NEW JERSEY
PUBLIC TRANSPORTATION STUDY
PHASE B
IT-09-0031 TS F110

EASTERN MONMOUTH OCEAN
MIDDLESEX CORRIDOR
FINAL REPORT
JANUARY 1976

NEW JERSEY DEPARTMENT OF TRANSPORTATION

The Preparation of this report has been financed in part through a grant from the United States Department of Transportation, Urban Mass Transportation Administration, under the Urban Mass Transportation Act of 1964, as amended. This document is disseminated under the sponsorship of the Department of Transportation in the interest of information exchange. The United States Government assumes no liability for its contents or use thereof.

NEW JERSEY
PUBLIC TRANSPORTATION STUDY
PHASE B
IT - 09 - 0031 TS F110

EASTERN MONMOUTH - OCEAN - MIDDLESEX CORRIDOR
FINAL REPORT
JANUARY 1976

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 and Davis, Inc.

ESTABLISHED 1894

Ford, Bacon & Davis
Incorporated
Engineers

TELEPHONE:
(212) 344-3200

2 BROADWAY
NEW YORK, N. Y. 10004

TELEX: 12-9109
CABLE: FORBACIS N Y K

January 30, 1976

Mr. Douglas R. Webb, Director
Division of Transportation Systems Planning
New Jersey Department of Transportation
1035 Parkway Avenue
Trenton, New Jersey 08625

Re: Project Number IT-09-0031 TS F110

Dear Mr. Webb:

Ford, Bacon & Davis is pleased to submit herewith the Eastern Monmouth-Ocean-Middlesex Corridor Final Report as part of Phase B of the New Jersey Public Transportation Study. The work included a socioeconomic analysis of the study area, collection and analysis of field survey data, and development of recommendations for transportation network improvements. The results of our work are set forth in this report.

Sincerely,

(signed) FORD, BACON & DAVIS, INC.

MONROE, LOUISIANA ◆ DALLAS ◆ SALT LAKE CITY ◆ BRISBANE, AUSTRALIA

Contents

Contents

Contents

Contents

Tables

Tables

Exhibits

Exhibits

SUMMARY OF RECOMMENDATIONS

After review of the current and projected socioeconomic characteristics, daily travel demand patterns, and public transportation operations in the Eastern Monmouth-Ocean-Middlesex Corridor (Study Area), several alternatives for modifying the existing bus network were developed. Each was designed to reduce travel time and mileage, improve feeder to line-haul services, provide service to areas currently without service, increase ridership, and reduce route duplication. Recommended modifications are as follows:

<u>Operating Modifications</u>

1. Reroute Boro Busses Route 1 to serve the southern Camp Charles Wood area, the Mid-Monmouth Industrial Park, and the Stony Hill Garden Apartments. Provide additional midday service. (Page 75)
2. Consolidate Coast Cities Coaches Routes 4, 2/16, and 20 to reduce mileage and route duplication. Extend Route 4 to serve the Shark River Hills area of Neptune Township and/or more of western Neptune Township. (Page 78)
3. Reroute Coast Cities Coaches Route 31 to eliminate unproductive mileage and introduce service to new areas. Reroute Boro Busses Route 1 within Long Branch to continue service to some areas while also providing direct bus access to Monmouth

Shopping Center for more Study-Area residents. (Page 84)

4. Eliminate Amboy Coach service in Woodbridge and terminate the Route at the Perth Amboy General Hospital. This will eliminate route duplication and provide new direct service to the Hospital from areas of Perth Amboy. (Page 89)
5. Coordinate the peak-period service of the Amboy Coach Route and TNJ Route 12/58 along Main Street in Sayreville. (Page 89)
6. Extend Bayview Bus Lines' Keansburg Route to provide a bus service link at Campbell's Junction in Middletown. Passenger travel between Red Bank and Keansburg would thus be made easier. (Page 91)
7. Reroute Coast Cities Coaches Routes 2, 7, and 20 to serve various Study-Area railroad stations directly. (Page 96)

Capital Improvements

8. Continue the bus purchase program objective, initiated by the New Jersey Department of Transportation, of replacing all buses 12 years old or older. (Page 115)

9. Initiate a program to install modern bus shelters and bus stop signs at key bus-stop locations throughout the Study Area over the next 5 years. (Page 123)

Administrative Support

10. Organize and initiate a strong market development program oriented toward making residents of the Eastern Monmouth-Ocean-Middlesex Corridor fully aware of the public bus service presently available, through the use of all types of public media programs, printing of timetables or schedules for all bus services, and the marking and identification of bus-stop locations. (Page 116)

CHAPTER I

INTRODUCTION

The Eastern Monmouth-Ocean-Middlesex Corridor (Study Area) extends along the northeastern Atlantic Ocean coastline of New Jersey and connects, at its northern end, to the Northeast Corridor between New York City and Philadelphia. Parts of the Study Area have been among the fastest growing areas in the United States in the last 20 years. Many newly-developed portions have become "bedroom communities" for the large employment centers to the north. The existence of public transportation was one of the factors which made it possible for people to live in this area and work in Newark, New York City, and Union, Essex, and Hudson Counties. Equally important to the Study Area has been the ability of the transit system to carry visitors from the heavily-populated northern areas to the shore communities, in support of the seasonal resort industry. To this day, and especially in view of recent and forecasted shortages of and price increases for fuel, a segment of the population in the Study Area relies heavily on the local and line-haul transit network for its livelihood, convenience, and/or recreation.

Study Area Definition

The Study Area is bounded to the west by the Garden State Parkway in Middlesex, Monmouth, and Ocean Counties; to the north by the town of Woodbridge; and to the south by the Borough of Bay Head, Brick Township, and the Borough of Point Pleasant.

Also included are the Borough of Sayreville and Old Bridge (formerly Madison) Township in Middlesex County. The Study Area is shown in Exhibit 1.

Development Pattern

Growth in the Study Area traditionally took place in the northern and eastern urban sections, i.e., in Perth Amboy, South Amboy, Keansburg, Red Bank, Long Branch, and Asbury Park. These areas are becoming fully developed, and, in recent decades, growth has occurred further inland in the western sections. One major catalyst of this growth trend was the construction of the Garden State Parkway in the 1950's. The shore resort industry plays a major role in the economy of the Study Area. The few heavy industrial concerns in the area are located primarily in the vicinity of the Amboys and, to a small extent, along New Jersey Route 36 in the Hazlet area. Numerous military installations in the Study Area provide a significant amount of employment. Present commercial growth is oriented towards the growing western residential areas and much of the recent increase has been in strip developments along the major highways.

Present Transportation Service

The Study Area is served throughout its length by the New York and Long Branch Railroad (NY&LB), operated by the Penn Central Transportation Company and the Central Railroad Company of New Jersey. This line primarily serves the older established eastern communities and connects them to Newark and New York City.

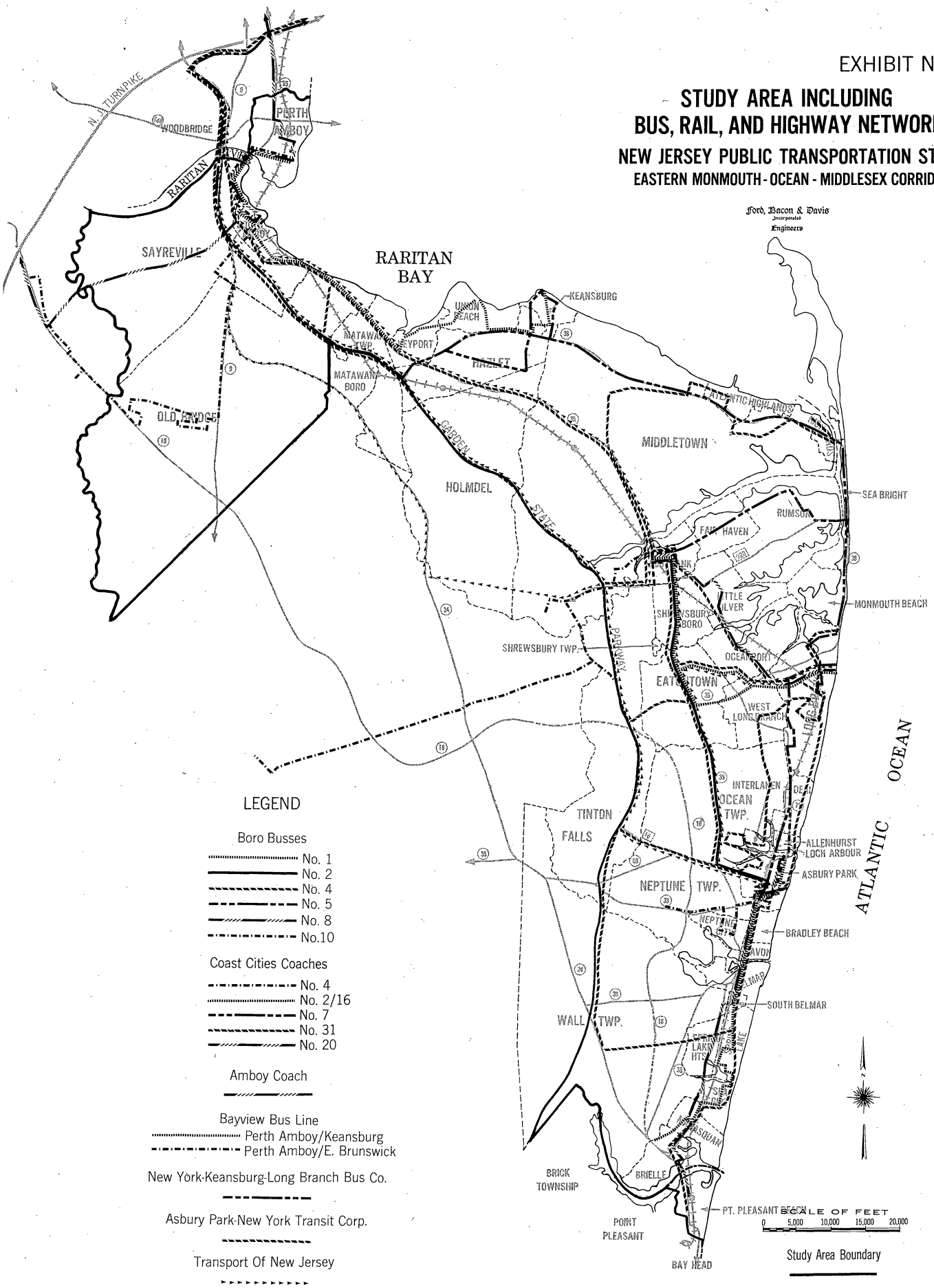
EXHIBIT NO. 1

STUDY AREA INCLUDING BUS, RAIL, AND HIGHWAY NETWORK

NEW JERSEY PUBLIC TRANSPORTATION STUDY

EASTERN MONMOUTH - OCEAN - MIDDLESEX CORRIDOR

Ford, Bacon & Davis
Incorporated
Engineers



Several line-haul bus services operate from most of these same towns to Newark, Jersey City, and New York City. Local bus services connect many of the eastern communities. Three primarily radial patterns of local transit bus service exist, centered in Perth Amboy, Red Bank, and Asbury Park. Many of these local routes feed both the bus and railroad line-haul services at various points. In addition, some east-west local services to the Freehold and New Brunswick urban centers are provided.

Phase A Bus Study

This study is the second phase of a two-phase study of public transportation in New Jersey, and the objectives of this phase are based on some of the results of the first phase (Phase A). Phase A consisted of the following three tasks:

a. Preparation of an introductory overview statement dimensioning the transportation situation in the State of New Jersey and identifying governmental policy alternatives.

b. Inventory all existing bus transportation operations in New Jersey.

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

Problem Statement

The following four problems were addressed in this Phase B study to improve existing and short-range future (1980) transit service:

a. Bus-railroad competition for commuter trips to Newark and New York.

b. Reorientation of bus service to feed improved railroad service proposed in the Study Area.

c. Review of subsidy programs for railroad and competing bus services.

d. Rationalization of local bus service to minimize subsidy rates while providing effective service.

Study Objectives

The objectives of this study are as follows:

a. Analyze the routes of Coast Cities Coaches, Inc., Boro Busses Co., Amboy Coach, Inc., and Bayview Bus Line, Inc., to determine if they serve the needs of the Study Area.

b. Analyze the commuter bus operations of the Asbury Park-New York Transit Corp., the New York-Keansburg-Long Branch Bus Co., and Transport of New Jersey Route 130/133, to determine if planned improvements to the New York and Long Branch Railroad would adversely affect the bus services. If these effects are foreseen, develop an integrated operating plan which would optimize the utilization of the available facilities and increase patronage of the public transportation network.

CHAPTER II

FIELD SURVEYS

Various survey tasks were undertaken by Ford, Bacon & Davis, Inc. (Consultants) for the purpose of generating data in accordance with contract provisions. Conducted during April and May of 1975, the surveys included passenger counts and travel time studies and were made with the cooperation of the bus operators involved:

a. Asbury Park-New York Transit Corp. (AP-NY)

b. New York-Keansburg-Long Branch Bus Co. (NY-K-LB)

c. Coast Cities Coaches, Inc. (CCC)

d. Amboy Coach, Inc. (Amboy)

e. Bayview Bus Line, Inc. (Bayview)

f. Boro Busses Co. (Boro)

g. Transport of New Jersey (TNJ)*

On-Board Passenger Counts and Roadside Counts

On-board counts were performed between April 21 and May 2 on either: (a) two trips in the peak direction during morning and evening peak periods and two round trips during the off-peak period; or (b) at least 10 percent of the trips in each of those time periods. In compiling the on-board counts, observers recorded the time and location of each stop to pick up or drop off passengers and the number of passengers at each stop. In addition, bus and bus stop characteristics were noted.

---

* Surveyed on November 24 and 25, 1975.

Roadside load-point counts were taken at a minimum of two locations for each route. The locations were chosen based on discussions with bus company personnel and field observations made by the Consultants. Observers recorded the direction of each bus, the time of arrival, the number of passengers on board, and the number alighting or boarding at the location. These counts were used in expanding the on-board count sampling and to check the accuracy of the on-board counts. The roadside counts were made at the following locations:

Company and Routes	Location of Roadside Count
AP-NY	Red Bank Bus Terminal/Railroad Station Asbury Park Bus Terminal
NY-K-LB	Leonardo Bus Terminal Airport Plaza
Boro:	
Route 1	Broad and Monmouth (Red Bank) Monmouth Shopping Center Broadway and Norwood (Long Branch)
Route 2	Broad and Monmouth Monmouth Shopping Center
Routes 4,5,10	Broad and Monmouth Front and Broad (Red Bank) Red Bank Railroad Station
Route 8	Broad and Monmouth Broadway and Norwood
CCC:	
Routes 4,2/16,20	Cookman and Main (Asbury Park) Press Plaza (Asbury Park)
Route 7	Cookman and Main Press Plaza Broadway and Norwood Broadway and Third (Long Branch)

Company and Routes	Location of Roadside Count
CCC: (cont'd) Route 31	Cookman and Main Press Plaza Broadway and Third
Amboy, Bayview	Smith and Maple (Perth Amboy) 108 Stevens Avenue (South Amboy)

Bus Travel Time Studies

Bus travel time studies were conducted on the same sampling basis as the on-board counts. Undertaken between April 29 and May 8, 1975, observers recorded the location, duration, and reason of each stop or delay in the operation of the bus routes.

