	2,263	397	1,866	100

Table 31 showed 1,239 transit-type buses required in the peak period. Thus, in the formula ratio $\frac{bR \div b}{BR \div B}$, the denominator constant is .698.

Statewide bus-miles in 1972, the last year for which a summary is available, were 104,049,666. This number, divided by 3,573, the total number of buses of all types in service in March, 1973, produces the MpB constant of 29,121.

The preceding equation with constants added becomes:

$$A = B_n \times \frac{bR \div b}{.698} \times \frac{Mpb}{29,121} \times \frac{b \text{ (overage)}}{1,866}$$

As mentioned above, passengers and passenger revenue per bus-mile may be significant factors in equably allocating state-owned buses, but only in respect to transit passengers, revenue and transit passenger-miles. Records are not maintained in this detail for PUC reporting, but separate reports of interstate and intrastate miles, revenue and passengers are made. Intrastate passenger revenue and passengers are reported. Intrastate passenger revenue and bus-miles will reflect primarily transit service. These data have been entered in the data base for the years 1970 and 1971, but no summary tabulation was programmed for this report.

Whereas maintenance cost is a valid economic factor in establishing need for new equipment, the use of reported costs is not recommended. There is insufficient detail in PUC report forms to ascertain reasons for abnormally high or low unit costs and there is no differentiation of costs between transit and suburban service or between intra and interstate operations. Maintenance can better be measured in such absolute terms as good, fair or poor using such guidelines as the number of vehicles out of service or the number of PUC inspection rejects. In effect, maintenance represents a judgement factor.

Financial considerations include charges for depreciation and bus rental payments. These items seem to have no direct bearing on the allocation of new buses, except as the elimination of these expense items may affect the possible elimination or reduction of present state subsidy to the carriers involved. The financial aspect also enters DOT judgement in its allocation of buses.

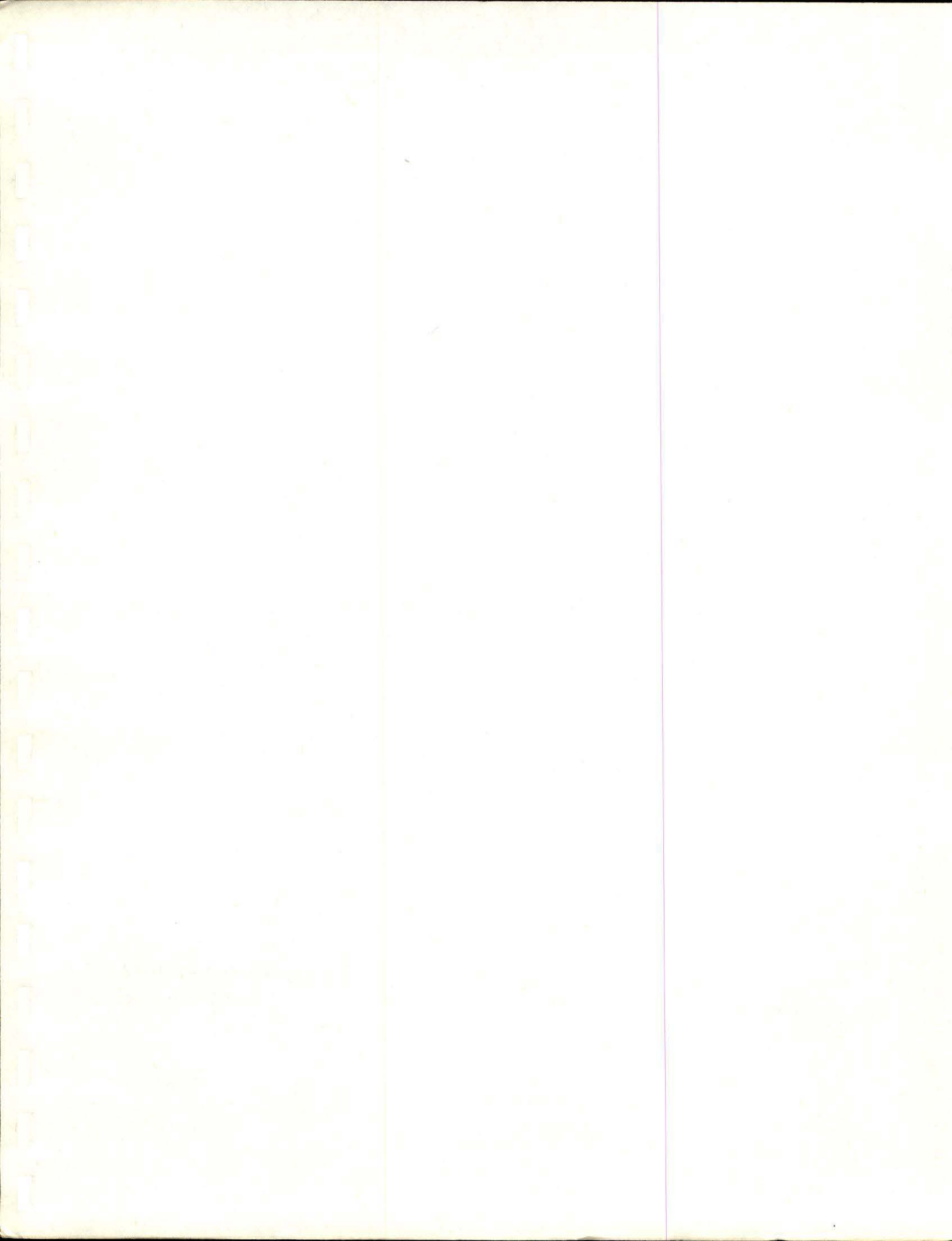
Population and density may be significant as a final factor. Using the generally accepted minimum of 3,000 residents per square mile measured by municipality as the base density to support regular route transit, a necessity factor can then be obtained for the service area of any company under review.

Summary

It is proposed that the allocation of new buses purchased by the state for improving the statewide bus fleet should be premised on:

1. The suggested mathematical formula.
2. The mathematical results to be adjusted by a population density factor; and,
3. The final numerical result to be tempered by Department of Transportation official evaluation of maintenance and financial considerations.

If and when usable passenger and revenue statistics are available, they can be developed into additional factors to further modify the statistical analysis.



Chapter 7

AREAS FOR FUTURE STUDY

One of the important products of this work program was identified as the selection of prototypical corridors to be considered in continuing studies. As a result of a review of the problems identified throughout the state in the inventory studies and considered in the immediate action work program, five corridors have been selected for study of specific work items. The work tasks proposed for the continuing program follow in order of priority and are shown geographically in Figure 40.

1. PATCO Service Corridor
2. Morris-Essex-Somerset-Union Corridor
3. Urban Core - Jersey City and Bayonne
4. PATH - Plainfield Service Corridor
5. Eastern Monmouth-Ocean-Middlesex Corridor