Auto Travel Time Studies

Recordings were made over sections of highway which comprised the major network in the Study Area. Two auto trips were made in the peak direction in each peak period and two round trips were made during the off-peak period. The type of data collected was identical to that collected for the bus travel time studies. The survey work was undertaken between April 29 and May 9, 1975, on the following selected sections of highway system:

a. Garden State Parkway from Interchange 96 (Wall Township) to the New Jersey Turnpike (Exit 11)

b. New Jersey Turnpike from Exit 11 to Exit 16

c. Route I-495 from New Jersey Turnpike Exit 16 to Lincoln Tunnel

d. Lincoln Tunnel to New York City (41st Street and 10th Avenue)

e. New Jersey Route 35 from Asbury Avenue (Asbury Park) to Korvettes (Woodbridge)

f. New Jersey Route 36/Ocean Avenue from Broadway and Ocean Avenue (Long Branch) to the junction of New Jersey Routes 35 and 36 (Hazlet) via Highlands Bridge

g. New Jersey Route 36 from Interchange 105 (Garden State Parkway) to Joline and Ocean Avenues (Long Branch)

h. Broadway in Long Branch from New Jersey Route 36 to Ocean Avenue

i. Norwood Avenue in Long Branch from Broadway to Cedar Avenue

j. Monmouth County Route 520 from Interchange 109 (Garden State Parkway) to Shrewsbury River Bridge (Sea Bright)

k. New Jersey Route 71 from New Jersey Route 36 (West Long Branch) to New Jersey Route 35 (Brielle)

l. New Jersey Route 35 from New Jersey Route 34 (Wall Township) to Point Pleasant Beach railroad station

m. New Jersey Route 34 from Interchange 96 (Garden State Parkway) to New Jersey Route 35 (Wall Township)

n. New Jersey Route 33 from Interchange 100 (Garden State Parkway) to New Jersey Route 71 (Asbury Park)

o. Asbury Avenue from New Jersey Route 35 (Neptune Township) to New Jersey Route 71 (Asbury Park).

CHAPTER III

STUDY AREA CHARACTERISTICS AND TRENDS

The Study Area is an integral part of the New York City metropolitan region and is subject to the economic, social, and demographic forces at work within it. Except for Point Pleasant Beach in Ocean County, the Study Area lies within the 23-county Tri-State Region which contained one-tenth of the nation's 1970 population. Its geographic proximity to New York and Newark, the presence of roads such as the Garden State Parkway, and its long, attractive Atlantic coastline have figured prominently in the growth of the Study Area during the past three decades.

Major Municipalities

Major municipalities within the Study Area which have high population density and the potential to support public transit include Long Branch, Asbury Park, Red Bank, Keansburg and Perth Amboy. Brief descriptions of these places follow.

Long Branch

This city is located on the Atlantic shore, east of New Jersey Route 71 and south of New Jersey Route 36. According to the 1970 U.S. Census (Census), its population of 31,774 ranked it as 40th in population among New Jersey cities. It has a population density of 6,230 persons per square mile over its 5.1-square-mile area.

Bus service is provided by Boro Busses and Coast Cities Coaches, with intercity bus service to and from Newark and/or New York provided by the New York-Keansburg-Long Branch Bus Co., Transport of New Jersey, and Asbury Park-New York Transit. Railroad service is provided by the NY&LB.

The main commercial district is along Broadway, particularly in the area of the Liberty Street/Memorial Parkway intersection. Major manufacturing/industrial concerns include Long Branch Manufacturing Co., Wheelock Signals, and Abate Clothing. Electronic Associates, one of the leading employers in the County is located in nearby West Long Branch.

There are three subsidized senior citizen housing developments in Long Branch: Chester Arthur Apartments with 60 units, Kennedy Towers with 100 units, and Hobart Manor with 57 units. Senior citizens comprise 11.4 percent of the City's population. Other subsidized dwelling units for low- and moderate-income families include Garfield and Grant Courts (162 and 82 units), Sea View Manor (46 units), and Woodrow Wilson Homes (136 units). As of June, 1972, there were two additional high-rise senior-citizen apartments either proposed or pending, with 317 and 350 units, respectively.

Asbury Park

Also located on the Atlantic shore, 2.3 miles south of Long Branch, Asbury Park is served by New Jersey Route 71, with New Jersey Routes 35 and 66 (Asbury Avenue) also providing highway access. Local bus service is provided by Coast Cities Coaches and Boro Busses. Intercity bus service between Asbury Park and other shore communities and Newark/New York is provided by Asbury Park-New York Transit. Transport of New Jersey has routes from Asbury Park to Philadelphia and to Newark. The North and South Jersey Bus Company connects Asbury Park and Jersey City. Asbury

Park is served by the New York and Long Branch Railroad. The Asbury Park Air Terminal is located at the intersection of New Jersey Route 66 and the Garden State Parkway, and, while not serving commercial airlines, provides a terminal for private aircraft.

The 1970 Census shows the population of Asbury Park at 16,533 persons, a decline of 4.8 percent from 1960. It ranks 84th in population among New Jersey cities. The 1970 population density was 11,022 persons per square mile over a land area of 1.5 square miles.

Senior citizens comprised 19.9 percent of the 1970 population. About 17 percent of Asbury Park's families were classified as having incomes below the poverty level, as defined by the Census.

Five subsidized senior-citizen housing developments have been built in Asbury Park: Dr. Robinson Towers with 110 units, Charles Lumley Homes with 60 units, Kingsley Arms with 92 units, Asbury Towers with 350 units, and Comstock Court with 50 units. Low- and moderate-income housing developments include Asbury Park Village (249 units), Washington Village (59 units), Lincoln Village (63 units), and Stephens Manor (90 units).

The downtown business and commercial center is on Cookman Avenue, particularly in the area of Press Plaza. Amusements and arcades for the summer tourist business are located along the boardwalk and Ocean Avenue. Besides the recreation industry,

which swells the City's summer population from 16,000 to about 43,000, major manufacturing/industrial employers are the Asbury Park Press with 469 employees, J. Kaslinger & Company with 110 employees, and Bio-Science Industries with 70 employees.

Red Bank

Red Bank is located on the south bank of the Navesink River and is served by New Jersey Route 35 and by Monmouth County Route 520, the latter providing convenient access to the nearby Garden State Parkway. The 1970 Census shows the City's population at 12,847 persons, a 2.9 percent increase from 1960. The Monmouth County Planning Board estimated as of January 1, 1974, the City's population to be 13,090 persons. Red Bank is relatively densely populated, with 7,341 people per square mile over its 1.75 square miles.

Bus service is provided by Boro Busses within the City and to and from Long Branch, Asbury Park, Freehold, Fort Monmouth, Sea Bright, and Highlands. Asbury Park-New York Transit provides commuter bus service from Red Bank to New York. Bus service to and from Jersey City is provided by the North and South Jersey Bus Company. Railroad service is provided by the NY&LB.

Red Bank's downtown commercial district is located on Broad Street, in the area of West Front and Monmouth Streets. The principal businesses in town are Seals Eastern, Bridge Sportswear, Adams Bros., and Red Bank Clothing and Manufacturing Company.

Evergreen Terrace, with 50 units, is the only subsidized housing development for senior citizens, who make up 19

percent of the population. Montgomery Terrace supplies 40 units of low- and moderate-income housing. The 1970 Census listed 329 families below the poverty level. As of June 1972, four high-rise apartment complexes, with a total of 382 units, were proposed.

Keansburg

Keansburg is located in the northeastern portion of Monmouth County across the Raritan Bay from Staten Island. Bus service is provided to the Amboys and intermediate coastline points by Bayview Bus Line. The NY-K-LB provides bus service from Long Branch to New York City and Newark, via Keansburg. The 1970 Census shows Keansburg's population at 9,720 persons, up 41.8 percent from 1960 and, distributed over 0.95 square miles.

The commerical district of Keansburg is centered along Main Street. There are no large manufacturing employers in town, but some of the major employers in the County are nearby, along New Jersey Routes 34, 35 and 36 in Hazlet and in Holmdel. These include International Flavors and Fragrances, Lily Cup, and Lanvin Charles of the Ritz.

Twelve percent of the Borough's families were below the poverty level, according to the 1970 Census. To date, 131 apartment units have been completed and occupied by low-income families as part of the Borough's Urban Renewal Project.

Perth Amboy

Perth Amboy had a 1970 population of 38,798, an increase of 2.1 percent over its 1960 figure. It is located on the north

shore of the Raritan River at the mouth of the Raritan Bay. The 1970 population density of this 4-1/2-square-mile city was 8,622 persons per square mile. Senior citizens comprised 14.2 percent of the 1970 population.

Local bus service is provided by Amboy Coach, Bayview Bus Line, and Transport of New Jersey. Commuter bus service to New York and Newark is operated by TNJ. The NY&LB provides railroad service to Newark and New York.

The primary commercial district is located along Smith Street. Numerous industrial concerns are in the City, with concentrations in the southern and northeastern sections. The largest employers are the Anaconda Company, American Smelting and Refining, and Chevron Oil.

Study Area Population

Population counts of each municipality are listed in Table 1. The Study Area population grew from 376,432 persons in 1960 to 532,507 in 1973, an increase of 41.5 percent. Comprising 249.3 square miles, which represents 3 percent of New Jersey's land area, the Study Area accounted for 6 percent of the State's population in 1960 and 7 percent in 1970, a growth rate 13.8 percent faster than that of the State as a whole.

A component of population that should not be overlooked is the huge influx of summer visitors principally to the shore resorts. Although the Census provides no data on summer population,

Table 1
Population Trends

Municipality	Population 1960	Population 1970	Population 1973	Population 1980	Percent Change in Population 1970-1980	Land Area (Sq. Miles)	Population Density 1970	Population Density 1980
Perth Amboy	38,007	38,798	40,625	44,890	15.7	4.50	8,622	9,976
South Amboy	8,422	9,338	9,642	10,352	10.8	1.40	6,670	7,394
Sayreville	22,553	32,508	36,472	45,721	40.6	16.60	1,958	2,754
Old Bridge (formerly Madison)	22,722	48,715	57,753	78,842	61.8	38.30	1,272	2,059
Matawan Twp.	7,359	17,680	18,720	21,556	21.9	5.45	3,244	3,955
Keyport	6,440	7,205	7,670	8,001	11.0	1.40	5,146	5,715
Union Beach	5,862	6,472	6,600	7,157	10.6	1.80	3,596	3,976
Keansburg	6,854	9,720	9,780	10,439	7.4	.95	10,232	10,988
Hazlet	15,334	22,239	22,670	24,610	10.7	5.60	3,971	4,395
Middletown	39,675	54,623	57,680	67,135	22.9	41.08	1,330	1,634
Highlands	3,536	3,916	3,980	4,971	26.9	.64	6,119	7,767
Atlantic Highlands	4,119	5,102	5,300	5,767	13.0	1.20	4,252	4,806
Fair Haven	5,678	6,142	6,250	6,514	6.1	1.55	3,963	4,203
Little Silver	5,202	6,010	6,120	6,335	5.4	2.80	2,146	2,263
Tinton Falls (formerly New Shrewsbury)	7,313	8,395	8,570	12,792	52.4	15.15	553	844
Red Bank	12,482	12,847	13,080	13,881	8.0	1.75	7,341	7,932
Rumson	6,405	7,421	7,650	8,273	11.5	5.20	1,427	1,591
Sea Bright	1,138	1,339	1,530	1,646	22.9	.60	2,232	2,743
Shrewsbury Twp.	1,204	1,164	1,160	1,388	19.2	.09	12,933	15,422
Shrewsbury Boro	3,222	3,315	3,310	4,171	25.8	2.30	1,441	1,813
Eatontown	10,334	14,619	15,170	17,070	16.8	5.80	2,521	2,943
Long Branch	26,228	31,774	32,600	35,254	10.9	5.10	6,230	6,913
Monmouth Beach	1,363	2,042	2,230	2,680	31.2	1.10	1,856	2,436
W. Long Branch	5,337	6,845	7,270	7,814	14.2	2.83	2,419	2,761
Oceanport	4,937	7,503	7,800	8,700	16.0	3.10	2,420	2,806
Allenhurst	795	1,012	1,010	1,071	5.8	.30	3,373	3,570
Loch Arbour	297	395	430	465	17.7	.10	3,950	4,650
Interlaken	1,168	1,182	1,200	1,260	6.6	.38	3,111	3,316
Asbury Park	17,366	16,533	16,600	18,576	12.4	1.50	11,022	12,384
Avon	1,707	2,163	2,240	2,521	16.6	.40	5,408	6,303
Bradley Beach	4,204	4,163	4,340	4,986	19.8	.70	5,947	7,123
Deal	1,889	2,401	2,500	2,733	13.8	1.20	2,001	2,278
Neptune	21,487	27,863	29,100	33,463	20.1	8.00	3,483	4,183
Neptune City	4,013	5,502	5,590	6,167	12.1	.90	6,113	6,852
Ocean Twp.	11,622	18,643	21,550	26,673	43.1	11.20	1,665	2,382
Wall	11,929	16,498	17,760	26,431	60.2	31.01	532	852
Belmar	5,190	5,782	6,030	6,660	15.2	1.00	5,782	6,660

Table 1
Population Trends

Municipality	Population 1960	Population 1970	Population 1973	Population 1980	Percent Change in Population 1970-1980	Land Area (Sq. Miles)	Population Density 1970	Population Density 1980
So. Belmar	1,537	1,490	1,470	1,696	13.8	.20	7,450	8,480
Manasquan	4,022	4,971	5,200	5,656	13.8	1.40	3,551	4,040
Sea Girt	1,798	2,207	2,330	2,535	14.9	1.05	2,102	2,414
Spring Lake	2,922	3,896	4,000	4,298	10.3	1.30	2,997	3,306
Spring Lake Heights	3,309	4,602	5,100	5,933	28.9	1.30	3,540	4,564
Brielle	2,619	3,594	3,880	4,597	27.9	1.65	2,178	2,786
Holmdel	2,959	6,117	7,130	9,523	55.7	17.90	342	532
Pt. Pleasant Beach	3,873	4,882	5,415	5,420	11.0	1.50	3,255	3,613
Total	376,432	499,628	532,507	626,623	25.4	249.28	2,004	2,514

Sources: U.S. Census; Monmouth County Planning Board; Ford, Bacon & Davis, Inc.

it is estimated that 150 to 200 thousand persons come to New Jersey's shore area in the summer.

Population Density

The distribution of population within the Study Area finds major concentrations in the coastal communities. Shrewsbury Township has the greatest population density (12,933 persons per square mile), a somewhat misleading figure due to its small size 0.09 square mile area. Next highest in density are Asbury Park, Keansburg, and Perth Amboy. The areas of lowest concentration are Holmdel, Tinton Falls and Wall Township.

The 1970 population density of the Study Area as a whole was 2,004 persons per square mile, an increase of 494 over the 1960 density. This compares with densities of 2,188 and 953 persons per square mile for the Tri-State Region and New Jersey, respectively, in the same year. Exhibit 2 portrays municipal population densities, by range.

Elderly Population

According to Census figures there were 58,688 senior citizens (11.7 percent of the total population) in the municipalities of the Study Area. Senior citizens are especially important in terms of transportation, because of their relative dependence on public transit. They generally have less income than younger inhabitants and are, therefore, less likely to own an automobile. Tri-State Regional Planning Commission data for 1970 reveal that only 24 per cent of Monmouth County senior citizens over the age of 64 have a driver's license.

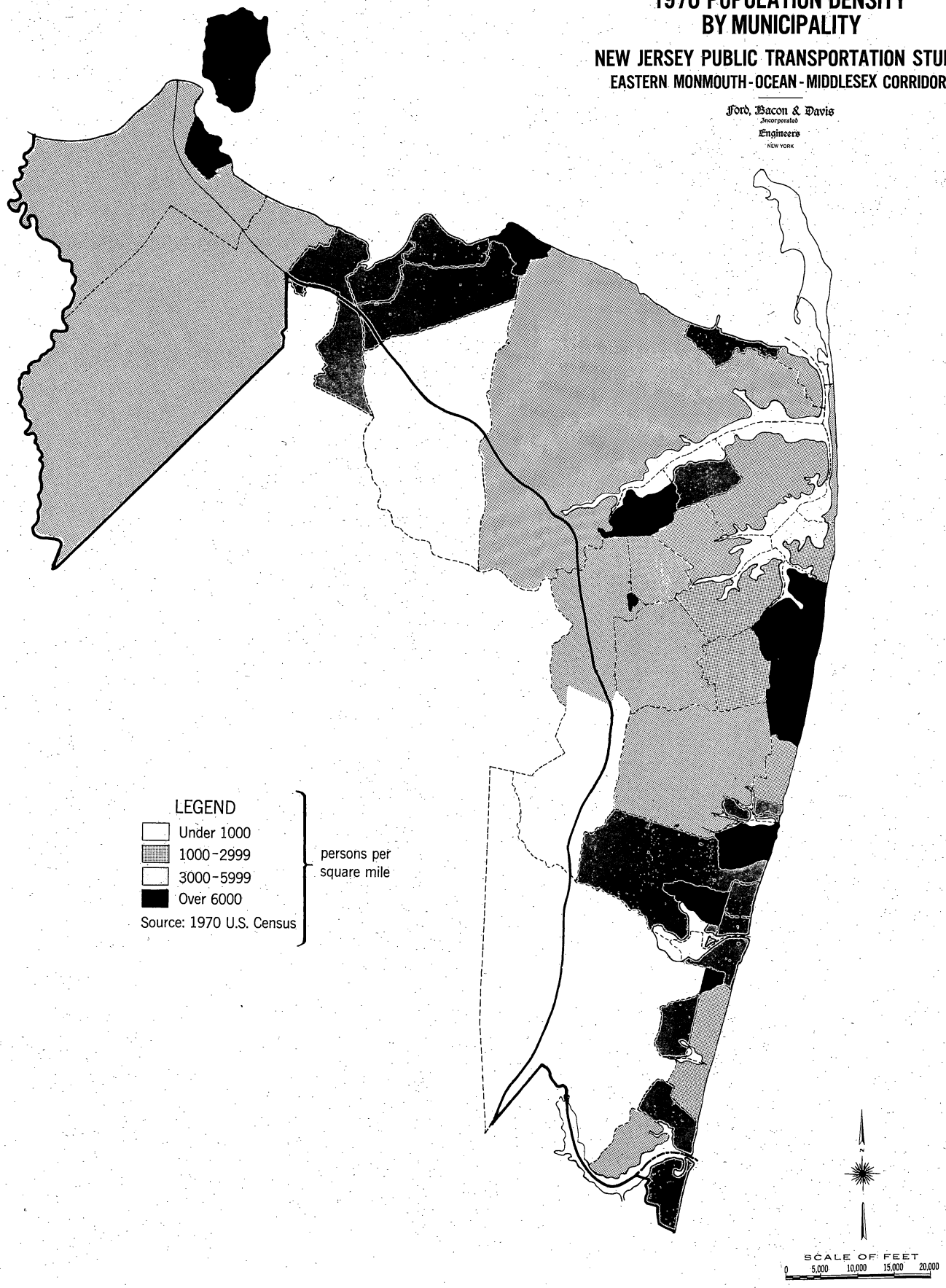
EXHIBIT NO. 2

1970 POPULATION DENSITY BY MUNICIPALITY

NEW JERSEY PUBLIC TRANSPORTATION STUDY

EASTERN MONMOUTH-OCEAN-MIDDLESEX CORRIDOR

Ford, Bacon & Davis
Incorporated
Engineers
NEW YORK



Population Forecasts

The population of the Study Area is forecast to total 626,623 persons in 1980, an increase of 25.4 percent over the 1970 Census count. Generally, the growth of the older cities and coastal areas is not expected to be nearly as rapid as that of the inland areas, such as Wall Township, Tinton Falls, and Old Bridge Township. The population density of the Study Area is projected to be 2,514 persons per square mile in 1980, an increase of 510 persons per square mile over the 1970 figure. Shrewsbury Township, Asbury Park, Keansburg, and Perth Amboy will continue to have the highest densities and Tinton Falls, Holmdel, and Wall Township the lowest.

Economic Characteristics

Exhibit 3 shows median family income ranges of the municipalities in 1970. Among the most affluent communities are Deal, Little Silver, Rumson, Interlaken, and Holmdel. Those places with the lowest median family income values are Asbury Park, Bradley Beach, South Belmar, Shrewsbury Township, Keansburg, Long Branch, and Highlands. In the Monmouth County portion of the Study Area, 6.2 percent of all families in 1970 were below the U.S. Bureau of the Census poverty level. Asbury Park, Middletown, Neptune Township, and Long Branch led in the number of these families, while communities with the highest percentage of such families were South Belmar (17.9 percent), Asbury Park (17.0 percent), Bradley Beach (13.2 percent), and Keansburg (12 percent).

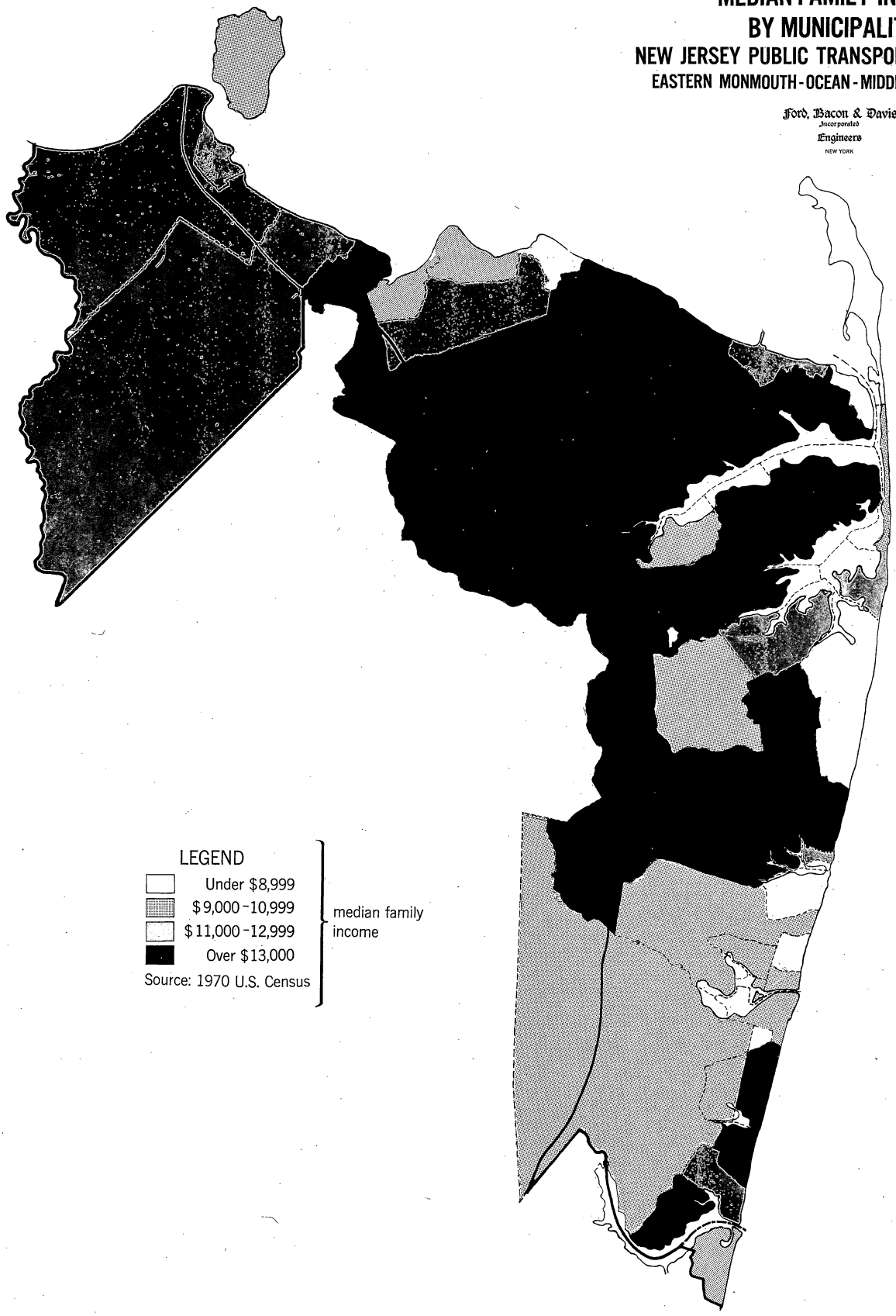
EXHIBIT NO. 3

MEDIAN FAMILY INCOME BY MUNICIPALITY

NEW JERSEY PUBLIC TRANSPORTATION STUDY

EASTERN MONMOUTH-OCEAN-MIDDLESEX CORRIDOR

Ford, Bacon & Davis
Incorporated
Engineers
NEW YORK



The largest concentration of households which have no autos available is in Perth Amboy, and other large clusters are in Long Branch and Asbury Park.

Major Generators

Employment

The manufacturing and service industries are the two largest industrial categories in the Study Area by total employment, according to the Census. Concentrations of job locations exist in Perth Amboy, along New Jersey Route 36 in the Bayshore communities, and in the Eatontown Circle/Fort Monmouth area. Outside of the Study Area, jobs are concentrated in the vicinity of Freehold and in Middlesex County municipalities north of the Study Area. Among the largest employers within the Study Area are Fort Monmouth, Du Pont, Lily Cup, N.L. Industries, Electronic Associates, Jersey Central Power & Light, Midland Glass, American Smelting and Refining, and the Anaconda Company. By the end of 1976, Prudential Life, located in Holmdel, will employ between 1,500 and 2,000 and be among the Study Area's largest employers.

Commercial Centers

All of the urban centers and bigger towns in the Study Area have established shopping districts along their main downtown streets. Some of these districts are deteriorating due to the competition of suburban shopping centers. The only major shopping center lying within the Study Area is the Monmouth Shopping Center. The Center recently expanded from 54 to 124 stores and by August 1976, will have 155 stores. Several shopping centers are located

near the Study Area, among them are the Woodbridge Shopping Center, Mid-State Mall, and Brunswick Square Mall. The common suburban practice of creating a continuous band of commercial development along major highways has taken place within the Study Area, a notable example being along New Jersey Route 35.

Medical Facilities

Seven hospitals are located in or near the Study Area. They are: Jersey Shore Medical Center (Fitkin Hospital) in Neptune, Monmouth Medical Center in Long Branch, Riverview Hospital in Red Bank, Bayshore Hospital in Holmdel, the Greater Freehold Area Hospital in Freehold, South Amboy Memorial Hospital, and Perth Amboy General Hospital.

Educational Facilities

Monmouth College is the only four-year college in the Study Area. Located in Long Branch, the full-time enrollment in 1975 was approximately 3,400 undergraduate and 900 graduate students.

Brookdale Community College is a two-year college located in Lincroft at Brookdale Farms. Rutgers University operates a Fruit Research Center and a Soils and Crop Research Center in the western part of Monmouth County.

Numerous vocational high schools are located in the Study Area, including Monmouth County's Vocational Unit at Long Branch High School.

Resorts and Recreation

The resort industry along the Study Area's beaches and boardwalks on the Jersey Shore attracts thousands of people each summer, with that total estimated to be between 150,000 and 200,000 persons. There are two racetracks in or near the area: Freehold Raceway in Freehold and the Monmouth Park Jockey Club in Oceanport. The Garden State Arts Center in Telegraph Hill Park in Holmdel is an arts and cultural center with indoor and outdoor seating. Also available to residents and summer visitors are excellent parks, golf courses, marinas, and yacht clubs.

Journey-to-Work Travel Patterns and Characteristics

Table 2 lists the destinations of the typical daily work trips originating in each municipality of the Study Area, based on Census data. These figures are summarized by sub-areas and shown in Exhibit 4. More trips to Newark and/or New York originate in the northern part of the Study Area than originate in the southern part of the Study Area. Of the 160,874 trips originating in the Study Area, Newark and Manhattan attract 3.4 percent and 4.7 percent, respectively. Over one-half (54.5 percent) of the trips are destined for Monmouth County locations, both within and outside the Study Area.

Work-Trip Transportation Modes

Table 3 lists the distribution, by transportation mode, of the daily work trips originating in the areas defined in Table 2. The highest percentages of railroad trips occur in the Middletown/

Table 2
Destinations of 1970 Daily Work Trips
Originating in Study Area

Area	Municipality of Origin	Destination: Newark	Rest of Essex County	Manhattan	Rest of N.Y.C. & N.Y. State	Union County	Middlesex County	Monmouth County	Ocean County	Hudson County	Rest of North Jersey	Trenton & Mercer County	Philadelphia & South Jersey	Total
A	Perth Amboy	170	243	136	125	884	12,561	112	-	158	206	47	8	14,650
B	South Amboy	84	68	70	82	195	2,632	124	-	78	101	-	6	3,440
	Sayreville	665	291	571	436	931	8,086	251	-	427	470	57	13	12,198
	Old Bridge	1,114	478	1,582	839	1,469	8,088	1,232	-	606	653	114	22	16,197
	Subtotal	1,863	837	2,223	1,357	2,595	18,806	1,607	-	1,111	1,224	171	41	31,835
C	Holmdel Twp. (North of G.S.P.)	50	31	93	48	34	115	556	-	6	23	-	-	956
	Matawan Twn (Northern)	117	113	400	71	183	810	1,365	25	134	51	6	-	3,275
	Keyport	67	15	71	60	93	470	1,664	26	20	14	12	-	2,512
	Union Beach	168	21	63	25	118	249	1,070	22	88	39	-	-	1,863
	Keansburg	99	77	156	206	159	272	1,473	11	165	22	-	7	2,647
	Hazlet	416	204	923	377	403	788	3,203	37	291	159	20	32	6,853
	Subtotal	917	461	1,706	787	990	2,704	9,331	121	704	308	38	39	18,106
D	Middletown (North of G.S.P.)	826	273	1,166	653	705	1,120	9,731	146	538	258	30	37	15,483
	Highlands	43	30	7	37	24	27	1,060	36	9	13	7	-	1,293
	Atlantic Highlands	58	40	99	68	72	104	1,322	21	42	28	-	-	1,854
	Subtotal	927	343	1,272	758	801	1,251	12,113	203	589	299	37	37	18,630
E	Fair Haven	17	15	259	58	77	62	1,571	20	22	10	14	6	2,131
	Little Silver	63	43	240	101	56	79	1,379	21	21	28	12	-	2,043
	Tinton Falls (Northern)	16	-	25	-	22	47	527	-	12	-	10	-	659
	Red Bank	103	51	95	98	78	97	3,612	38	56	26	23	6	4,283
	Rumson	92	22	298	232	49	56	1,447	21	9	11	-	8	2,245
	Sea Bright	37	8	29	-	-	7	437	-	13	7	-	-	538
	Shrewsbury	22	6	165	12	28	52	974	-	7	7	7	-	1,280
	Shrewsbury Twp.	-	3	3	3	-	18	301	7	-	-	-	-	335
	Subtotal	350	148	1,114	504	310	418	10,248	107	140	89	66	20	13,514
F	Eatontown	14	13	84	19	49	81	6,587	77	13	12	14	44	7,007
	Long Branch	133	45	150	133	92	198	9,634	134	65	48	9	39	10,680
	Monmouth Beach	24	8	29	14	40	6	593	-	13	-	7	-	734
	Oceanport	28	18	43	29	14	19	3,780	29	35	6	8	26	4,035
	West Long Branch	43	21	30	36	26	25	1,954	18	-	-	7	14	2,174
	Subtotal	242	105	336	231	221	329	22,548	258	126	66	45	123	24,630

Table 2
Destinations of 1970 Daily Work Trips
Originating in Study Area

Area	Municipality of Origin	Destination: Newark	Rest of Essex County	Manhattan	Rest of N.Y.C. & N.Y. State	Union County	Middlesex County	Monmouth County	Ocean County	Hudson County	Rest of North Jersey	Trenton & Mercer County	Philadelphia & South Jersey	Totals
G	Allenhurst	28	16	19	16	13	-	307	-	-	-	-	-	399
	Asbury Park	50	46	101	23	23	62	4,190	74	12	33	9	-	4,623
	Avon	14	7	8	7	-	-	315	7	26	-	-	-	384
	Bradley Beach	24	26	18	42	7	21	1,137	42	19	9	-	-	1,345
	Deal	26	13	14	16	12	6	621	-	7	-	-	-	715
	Loch Arbour	-	5	-	-	-	11	56	-	-	-	-	-	72
	Neptune	94	46	102	48	69	173	6,571	140	90	68	31	15	7,447
	Neptune City	45	12	32	5	23	11	1,600	95	8	15	20	8	1,874
	Interlaken	-	-	31	-	-	7	271	7	7	5	-	-	328
	Ocean Twp.	125	27	111	90	149	77	5,774	163	45	71	48	11	6,691
	Subtotal	406	198	436	247	296	368	20,842	528	214	201	108	34	23,878
H	Belmar	38	28	20	32	49	32	1,651	83	-	9	-	18	1,960
	Brielle	51	15	50	23	29	16	810	107	8	10	-	-	1,119
	Manasquan	56	16	21	63	63	21	1,108	209	25	44	-	22	1,648
	Sea Girt	53	-	47	7	16	15	364	36	9	14	9	7	577
	Spring Lake	46	13	14	69	12	10	774	66	44	39	10	8	1,105
	Spring Lake Heights	64	14	42	38	43	50	1,251	86	34	22	-	14	1,658
	Wall	146	103	143	110	106	153	4,223	441	29	33	5	26	5,518
	South Belmar	6	14	-	14	21	23	343	25	12	-	6	-	464
	Pt. Pleasant Beach	58	14	24	-	-	14	382	984	24	82	-	-	1,582
	Subtotal	518	217	361	356	339	334	10,906	2,037	185	253	30	95	15,631
	Study Area Total	5,393	2,552	7,584	4,365	6,436	36,771	87,707	3,254	3,227	2,646	542	397	160,874
	Percent of Total Study Area	3.4	1.6	4.7	2.7	4.0	22.9	54.5	2.0	2.0	1.6	.3	.3	100.0

Source: 1970 U.S. Census

EXHIBIT NO. 4

DESTINATION OF 1970 DAILY WORK TRIPS ORIGINATING IN STUDY AREA

NEW JERSEY PUBLIC TRANSPORTATION STUDY

EASTERN MONMOUTH-OCEAN-MIDDLESEX CORRIDOR

Ford, Bacon & Davis
Incorporated
Engineers
NEW YORK

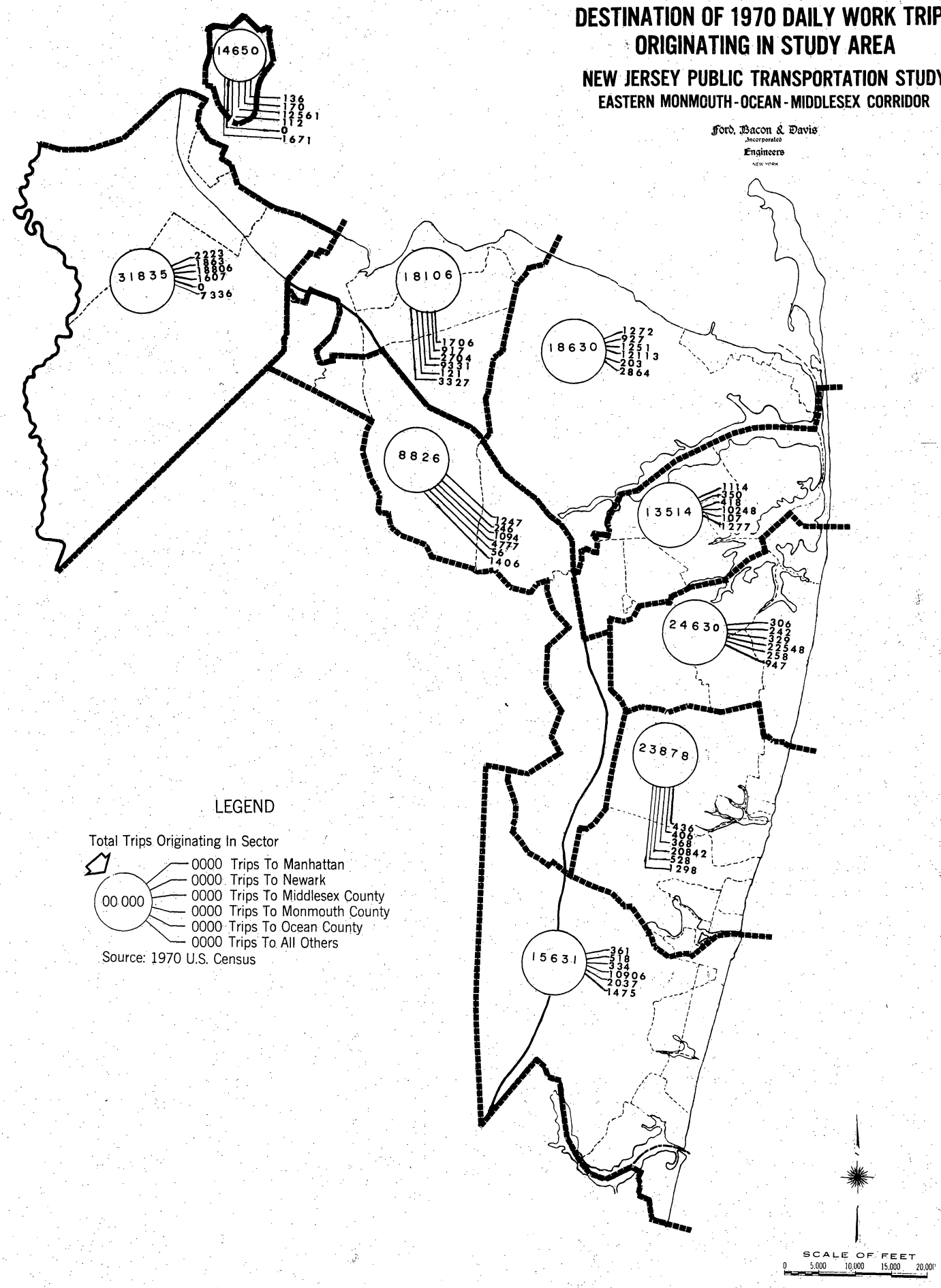


Table 3
Work Trip Mode Utilization

Area of Trip Origin	Percent of Trips, by Mode				
	Auto (driver or passenger)	Bus	Railroad	Walk Only	Other
A	70.0	8.1	1.1	17.9	2.9
B	81.5	8.7	3.0	3.2	3.6
C	77.6	11.1	4.4	4.3	2.6
D	77.8	6.0	8.0	3.0	5.2
E	74.5	3.3	10.4	7.0	4.8
F	71.6	3.0	2.6	19.0	3.8
G	79.6	2.3	3.1	7.3	7.7
H	81.3	1.3	6.0	5.7	5.7
Study Area	77.2	5.5	4.4	8.2	4.7

Source: 1970 U.S. Census

Note: Area code letters correspond to those in Table 2.

Red Bank area, while the largest proportion of bus trips originate in the Matawan/Hazlet/Keansburg area. The relative importance of walk trips is greater and auto trips less in the urbanized areas.

Peak-Period Travel Time

Table 4 presents the average peak-period access times to bus and railroad boarding points in the Study Area. These times are based on survey responses* made by passengers of all bus and railroad services connecting the Study Area and New York City. The survey results show that passengers boarding buses in Red Bank, Eatontown, and the Long Branch/West Long Branch area are willing (or find it necessary) to spend the greatest average amount of time traveling to the bus by auto. Passengers boarding in Ocean Township, Eatontown, and Asbury Park spend more time walking to their buses than those boarding in any other area. The railroad passengers who require the greatest average amount of time to drive to their station are those who board at Little Silver, Point Pleasant Beach, and Bay Head. Those daily riders who board at the North Asbury Park, Matawan, and Red Bank railroad stations spend the most time walking to the station, while the shortest average walk trips are made to the Allenhurst, Avon, and Little Silver railroad stations.

Exhibits 5 and 6 show travel time contours for morning peak-period trips from the Study Area to New York (Port Authority Bus Terminal) by auto and by bus. These exhibits are based on the results of field studies conducted during April and May 1975.

---

*1972 Port Authority Bus Passenger Survey
1974 Port Authority Rail passenger Survey

Table 4
Average Transit Access Times

Boarding Location	Average Auto to Bus Access Time (minutes)	Average Walk to Bus Access Time (minutes)	Average Auto to Rail Access Time (minutes)	Average Walk to Rail Access Time (minutes)
Perth Amboy	20	9	14	15
South Amboy	11	10	19	15
Sayreville	17	17	--	--
Old Bridge	15	13	--	--
Matawan	13	10	18	22
Hazlet	18	11	13	11
Middletown	15	15	16	14
Keansburg/Union Beach	13	12	--	--
Highlands	13	9	--	--
Red Bank	21	15	16	18
Little Silver	10	12	22	10
Shrewsbury	--	15	--	--
Sea Bright	--	12	--	--
Monmouth Beach	)	)	--	--
West Long Branch	)22	) 7	--	--
Long Branch	)	)	14	14
Elberon	)	)	12	12
Eatontown	25	20	--	--
Ocean Township	--	25	--	--
Deal	--	8	--	--
Allenhurst	--	--	13	8
North Asbury Park	)	)	--	26
Asbury Park	)17	)21	14	13
Neptune	--	7	--	--
Bradley Beach	--	--	16	16
Avon	--	--	18	10
Belmar	)	)	17	13
South Belmar	)	)	--	--
Spring Lake	)14	)12	12	16
Spring Lake Heights	)	)	--	--
Sea Girt	)	)	12	14
Brielle	)	)	--	--
Manasquan	)	)	15	16
Wall Township	11	--	--	--
Pt. Pleasant Beach	15	12	21	12
Bay Head	--	--	21	--

Source: 1972 Port Authority Bus Passenger Survey
1974 Port Authority Rail Passenger Survey

Comparison of the two exhibits indicates that, from many points in the Study Area, trips to New York can be completed faster by bus than by auto. This time advantage is explained by the fact that during the morning peak period, buses can take advantage of the exclusive bus lane at the Lincoln Tunnel approach road (Interstate Route 495). Comparative travel time data for buses and autos on the road segment between Exit 16 of the New Jersey Turnpike and the Port Authority Bus Terminal (PABT) show an approximate time difference of 12 minutes in favor of bus travel. This time advantage of bus over auto is less from Study Area locations, depending on the distance traveled on local roads prior to entering the Garden State Parkway and/or the New Jersey Turnpike and on the total distance traveled via the Parkway and/or the Turnpike. On these two highways, autos were found to travel at an average speed approximately 5 mph faster than that of the buses. On the local roads, autos are again found to travel faster than buses. This difference in speed is due primarily to the delays met by the buses in picking up or discharging passengers. Therefore, the travel time differential between autos and buses is affected by the length of open-door operation and the level of passenger activity along the bus route. Generally, the shorter trips from northern sections of the Study Area can be completed faster by bus than comparable auto trips. Longer trips from southerly portions of the Study Area are traveled faster by auto.

A comparison of the auto, rail, and bus morning peak-period line-haul travel times from selected Study-Area locations to New York City and Newark is presented as part of Table 5.

EXHIBIT NO. 5

A. M. PEAK PERIOD AUTO TRAVEL TIMES TO P. A. B. T., NEW YORK

NEW JERSEY PUBLIC TRANSPORTATION STUDY

EASTERN MONMOUTH - OCEAN - MIDDLESEX CORRIDOR

Ford, Bacon & Davis
Incorporated
Engineers

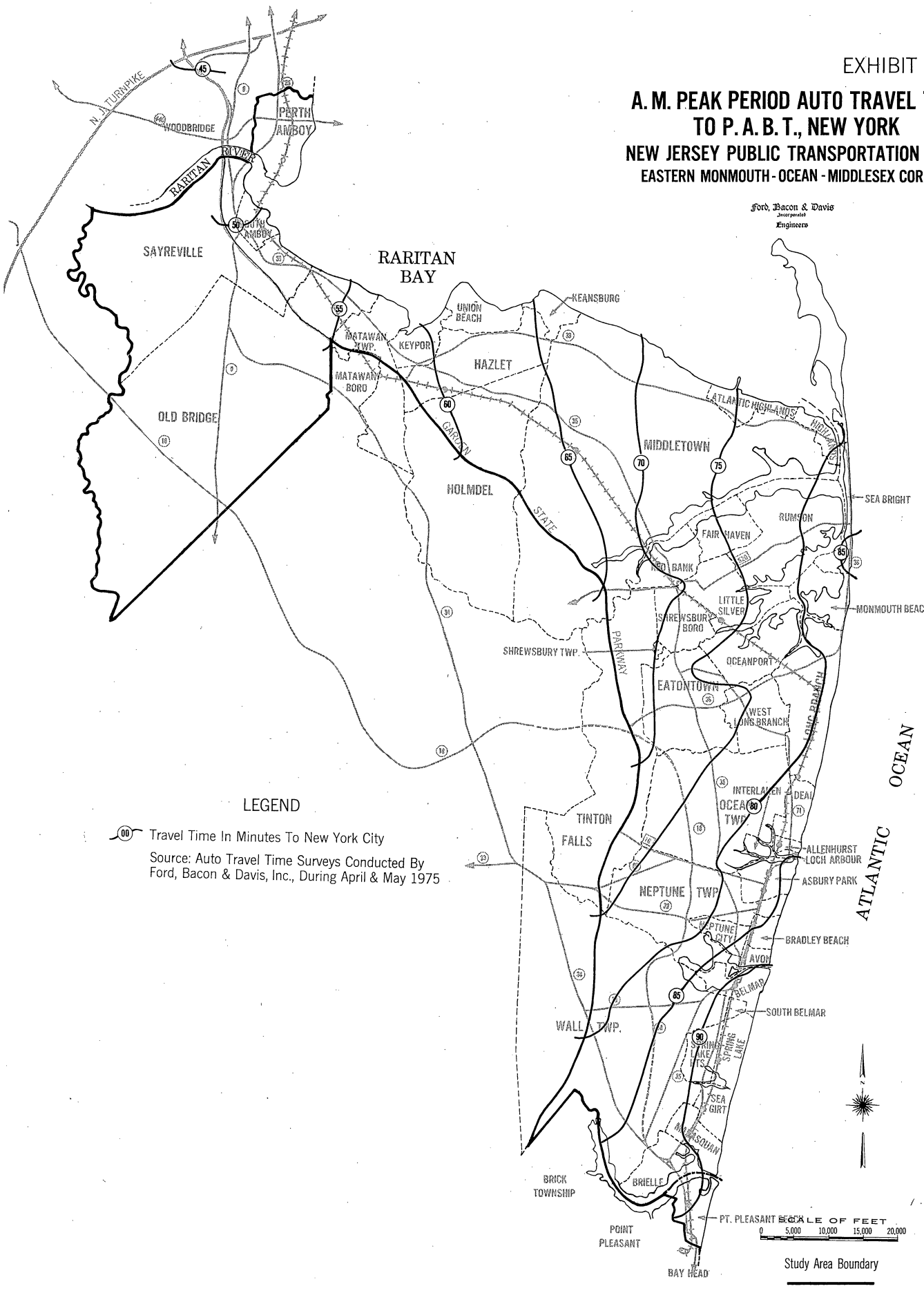


EXHIBIT NO. 6

A. M. PEAK PERIOD BUS TRAVEL TIMES TO P. A. B. T., NEW YORK

NEW JERSEY PUBLIC TRANSPORTATION STUDY

EASTERN MONMOUTH-OCEAN-MIDDLESEX CORRIDOR

Ford, Bacon & Davis
Incorporated
Engineers

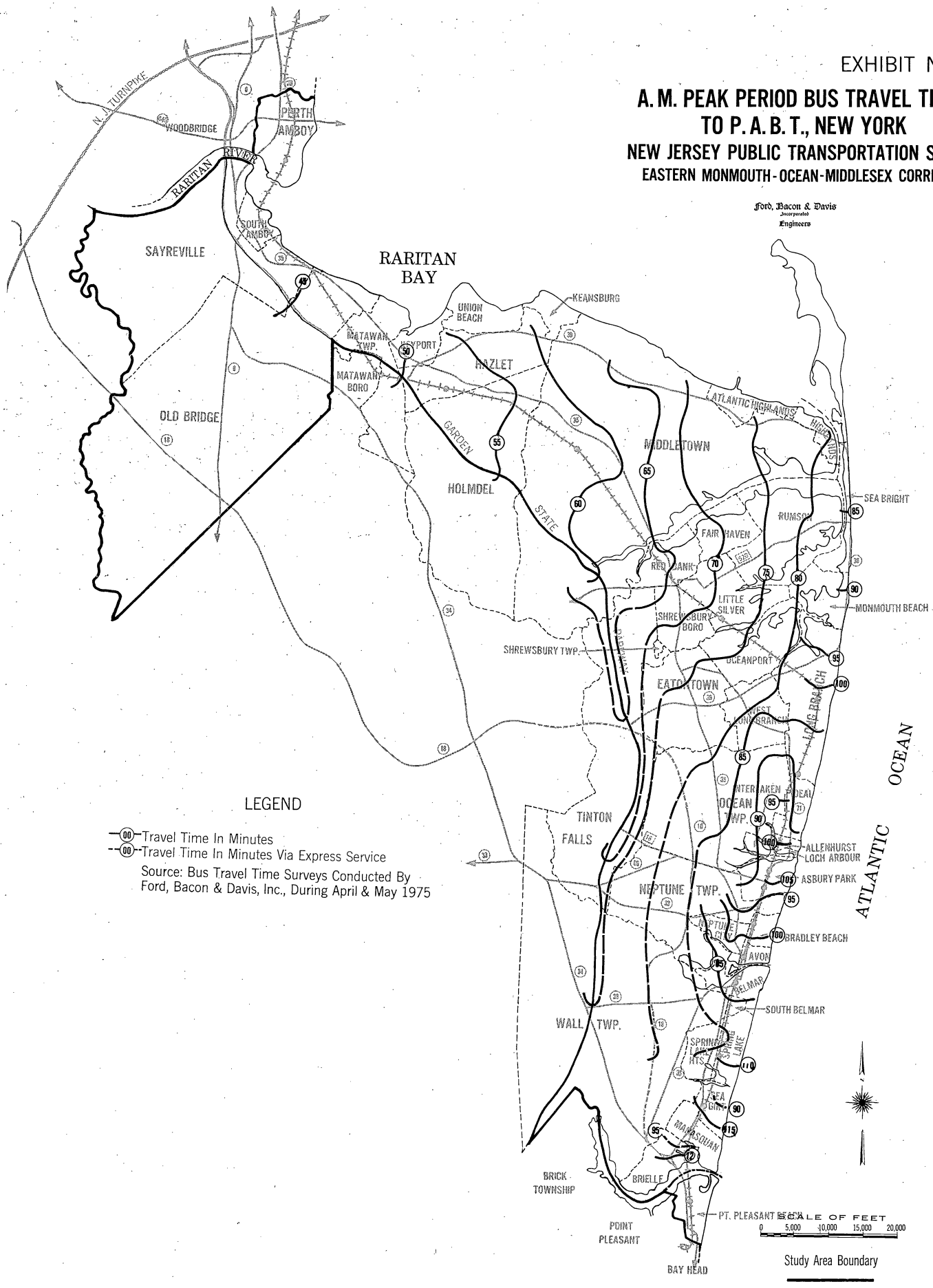


Table 5
One-Way Travel Costs from Selected Origin Points
to New York and Newark - Morning Peak Period

		To Newark					To New York				
Origin	Mode	Average Access Time (minutes)	Line Haul Travel Time (minutes)	Travel and Access Time Costs	Fare and Operating Costs	Total Cost	Average Access Time (minutes)	Line Haul Travel Time (minutes)	Travel and Access Time Costs	Fare and Operating Costs	Total Cost
Pt. Pleasant	Rail	18	106	$ 6.20	$ 1.18	$ 7.38	18	123	$ 7.05	$ 1.81	$ 8.86
	Bus		- Service not available -				14	99	5.65	2.08	7.73
	Auto	-	73	3.65	10.72	14.37	-	90	4.50	12.86	17.36
Asbury Park	Rail	14	83	4.85	1.45	6.30	14	101	5.75	2.09	7.84
	Bus	20	100	6.00	1.91	7.91	20	92	5.60	2.33	7.93
	Auto	-	66	3.30	9.83	13.13	-	83	4.15	12.02	16.17
Long Branch	Rail	14	70	4.20	1.12	5.32	14	88	5.10	1.67	6.77
	Bus		- Service not available -				14	79[1]	4.65	2.02	6.67
							14	102[2]	5.80	1.84	7.64
	Auto	-	62	3.10	9.09	12.19	-	79	3.95	11.33	15.28
Red Bank	Rail	18	59	3.85	1.37	5.22	18	76	4.70	2.02	6.72
	Bus	20	74	4.70	1.60	6.30	20	63	4.15	2.15	6.30
	Auto	-	57	2.85	8.11	10.96	-	74	3.70	10.35	14.05

Sources: Average access times based on 1972 Port Authority Bus Passenger Survey and 1974 Port Authority Rail Passenger Survey.

Pt. Pleasant bus and all rail line-haul travel times based on public time tables.
Bus and auto line-haul travel times based on FB&D field surveys.

[1] via AP-NY

[2] via NY-K-LB

Railroad travel times to New York City are generally the slowest of the three modes. Travel to Newark is faster by railroad than by bus. In all cases, auto travel is faster than railroad travel, although from Red Bank the differences are small.

Peak-Period Travel Costs

Table 5 compares the estimated travel costs of morning peak-period trips from selected Study-Area origins to either Newark or New York City. Time costs were developed using $3.00 per hour as representative of the value of time. Operating costs include auto operating expenses (based on 15¢ per mile), highway tolls, and parking fees. Fares reflect the lowest fare available based on multiple-ticket book purchases. Costs were developed based on a Newark destination of Pennsylvania Station or the Public Service Bus Terminal. Costs for New York trips reflect travel to either PABT, Pennsylvania Station, or the 33rd Street Station of the Port Authority Trans-Hudson (PATH).

The time costs of auto trips are lower than those of the other modes. Trips by bus to New York generally have lower time costs than by railroad, while the opposite is true of the trips to Newark. Bus and railroad fares and operating costs are competitive, but with the railroad costs consistently being the lower of the two. Auto operating costs are substantially higher than railroad or bus trip fares and costs. Due to these high operating costs, the total cost of auto trips were about double the total costs of trips made by bus or railroad. Total bus and railroad travel costs are similar for New York trips while railroad costs are slightly less than bus costs for Newark trips.

By utilizating carpools, the high auto operating costs can be shared and the total travel cost per person reduced. For example, the members of a three-person carpool traveling between Long Branch and New York would each have $7.73 in total costs per trip, making auto travel more competitive with bus and railroad.

CHAPTER IV

EXISTING TRANSPORTATION SYSTEM

Railroad Service

New York and Long Branch Railroad

The New York and Long Branch Railroad is the only passenger railroad carrier in the Study Area. The NY&LB is owned jointly by the Penn Central Transportation Company (PC) and Central Railroad Company of New Jersey (CNJ). The PC furnishes approximately 60 percent of the passenger service over the tracks of the NY&LB.

CNJ trains operate into Pennsylvania Station, Newark at which point connection can be made with PC trains to Pennsylvania Station, New York, or PATH trains to the World Trade Center, 33rd Street, or intermediate points in New York or New Jersey. PC trains provide direct service between NY&LB stations and Pennsylvania Station, New York.

The PC main line is electrified at 11,000 volts, ac, 25hz. This includes the Perth Amboy and Woodbridge Branch between Rahway and Perth Amboy and the New York and Long Branch between Perth Amboy and South Amboy. CNJ trains operate seven daily round trips with diesel-electric locomotives between Bay Head and Pennsylvania Station, Newark. PC trains operate ten daily round trips with diesel-electric locomotives between Bay Head and South Amboy where electric locomotives are substituted for the run to Pennsylvania Station, New York. Additionally, multiple-unit (M-U)

electric trains are operated by the PC between South Amboy and New York.

Other Rail Facilities

One railroad line parallels the NY&LB, although lying to the west and primarily outside the Study Area. This is the CNJ's Southern Division which connects Red Bank and Lakehurst via Eatontown and Lakewood. There has been no passenger service on this line for over 20 years.

Fares

As of April 25, 1975, NY&LB passengers are offered monthly and weekly commutation fares in addition to regular one-way and reduced (non-rush hour) round-trip fares. One-way fares from stations in the Study Area to New York range from $2.40 (Perth Amboy) to $5.00 (Point Pleasant Beach). Weekly commutation fares to New York range from $18.25 to $21.25 and monthly commutation rates from $64.00 to $74.00. The off-peak round-trip fares vary from $3.50 to $7.50. The one-way and off-peak round trip fares between Perth Amboy and Newark are $1.60 and $2.50 respectively. Comparable fares between Point Pleasant Beach and Newark are $4.40 and $6.50. Weekly commutation fares to Newark range from $11.50 (Perth Amboy) to $19.00 (Point Pleasant Beach) while monthly fares range from $39.00 to $63.00.

Subsidization

The operating subsidies paid to NY&LB are not separable from the overall payments paid to the two owner lines, PC and CNJ.

The total subsidy paid to CNJ was $1,104,000 in 1961 rising to $10,616,000 in 1974. The PC received $1,402,000 and $7,300,000 during the same years. In March 1975, it was estimated that CNJ would receive $14,219,000 and PC $10,199,000 for fiscal year 1975.

Ridership

Table 6 indicates the destinations of the northbound person-trips originating at each station of the New York and Long Branch Railroad, according to the 1974 Port Authority Rail Passenger Survey. New York City-bound trips comprise 73 percent and 71 percent of the peak-period and total daily trips, respectively and when combined with Newark-bound trips comprise 94 percent and 92 percent, respectively. The proportion of New York-bound trips to total trips originating at northern railroad stations is greater than at southern railroad stations. Correspondingly, the proportion of Newark-bound trips to total trips is higher at southern railroad stations than at northern railroad stations. Of the total daily trips, 87.8 percent are made during the peak hours.

Based on results of the 1974 Port Authority PATH Passenger Survey, 2,500 daily peak-period NY&LB trips originating in the Study Area transfer to the PATH system at Newark. Of this total, 89.7 percent (2,243 trips) are destined for the downtown New York World Trade Center station, 2.5 percent (63 trips) are destined for midtown New York stations on the 33rd Street Branch, and 7.8 percent (195 trips) travel to New Jersey stations. During

Table 6
Summary of Daily Rail Person - Trips
Originating at Study Area Rail Stations

Rail Station of Origin	Peak Period Trips	Peak-Period Trips to New York	Peak-Period Trips to Newark	Peak-Period Trips to Other[1]	Daily Trips	Daily Trips to New York	Daily Trips to Newark	Daily Trips to Other[1]
Perth Amboy	102	63	26	13	144	94	26	24
South Amboy	729	541	146	42	907	632	196	79
Matawan	1,356	1,104	205	47	1,486	1,192	230	64
Hazlet	402	329	63	10	448	343	77	28
Middletown	1,303	1,053	211	39	1,394	1,124	224	46
Red Bank	1,329	1,085	198	46	1,442	1,169	225	48
Little Silver	469	347	105	17	505	372	111	22
Long Branch	309	221	49	39	373	245	78	50
Elberon	300	207	69	24	326	223	72	31
Allenhurst	320	203	74	43	341	214	77	50
North Asbury	5	2	2	1	12	7	2	3
Asbury Park	136	73	45	18	204	101	71	32
Bradley Beach	138	94	34	10	150	100	37	13
Avon	59	24	22	13	64	24	22	18
Belmar	287	159	98	30	329	177	111	41
Spring Lake	194	105	68	21	239	139	79	21
Sea Girt	49	28	15	6	49	28	15	6
Manasquan	193	100	69	24	255	136	78	41
Point Pleasant Beach	339	171	120	48	445	217	149	79
Bay Head	161	62	76	23	208	63	98	47
Total	8,180	5,971	1,695	514	9,321	6,600	1,978	743
Percent	100	73	21	6	100	71	21	8

Source: 1974 Port Authority Rail Passenger Survey

[1] "Other" denotes any destination other than New York or Newark.

the entire day, total of 2,794 NY&LB riders originating in the Study Area transfer to the PATH system at Newark.

Improvement Plans and Ridership Forecasts

The Capital Improvement Program of the New Jersey Department of Transportation (NJDOT) would extend the electrified portion of the NY&LB from South Amboy to Red Bank, a distance of about 15 miles. According to current traffic projections, 74 percent of all NY&LB passengers in 1985 will originate at stations between Red Bank and Avenel, inclusive. Peak-period patronage at these stations is expected to increase 48 percent, from 6,700 in 1974 to 9,900 in 1985. Peak-period patronage south of the Red Bank railroad station is estimated to grow 9 percent, from 3,350 in 1974 to 3,650 in 1985. Based on these projections, the 1980 peak-period patronage originating between the Avenel and Red Bank railroad stations, inclusive, is estimated to be 9,022. The total 1980 peak-period patronage originating or terminating between the Avenel and Bay Head railroad stations, inclusive, is estimated at 12,273. The total 1980 daily patronage originating at these stations is projected to be 14,099.

The State of New Jersey proposes to acquire sufficient new electric multiple-unit cars to furnish most of the service between Red Bank and New York. Certain of the trains between Bay Head and Red Bank would continue to be pulled by diesel-electric locomotives, with electric locomotives substituted at the latter point for the journey to New York. In addition, there would be

street closings to eliminate grade crossings, and station consolidation where warranted by traffic conditions.

Bus Service

An annual total of 4,066,051 passengers are carried on 18 bus routes in the Study Area*. A little more than half (52.9 percent) of those passengers are carried on four commuter-oriented routes operating from the Study Area to New York and/or Newark. Exhibit 1 gives a composite picture of the primary bus network formed by these routes.

New York-Keansburg-Long Branch Bus Company (NY-K-LB)

The NY-K-LB operates two commuter routes, one terminating in New York (PABT), the other in Newark (Public Service Terminal). Both routes operate along New Jersey Route 36 from Long Branch to Hazlet and travel express from that point via the Garden State Parkway and New Jersey Turnpike. Route variations provide service to Hazlet (along Middle Road) and Keansburg. In addition, NY-K-LB provides one daily round trip between Long Branch and the Wall Street area in Manhattan, via Staten Island. Local service is offered between all points south of Hazlet on all trips. Free park-and-ride facilities are located at three locations; Hazlet (Airport Plaza), Keansburg, and Leonardo. Service is greatly reduced on weekends and holidays, with nine daily northbound trips to New York and two to Newark. Weekday service consists of 38 trips to New York and six trips to Newark.

---

*Based on 1974 PUC and ICC Annual Reports.

Asbury Park-New York Transit Corp. (AP-NY)

The AP-NY provides commuter service between Point Pleasant Beach and New York (PABT), with peak-period express service from various locations in the Study Area. One daily round trip is made to downtown Manhattan. The major municipalities served are Asbury Park, Long Branch, and Red Bank. Local service is offered at a flat fare of $1.00 between any two New Jersey points south of Laurence Harbor. Weekend service is provided at one-third the weekday frequency level.

Coast Cities Coaches, Inc. (CCC)

Headquartered in Neptune, CCC operates five local transit routes radiating from Asbury Park. The routes are lightly patronized as feeders to commuter bus and railroad facilities. All routes experience patronage increases in the summer months, evidenced by a 26-percent revenue increase in July 1975, as compared to January of the same year. Saturday ridership equals the typical weekday ridership on these routes. A brief description of each route follows:

a. Route 4, Deal to Neptune -- This route operates to the Jersey Shore Medical Center (Fitkin Hospital) and the Asbury Park business area. Major use of the route is made by hospital workers at Fitkin, employees of stores in Asbury Park, and persons employed as domestics in Deal. The busiest trips are the eastbound morning peak-period trips and those serving the hospital between 3:00 and 4:00 P.M. Saturday

service is reduced and no service is provided on Sundays. Summer ridership increases are light on this route.

b. Route 2/16, Asbury Park/Belmar/Manasquan -- Route 16 (three daily round trips) operates from northern Asbury Park to 22nd Avenue in Belmar. Route 2 service continues farther south to the Manasquan/ Brielle border. The line carries many elderly riders from northern Asbury Park to the Cookman Avenue business area, also in Asbury Park. The busiest trips are the 7:15 A.M. northbound and the 4:25 P.M. southbound. Service is provided seven days per week with reduced service on Sundays and holidays

c. Route 20, Asbury Park to Point Pleasant Beach -- This route duplicates Route 2/16 as far south as 18th Avenue in Belmar. From there it proceeds to Point Pleasant Beach via New Jersey Routes 71 and 35. Ridership is highest during the morning and evening peak hours and consists largely of workers and shoppers in Asbury Park stores. As with Route 2/16, elderly residents utilize this route for trips within Asbury Park. During the summer months, delays are experienced frequently due to drawbridge openings. The route operates Monday through Saturday, with a reduced schedule on Sundays and holidays.

d. Route 7, Asbury Park to Long Branch -- This route operates primarily on New Jersey Route 71 (Norwood Avenue) and Broadway (in Long Branch). It serves the commercial areas of both Long Branch and Asbury Park, but it skirts the campus of Monmouth College. Service is operated every day with a reduced schedule on Sundays and holidays.

e. Route 31, Asbury Park to North Long Branch -- This route is less direct than Route 7. It serves the Long Branch and Asbury Park commercial centers and the Monmouth Medical Center in Long Branch. The morning trips are patronized by employees of the Medical Center, by domestics, and by employees of stores in Asbury Park. School children (required to travel by school bus in the mornings) make up much of the afternoon traffic, as do shoppers (many elderly) destined to and from Asbury Park stores. This route is operated Monday through Saturday only.

Boro Busses Co. (Boro)

Headquartered in Shrewsbury Borough, Boro operates six local routes radiating from Red Bank. Certain of the routes are used, to a limited extent, as feeder lines to commuter bus and railroad facilities, primarily in Red Bank. Generally, on Saturday-operating routes, the passenger volume on that day is comparable to the passenger volume on a weekday. A brief description of each route follows:

a. Route 1, Red Bank to Long Branch -- This route operates between the Red Bank and Long Branch downtown business areas, with stops at Fort Monmouth and, at certain times, at the Monmouth Shopping Center. On the runs that stop at the Shopping Center, the bus travels over New Jersey Route 36 to Broadway in Long Branch. Other runs use Broad Street and Eatontown Boulevard to Broadway and Long Branch.

   Major use of the route is made by employees and shoppers in downtown stores in Red Bank and Long Branch, workers at Fort Monmouth, and shoppers at the Monmouth Shopping Center, in which there are two bus stops. No service is provided on Sundays or major holidays.

b. Route 8, Red Bank to Long Branch via Little Silver -- This route operates between the Red Bank and Long Branch business areas. It serves Little Silver and Oceanport via Oceanport Avenue operating to the east of bus Route 1 but taking approximately the same total travel time between Long Branch and Red Bank.

c. Route 2, Red Bank to Asbury Park -- This service operates from the Red Bank railroad station to Asbury Park. The route extends primarily along New Jersey Route 35, with stops at Fort Monmouth and the Monmouth Shopping Center. Ridership is steady throughout the day because the route is well patronized by shoppers, many of whom are elderly.

Daily service is provided, with reduced hours on Sunday. There is no holiday service.

d. Route 4, Red Bank to Highlands -- This route operates north along New Jersey Route 35 into Middletown. It then proceeds east into Leonardo, Navesink, Atlantic Highlands, and Highlands. The busiest runs are the 7:00 A.M. trip into Red Bank and those leaving Red Bank between 2:00 and 5:00 P.M. School children and senior citizens comprise the great majority of the non-peak patrons. There is a late spring/early summer ridership increase of approximately 10 percent, composed of bathers bound for Sandy Hook. There is no service on Sundays or major holidays.

e. Route 5, Red Bank to Sea Bright -- This route operates from Shrewsbury, through Red Bank, and east to Fair Haven, Rumson, and Sea Bright. It is the shortest of the Boro routes. The heaviest passenger traffic occurs during the morning peak period into and the evening peak period out of Red Bank. These trips primarily carry shoppers and employees of Red Bank establishments, with some commuters making railroad and bus connections to and from New York. Off-peak traffic is generally light. In the summer months there is increased ridership on the route. Reduced service is provided on Saturdays, and there is no service on Sundays or major holidays.

f. Route 10, Red Bank to Freehold -- This is Boro's newest route, initiated as an experimental route in February 1974. Major points served are the ECOM Building, Brookdale Community College, and the Freehold Courthouse. Except for the morning and evening peaks, this route is lightly traveled but may become more important in the future with the population, industrial and commercial growth projected for the Freehold area. There is no service on Saturdays, Sundays, or major holidays.

Marathon Bus Line Inc., Bayview Bus Line, Inc., and Amboy Coach Inc.

Marathon Bus, Bayview, and Amboy are owner-affiliated companies which provide bus service in southeastern Middlesex County, centered around Perth Amboy and South Amboy. Marathon Bus does not operate any regular routes but runs a charter bus operation. A description of each of the three regular routes operated by this group follows:

a. Perth Amboy to Keansburg -- Operated by Bayview, this route serves southeastern Middlesex County and Keyport, Union Beach, and Keansburg in Monmouth County. There is no weekend service.

b. Woodbridge to New Brunswick -- Operated by Amboy, this route serves the downtown areas of Perth Amboy and New Brunswick. Other major stops are Mid-State Mall and Rutgers University. Reduced Saturday service is provided.

c. Perth Amboy to East Brunswick -- This route is operated by Bayview. Prior to February 2, 1974, it ran only between Perth Amboy and the Sayrewoods Shopping Center. It primarily operates via U.S. Route 9, Middlesex County Route 516, and New Jersey Route 18, with diversions to serve housing developments in the Sayrewood South and Pinewood sections of Old Bridge Township. Principal points now served include the Perth Amboy and South Amboy business areas, the Sayrewoods Shopping Center, the Brunswick Square Mall, and the Mid-State Mall. There is no weekend service.

Transport of New Jersey (TNJ)

TNJ's Route 130 runs between Asbury Park and Newark, with route variations operating via New Jersey Routes 35 and 34 and the Garden State Parkway.* Its Route 133 extends between Newark and Asbury Park but service is provided only between Newark and Red Bank during peak hours. Most of the Route 130/133 trips serve Newark Airport. The routes are operated out of TNJ's Elizabeth Garage. Weekend service is two-thirds as frequent as on weekdays. Three extra daily trips are operated during the summer.

Other Companies and Services

In addition to the foregoing, there are some services being operated in the Study Area which are not being analyzed in detail as part of this study. Domenico Bus Service, Inc. operates

---

*Modified during the course of the study.

a route connecting the communities of Keansburg, Keyport, Union Beach, Cliffwood, South Amboy, and Perth Amboy with Bayonne, via Staten Island. A transfer can be made in Bayonne for buses to downtown and midtown Manhattan. This service is operated on Saturdays, Sundays, and holidays only. North and South Jersey Bus Company provides four daily round trips between Asbury Park and Journal Square in Jersey City, via U.S. Route 1, the New Jersey Turnpike, and New Jersey Routes 35 and 71. Local service is provided between Asbury Park and Keyport.

The Mercer County Improvement Authority (Mercer Metro) offers a service connecting Trenton and Asbury Park via New Jersey Route 33.

Lincoln Transit Company and TNJ operate express service to New York, via the Garden State Parkway and New Jersey Turnpike, from various points in western Old Bridge and Sayreville Townships. TNJ provides service in the Study Area with the following routes:

a. Route 4, Perth Amboy to New Brunswick -- This route operates via New Brunswick Avenue and Woodbridge Avenue through Metuchen and Highland Park.

b. Route 84, Perth Amboy to Woodbridge and Edison Township

c. Route 62, Perth Amboy to Newark.

d. Route 46/139, Perth Amboy to New York -- Express service between New York and Matawan is also part of the Route 139 service. Local service is provided between Perth Amboy and Carteret.

e. Route 12/58, New Brunswick to Sayreville via Milltown -- This route is extended to serve Sayreville during peak hours only.

f. Route 117, Asbury Park to Philadelphia.

Seasonal and Special Services

In addition to the regular routes described above, there are several seasonal and special services operating in the Study Area. One of these is Route 5/9 provided by Coast Cities Coaches between Asbury Park and Spring Lake. This route is operated in the summer season only and travels via Ocean Avenue. Eleven southbound and ten northbound trips are operated Monday through Saturday. Three fewer trips are made on Sundays.

Ocean Grove Belt Line, Inc., an affiliate of Coast Cities Coaches, operates a loop route within Ocean Grove during the summer months only. The route consists of two loops serving the northern and southern halves of Ocean Grove.

Boro Busses operates seasonal routes between Asbury Park and Allentown, Pennsylvania, and between Long Branch and Camden.

Consolidated Shore Lines, a division of the Manhattan Transit Company, offers seasonal service between Asbury Park and Fort Lee and Paterson. Other seasonal routes connect Seaside Heights to Fort Lee and Paterson, via Brielle.

The Long Branch Senior Citizen Resource Center, as part of its Community Development Program, operates a 12-passenger van serving any City resident over 60 years of age. It is a

dial-a-ride service, and reservations should be made at least one day in advance. The program, financed with State funds, has been in effect for just over one year. No fare is charged for rides. The service operates between 9:00 A.M. and 5:00 P.M., Monday through Friday, and provides intracity trips only. Initial capital investments totaled nearly $5,000 and annual operating costs are $14,300. Ridership during April 1974 totaled 1,742. Annual mileage is approximately 13,800.

The City of Asbury Park also has a dial-a-ride program, operating one van.

Certain of the senior citizen retirement communities in the Study Area operate minibuses or vans. One of these is Shadow Lake Village, located in Middletown, immediately north of Red Bank. An 18-passenger vehicle makes numerous shuttle trips between the Village and downtown Red Bank.

A dial-a-ride program began operation on September 2, 1975, in Middlesex County. Four 12-passenger vans are operated by the Middlesex County Office on the Aging, to provide transportation to blind, disabled, and elderly residents. Federal and County funds finance the program. Potential passengers must meet eligibility requirements. One of the vehicles is garaged in Perth Amboy and serves that immediate area. Another is located in Sayreville. A similar program is operated by the Monmouth County Office on the Aging, serving 20 municipalities. Four 14-passenger vans are used.

Numerous bus companies operate local routes to the Monmouth Park racetrack and to Freehold Raceway from points to the west and north.

The U.S. Army provides a shuttle bus connecting Fort Monmouth and Camp Charles Wood in Eatontown and the ECOM Building in Tinton Falls, to serve military personnel only.

Timetables and Public Information

All of the bus companies print public timetables for each route. The two New York commuter service timetables list terminals and ticket agencies. The AP-NY timetable also includes a schematic route map and mentions some connections that can be made in Asbury Park (to Lakewood/Fort Dix/Camden/Philadelphia).

Boro lists the schedules and provides a composite map of all its routes on one timetable. This facilitates a determination of the location and convenience of transfers. The Route 10 fare schedule is included, and mention is made of possible connections in Asbury Park and Red Bank.

The Amboy/Bayview schedules are listed on one timetable, together with a composite route map. The map does not differentiate the routes or identify all end points. Transfer points (between Company routes only) are listed.

CCC route schedules are listed on separate timetables. Route maps are not included but each timetable contains a list of the streets over which the bus operates. Fare schedules are also shown. No transfer information is included, other than the cost of a transfer.

The Monmouth County Government and the Monmouth Workshop provide a public transportation information service, Monday through Friday. Initiated in June 1975, the Monmouth County Transportation Information Center receives about six telephone inquiries daily regarding local services and schedules.

Bus Stop Characteristics

As part of the field studies, bus stop characteristics were recorded every time a surveyed bus stopped to pick up or drop off a passenger. Table 7 lists, by route, the characteristics noted on the trips sampled. The frequency of totally unmarked bus stops ranges from a low of 28.8 percent on CCC Route 20 to a high of 87.6 percent on Boro Route 4. Bus stop markings occur most frequently in urban areas, such as Red Bank, Perth Amboy, and Asbury Park, and the most common marking is painted streets and curbs. The highest frequency of these markings was found on CCC Route 20. Bus shelters were observed infrequently, especially along the Amboy and Bayview routes. The highest frequency of bus stops with benches was along the CCC routes, primarily due to the numerous benches located along Cookman Avenue and Main Street in Asbury Park where many stops are made.

Bus stops located at the nearside of intersections are most common, especially along the CCC routes. Midblock locations occurred frequently along only two routes, Boro Routes 1 and 8. Midblock locations rarely were observed in urban areas. In Perth

Table 7
Bus Stop Characteristics

Company and Route	Total Stops Made	Bus Stop Markings: Sign No.	Sign %	Paint No.	Paint %	Bench No.	Bench %	Shelter No.	Shelter %	Unmarked No.	Unmarked %	Bus Stop Location: Nearside No.	Nearside %	Farside No.	Farside %	Midblock No.	Midblock %
Boro Buses																	
No. 1 Red Bank - Long Branch	78	33	42.3	44	56.4	4	5.1	2	2.6	27	34.6	23	29.5	13	16.7	42	53.8
No. 2 Red Bank - Asbury Park	218	69	31.7	78	35.8	32	14.7	17	7.8	121	55.5	138	63.3	41	18.8	39	17.9
No. 4 Red Bank - Highlands	186	5	2.7	8	4.3	5	2.7	10	5.4	163	87.6	134	72.0	34	18.3	18	9.7
No. 5 Red Bank - Sea Bright	300	32	10.7	73	24.3	17	5.7	33	11.0	193	64.3	223	74.4	46	15.3	31	10.3
No. 8 Red Bank - Long Branch	193	32	16.6	44	22.8	7	3.6	2	1.0	110	57.0	53	27.5	38	19.7	102	52.8
No. 10 Red Bank - Freehold	68	23	33.8	14	20.6	-	-	7	10.3	30	44.1	57	83.8	7	10.3	4	5.9
Total	1,043	194	18.6	261	25.0	65	6.2	71	6.8	644	61.7	628	60.2	179	17.2	236	22.6
Coast Cities Coaches																	
No. 4 Deal - Neptune	253	6	2.4	80	31.6	42	16.6	19	7.5	151	59.7	222	87.8	14	5.5	17	6.7
No. 2/16 Asbury Park - Manasquan	421	87	20.7	184	43.7	104	24.7	-	-	214	50.8	353	83.8	50	11.9	18	4.3
No. 20 Asbury Park - Pt. Pleasant	212	61	28.8	143	67.5	60	28.3	11	5.2	61	28.8	170	80.2	39	18.4	3	1.4
No. 7 Asbury Park - Long Branch	343	35	10.2	32	9.3	56	16.3	2	0.6	264	77.0	267	77.8	50	14.6	26	7.6
No. 31 Asbury Park - No. Long Branch	204	34	16.7	99	48.5	42	20.6	3	1.5	100	49.0	170	83.3	32	15.7	2	1.0
Total	1,433	223	15.6	538	37.5	304	21.2	35	2.4	790	55.1	1,182	82.5	185	12.9	66	4.6
Amboy Coach, Inc.																	
Woodbridge - New Brunswick	201	74	36.8	99	49.2	31	15.4	-	-	87	43.3	82	40.8	90	44.8	29	14.4
Bayview Bus Line																	
Perth Amboy - Keansburg	253	58	22.9	63	24.9	31	12.3	4	1.6	151	59.7	157	62.1	78	30.8	18	7.1
Perth Amboy - East Brunswick	152	33	21.7	33	21.7	10	6.6	-	-	112	73.7	91	59.9	37	24.3	24	15.8
Total	606	165	27.2	195	32.2	72	11.9	4	0.7	350	57.8	330	54.5	205	33.8	71	11.7
Transport of New Jersey																	
No. 130/133	151	48	31.7	22	14.6	12	7.9	28	18.5	100	66.2	67	44.4	20	13.2	64	42.4

Source: FB&D field surveys covering a sampling of daily bus trips.

Amboy, many bus stops along Smith Street are located at the far-side of intersections, thus the relatively higher percentage in that category for the Amboy and Bayview routes.

Ridership

Table 8 presents the typical daily ridership on the commuter bus routes based on the on-board field surveys. The NY-K-LB New York service is shown to carry the largest number of daily passengers. TNJ carries more daily riders between the Study Area and Newark than does NY-K-LB.

The area between Matawan and Keansburg, inclusive, generates 56.5 percent of the ridership on the NY-K-LB New York service and 65 percent of the passengers of the same company's Newark service. Local trips within the Study Area comprise 7.6 percent of all trips on the NY-K-LB New York service. No local trips were recorded on the Newark service.

Over one-half (57.7 percent) of the total daily and nearly 61 percent of the peak-period AP-NY ridership is generated in or north of the immediate Red Bank area (including Shrewsbury, Tinton Falls, and Little Silver). The Red Bank area itself accounts for 32.9 percent of the total daily passengers and 37 percent of the peak-period riders. The area between Point Pleasant Beach and Belmar, inclusive, generates 10 percent of the total daily ridership. Yet 75 percent of the Point Pleasant Beach and Belmar passengers ride during peak periods compared to less than half (48.4 percent) of the remainder of the daily riders. Only 5.2 percent of the daily passenger-trips both originate and terminate in the Study Area.

Table 8
Typical Weekday Ridership of Commuter Bus Routes

Company and Route	Total Daily Passenger Trips			
	Northbound		Southbound	
	A.M. Peak	All Day	P.M. Peak	All Day
Asbury Park-New York Transit Corp. (AP-NY)				
Point Pleasant/Asbury Park - New York Service	532	1,069	576	1,222
New York-Keansburg -Long Branch Bus Co. (NY-K-LB)				
Long Branch - New York Service	1,267	1,692	1,007	1,578
Long Branch - Newark Service	62	82	69	98
Transport of New Jersey (TNJ)				
Route 130/133	167	310	176	315

Source: Based on FB&D field surveys.

Table 9 shows the daily variation in ridership on AP-NY service. Weekday ridership on this line is stable except for small decreases on Wednesdays and Thursdays.

Nearly one-half of the TNJ Route 130/133 ridership boards or alights in Asbury Park, Red Bank, and Middletown. Local trips, originating and terminating south of the Raritan River, comprise 7.4 percent of all weekday person-trips. On the trips surveyed, only 2 percent of the trips to or from Newark originated or terminated at Newark Airport. Table 10 presents the daily ridership variation on this route. Between Monday and Friday the number of daily passengers gradually decreases.

The passenger survey indicates that the NY-K-LB service carries an average of 52.9 passengers per peak-period trip and 41.4 passengers per daily trip. Excluding local intrastate passengers, these figures become 47.5 and 37.2 respectively. The AP-NY service carries an average of 41 passengers per peak-period trip and 33.7 passengers per daily trip. The respective averages for only the New York-bound passengers are 39.2 and 31.9.

The NY-K-LB Newark service carries an average of 15 passengers per daily trip while the TNJ Newark service carries an average of 22.3 persons per trip. The peak-period passengers per trip average 21.8 (NY-K-LB) and 34.3 (TNJ).

Table 9
Daily Ridership Variation of the Asbury Park - New York Transit Corp.

Date		Northbound			Southbound			Total		
		Buses	Passengers	Psgr./Bus	Buses	Passengers	Psgr./Bus	Buses	Passengers	Psgr./Bus
Saturday	10-13-73	33	952	28.8	35	1,227	35.1	68	2,179	32.0
Sunday	10-14-73	31	1,048	33.8	27	907	33.6	58	1,955	33.7
Monday	10-15-73	53	2,041	38.5	51	2,098	41.1	104	4,139	39.8
Tuesday	10-16-73	52	2,028	39.0	51	2,098	41.1	103	4,126	40.1
Wednesday	10-17-73	54	1,820	33.7	50	2,012	40.2	104	3,832	36.8
Thursday	10-18-73	51	1,857	36.4	49	2,028	41.4	100	3,885	38.9
Friday	10-19-73	52	1,899	36.5	54	2,282	42.3	106	4,181	39.4

Source: Port Authority of New York and New Jersey

Table 10
Daily Ridership Variation of TNJ Route 130/133

Date		Northbound			Southbound			Total		
		Buses	Passengers	Psgr./Bus	Buses	Passengers	Psgr./Bus	Buses	Passengers	Psgr./Bus
Monday	9- 8-75	14	362	25.9	14	337	24.1	28	699	25.0
Tuesday	9- 9-75	14	334	23.9	14	328	23.4	28	662	23.6
Wednesday	9-10-75	14	293	20.9	14	326	23.3	28	619	22.1
Thursday	9-11-75	14	310	22.1	14	300	21.4	28	610	21.8
Friday	9-12-75	14	249	17.8	14	284	20.3	28	533	19.0
Saturday	9-13-75	7	146	20.8	7	174	24.9	14	320	22.9
Sunday	9-14-75	7	196	28.0	7	178	25.4	14	374	26.7

Source: Transport of New Jersey

Table 11 compares the daily PABT-bound bus ridership of the AP-NY and NY-K-LB companies with the ridership of all bus companies providing similar service to the Study Area. Breakdowns by sub-areas of the Study Area are given. Overall, 42.7 percent of the evening peak-period passengers and 46.8 percent of all daily passengers in the southbound direction are carried by the two bus companies under study. Looking only at those sub-areas in which these bus services concentrate (Areas C, D, E, F, and G), the percentages change to 72.3 percent and 78.5 percent respectively. The AP-NY service predominates in Areas E, F, and G while the NY-K-LB service does likewise in Areas C and D.

Table 12 presents the typical daily ridership of each of the local transit routes under study, based on the on-board passenger counts conducted by the Consultant. Included are the on/off passenger distributions of the daily ridership of segmented portions of each route. The routes carrying the greatest daily patronage are CCC Route 2/16 (791 passengers), CCC Route 7 (949 passengers), Boro Route 4 (772 passengers), and Amboy's New Brunswick route (693 passengers). The routes carrying the lightest total daily ridership are Boro Routes 10 (71 passengers), 1 (193 passengers), and 8 (310 passengers) and CCC Routes 4 (229 passengers) and 20 (295 passengers). CCC carries 2,611 daily passengers on the routes listed in Table 12, a bit more than is carried by the Boro routes (2,347 passengers). The three Amboy/Bayview routes carry 1,670 daily passengers, 313 of which originate and terminate outside the Study Area.

Area	Municipalities Within Area
A	Perth Amboy
B	South Amboy, Sayreville, Old Bridge Township
C	Matawan, Keyport, Union Beach, Keansburg, Hazlet, Holmdel
D	Middletown, Atlantic Highlands, Highlands
E	Fair Haven, Little Silver, Tinton Falls, Red Bank, Rumson, Sea Bright, Shrewsbury, Shrewsbury Township, Colts Neck
F	Eatontown, Long Branch, Monmouth Beach, West Long Branch, Oceanport
G	Allenhurst, Loch Arbour, Interlaken, Asbury Park, Avon, Bradley Beach, Deal, Neptune Township, Neptune City, Ocean Township
H	Belmar, South Belmar, Brielle, Manasquan, Sea Girt, Spring Lake, Spring Lake Heights, Wall Township, Point Pleasant Beach.

Table 11
Total Bus Person-Trips from New York (PABT) to the Study Area by Bus Company

Time Period	Area of Destination	Bus Person-Trips by Company				
		All Companies[1]	AP-NY	%	NY-K-LB	%
P.M. Peak[2]	A	46	-	-	-	-
	B	1,353	17	1.3	-	-
	C	1,393	107	7.7	716	51.4
	D	513	111	21.6	400	78.0
	E	175	123	70.3	27	15.4
	F	68	44	64.7	20	29.4
	G	42	36	85.7	-	-
	H	296	60	20.3	-	-
Total Study Area		3,886	498	12.8	1,163	29.9
All-Day	A	84	-	-	-	-
	B	1,906	34	1.8	-	-
	C	1,879	230	12.2	991	52.7
	D	729	173	23.7	554	76.0
	E	323	262	81.1	30	9.3
	F	183	148	80.9	31	16.9
	G	159	151	95.0	-	-
	H	480	84	17.5	-	-
Study Area		5,743	1,082	18.8	1,606	28.0

Source: 1972 Port Authority Bus Passenger Survey.

(1) All bus companies which provide service between New York and the Study Area.

(2) All trips in this time period departed New York between 4:00 P.M. and 6:59 P.M.

On a per-one-way trip basis, Boro Route 4 shows the highest average ridership (25.7 passengers/trip) followed by the Amboy (23.9), Bayview's Keansburg service (21.1), and Boro Route 2 (19.1). Boro Routes 10, 5, 1, and 8 and CCC Route 4 show the lowest rates with the lowest being on Boro Route 10 (8.9 passengers/trip). By company, the highest average ridership is shown by the Amboy/Bayview routes (18.6 passengers/trip). Boro routes averages 14.5 passengers/trip and CCC 14.8.

Bus Route Coverage Areas

The coverage or service area of the local transit routes in the Study Area is considered to be that area within 1,500 feet of either side of each bus route. This corresponds to the distance generally accepted as a reasonable walking distance for the general population. Table 12 includes data concerning the Study-Area population living within this distance of a local bus route.

The Amboy/Bayview routes serve the greatest number of total residents within the Study Area while at the same time they serve the lowest number of senior citizens as a percentage of total population. CCC Routes 2/16 and 20 serve both the greatest absolute numbers and highest percentage of elderly residents. The percentages of elderly residents to all residents within the individual route coverage areas range from 9.1 (Bayview's East Brunswick route) to 26.1 (CCC Route 2/16).

CCC Routes 4 and 7 and the Amboy route serve the highest population densities within their coverage areas. The lowest

Table 12
Typical Daily Ridership and Coverage Area Characteristics of Local Bus Routes in the Study Area

Company	Route and Route Segment	Total Population	Elderly Population (62 yrs. and Over)	Population Density (persons/sq.mi.)	Percentage of Elderly Population	Total Daily Passenger - Trips: A.M. Peak Off	A.M. Peak On	Off-Peak Off	Off-Peak On	P.M. Peak Off	P.M. Peak On	A.M. Peak Off	A.M. Peak On	Off-Peak Off	Off-Peak On	P.M. Peak Off	P.M. Peak On	Average Passengers Per Trip
						To Long Branch						To Red Bank						
Boro Busses	#8 Red Bank - Long Branch																	
	Red Bank R.R. Station to Broad & Harding	4,060	1,179	7,660.4	29.0		13		80	2	40	16		78	1	21	1	
	Broad & Harding to Red Bank/ Little Silver Line	2,132	603	6,270.6	28.3		4	2	1		3	7	2			3	2	
	Red Bank/Little Silver Line to Little Silver/Long Branch Line	3,802	434	3,168.3	11.4	2		8	1	14	2	4	7	2	4		4	
	Little Silver/Long Branch Line to Oceanport Ave. & Broadway	4,659	217	3,697.6	4.7	2	2	9	3	2		1	3	5	5	9		
	Oceanport Ave. & Broadway to Ocean & Laird Ave.	9,584	1,437	9,396.1	15.0	15		34	3	65	3		16	5	80	4	30	
	Route Total	24,237	3,870	5,571.7	16.0	19	19	53	88	83	48	28	28	90	90	37	37	10.3
						To Long Branch						To Red Bank						
	#1 Red Bank - Long Branch																	
	Red Bank R.R. Station to Broad & Newman Springs Road	5,563	1,565	6,468.6	28.1	3	24	1	21		29	26	1	16	2	21	2	
	Broad & Newman Springs Road to Rt. 35 & Rt. 71	6,374	308	4,618.8	4.8		3	2	1	6	1	3	6	3	1	6	8	
	Rt. 35 & Rt. 71 to Oceanport Ave. & Broadway	4,444	458	2,795.0	10.3					1	2		5				1	
	Rt. 35 & Rt. 71 to Rt. 35 & Rt. 36	1,822	297	3,196.5	16.3			8	4	1	3				3	1	4	
	Rt. 35 & Rt. 36 to Oceanport Ave. & Broadway	1,845	245	1,476.0	13.3			4	2	4	5	2		10	3	1	7	
	Oceanport Ave. & Broadway to Ocean & Laird Ave.	9,584	1,437	9,396.1	15.0	27	3	14	1	28		4	23	1	21		7	
	Route Total	29,632	4,310	4,442.6	14.5	30	30	29	29	40	40	35	35	30	30	29	29	10.2
						To Sea Bright						To Red Bank						
	#5 Red Bank - Sea Bright																	
	Shrewsbury Ave. & Newman Springs Rd. to Red Bank R.R. Station	4,313	565	6,161.4	13.1	3	21	1	33		8	12		22	2	10		
	Red Bank R.R. Station to E. Front & Spring St.	2,918	872	6,631.8	29.9	1	4	12	70	2	61	35	3	76	18	13	8	
	E. Front & SpringsSt. to Fair Haven/Rumson Line	5,319	747	5,065.7	14.0	8	4	33	6	34	10		10	26	26	4	4	
	Fair Haven/Rumson Line to Sea Bright Bridge	4,643	653	2,920.1	14.1	9		51	1	32	2	3	22	5	54	2	14	
	Sea Bright Bridge to Church St.	725	138	3,815.8	19.0	8		13		13			15		30		2	
	Route Total	17,918	2,975	4,513.4	16.6	29	29	110	110	81	81	50	50	129	130	29	28	9.5

Table 12

Typical Daily Ridership and Coverage Area Characteristics of Local Bus Routes in the Study Area

Company	Route and Route Segment	Total Population	Elderly Population (62 yrs. and Over)	Population Density (persons/sq.mi.)	Percentage of Elderly Population	Total Daily Passenger - Trips: A.M. Peak Off	A.M. Peak On	Off-Peak Off	Off-Peak On	P.M. Peak Off	P.M. Peak On	A.M. Peak Off	A.M. Peak On	Off-Peak Off	Off-Peak On	P.M. Peak Off	P.M. Peak On	Average Passengers Per Trip
	#4 Red Bank - Highlands					To Highlands						To Red Bank						
	Broad & Front St. to Cooper's Bridge	4,499	1,216	7,029.7	27.0		6	2	72	2	128	32		85	1	26		
	Cooper's Bridge to Rt. 35 & Tindall Ave.	4,201	355	2,593.2	8.5	2	2	23	13	45	13	7	7	35	17		3	
	Rt. 35 & Tindall Ave. to Rt. 36 & Leonard Ave.	6,683	520	3,051.6	7.8	49	49	51	35	39	20	3	19	68	93	52	45	
	Rt. 36 & Leonard Ave. to Rt. 36 & 1st. Ave.	4,253	561	5,186.6	13.2	1	10	34	23	37	7		9	29	53	20	7	
	Rt. 36 & 1st. Ave. to Rt. 36 & Bay Ave.	5,011	930	2,298.6	18.6	16		19	7	29	4	5	5	17	28	3	30	
	Rt. 36 & Bay Ave. to Bay & Waterwitch Ave.	2,171	285	10,338.1	13.1		1	21		20			7		42		16	
	Route Total	26,818	3,867	3,501.0	14.4	68	68	150	150	172	172	47	47	234	234	101	101	25.7
	#10 Red Bank - Freehold					To Freehold						To Red Bank						
	Broad & Front to Hubbards Bridge	4,499	1,216	7,029.7	27.0		9		15		12	3		13		9		
	Hubbards Bridge to Brookdale Community College	4,465	338	1,672.3	7.6	2	2	8	1	5	1	1	1	2	12		2	
	Study Area Route Total	8,964	1,554	2,708.2	17.3	2	11	8	16	5	13	4	1	15	12	9	2	
	Brookdale Community College to Freehold					9		10	2	8		1	4		3		7	
	Route Total					11	11	18	18	13	13	5	5	15	15	9	9	8.9
	#2 Red Bank - Asbury Park					To Asbury Park						To Red Bank						
	Red Bank R.R. Station to Broad & Newman Springs Road	5,563	1,565	6,468.6	28.1	3	15	3	98	2	48	36	2	70	4	27	1	
	Broad & Newman Springs Road to Rt. 35 & Rt. 36	8,557	652	4,388.2	7.6	4	4	31	52	25	31	3	13	19	14	19	2	
	Rt. 35 & Rt. 36 to Rt. 35 & Asbury Ave.	4,047	245	1,521.4	6.1	4	5	15	17	9	7	19	5	84	42	1	22	
	Rt. 35 & Asbury Ave. to Cookman & Main St.	9,771	1,616	9,674.3	16.5	9	4	32	1	18	1	-	19	10	27	-	4	
	Cookman & Main St. to Asbury Park Casino	2,565	1,179	6,932.4	46.0	8	-	87	-	33	-	-	19	2	98	-	18	
	Route Total	30,503	5,257	4,453.0	17.2	28	28	168	168	87	87	58	58	185	185	47	47	19.1
Bayview Bus Line	Perth Amboy - Keansburg					To Keansburg						To Perth Amboy						
	Rector & Fayette St. to Victory Bridge	12,627	2,013	10,980.0	15.9	2	12	-	81	3	63	47	-	94	-	12	1	
	Victory Bridge to Main & Broadway	1,125	82	1,102.9	7.3	-	-	4	-	-	-	2	-	6	-	-	-	
	Main & Broadway to Portia & Pine Ave.	6,736	973	9,905.9	14.4	2	3	31	19	12	19	1	13	6	32	6	-	
	Portia & Pine Ave. to Monmouth County Line	7,446	662	2,788.8	8.9	8	-	24	33	25	3	6	13	20	26	-	5	
	Monmouth County Line to Stone Road & Broadway	7,599	890	4,662.0	11.7	2	-	48	35	25	11	11	12	25	48	3	7	
	Stone Road & Broadway to Union Ave. & Rt. 36	6,588	561	4,773.9	8.5	-	2	28	7	9	-	6	19	-	20	3	5	
	Union Ave. & Rt. 36 to Laurel Ave. & Rt. 36	2,805	282	4,007.1	10.1	-	-	-	10	3	-	4	1	6	1	-	-	
	Laurel Ave. & Rt. 36 to Beachway & Carr Ave.	6,977	895	6,840.2	12.8	3	-	64	14	19	-	4	23	16	46	-	6	
	Route Total	51,903	6,358	5,063.7	12.2	17	17	199	199	96	96	81	81	173	173	24	24	21.1

Table 12

Typical Daily Ridership and Coverage Area Characteristics of Local Bus Routes in the Study Area

Company	Route and Route Segment	Total Population	Elderly Population (62 yrs. and Over)	Population Density (persons/sq.mi.)	Percentage of Elderly Population	Total Daily Passenger - Trips: A.M. Peak Off	A.M. Peak On	Off-Peak Off	Off-Peak On	P.M. Peak Off	P.M. Peak On	A.M. Peak Off	A.M. Peak On	Off-Peak Off	Off-Peak On	P.M. Peak Off	P.M. Peak On	Average Passengers Per Trip
	Perth Amboy - E. Brunswick					To East Brunswick						To Perth Amboy						
	Rector & Fayette St. to Victory Bridge	12,627	2,013	10,980.0	15.9	-	3	-	22	-	40	23	-	30	-	9	-	
	Victory Bridge to Main & Scott Ave.	24	1	44.4	4.2	-	-	-	-	-	-	-	-	-	-	-	-	
	Main & Scott Ave. to Bordentown Ave. @ Garden State Pkwy.	9,729	1,267	6,529.5	13.0	2	2	15	35	28	12	3	17	23	15	13	4	
	Bordentown Ave. @ Garden State Pkwy. to Rt. 9 & Rt. 516	10,181	595	3,349.0	5.8	2	-	28	24	17	3	-	6	25	34	13	16	
	Rt. 9 & Rt. 516 to Southwood Drive & Rt. 18	13,298	303	4,104.3	2.3	-	5	24	30	8	6	-	3	23	24	20	-	
	Study Area Route Total	45,859	4,179	4,847.7	9.1	4	10	67	111	53	61	26	26	101	73	55	20	
	Southwood Drive & Rt. 18 to Tanner's Corner/ Mid-State Mall					6	-	44	-	11	3	2	2	15	43	3	38	
	Route Total					10	10	111	111	64	64	28	28	116	116	58	58	11.7
Amboy Coach	Woodbridge - New Brunswick					To New Brunswick						To Woodbridge						
	Korvettes to Rt. 35 & Amboy Ave.	11,741	1,119	6,346.5	9.5	-	9	-	8	-	-	3	-	18	-	-	-	
	Rt. 35 & Amboy Ave. to Victory Bridge	24,764	3,794	11,055.4	15.3	43	40	11	36	54	72	55	44	55	42	10	6	
	Victory Bridge to Main & Broadway	1,125	82	1,102.9	7.3	-	-	-	-	-	-	-	-	-	-	-	-	
	Main & Broadway to Washington Road @ Garden State Pkwy.	5,871	890	5,538.7	15.2	-	4	14	10	6	-	1	5	8	15	6	-	
	Washington Road @ Garden State Parkway to South River	10,080	644	4,182.6	6.4	2	4	5	20	12	3	2	10	30	5	9	-	
	Study Area Route Total	53,581	6,529	6,244.9	12.2	45	57	30	74	72	75	61	59	111	62	25	6	
	South River to New Brunswick					36	24	110	66	48	45	36	38	65	114	54	73	
	Route Total					81	81	140	140	120	120	97	97	176	176	79	79	23.9
Coast Cities Coaches	#7 Asbury Park - Long Branch					To Long Branch						To Asbury Park						
	Asbury Park Casino to Cookman & Main St.	2,565	1,179	6,932.4	46.0	-	39	-	151	-	31	15	-	73	-	32	-	
	Cookman & Main to Deal Lake	6,829	1,566	11,980.7	22.9	25	52	37	83	7	9	36	3	134	95	87	25	
	Deal Lake to Norwood & Highland Ave.	4,970	777	2,823.9	15.6	21	4	98	19	8	6	6	3	17	39	-	30	
	Norwood & Highland Ave. to Norwood & Broadway	6,422	650	5,536.2	10.1	17	10	48	7	14	8	6	13	19	33	-	8	
	Norwood & Broadway to Ocean & Broadway	7,520	1,243	9,170.7	16.5	52	10	110	33	38	13	3	47	37	113	9	65	
	Route Total	28,306	5,415	6,048.3	19.1	115	115	293	293	67	67	66	66	280	280	128	128	15.8
	#31 Asbury Park - North Long Branch					To Long Branch						To Asbury Park						
	Asbury Park Casino to Cookman & Main St.	2,565	1,179	6,932.4	46.0	-	12	-	43	-	26	11	-	21	-	5	-	
	Cookman & Main St. to Wannamassa Bridge	11,185	1,786	11,185.0	16.0	3	9	11	14	14	3	10	10	22	11	8	3	
	Wannamassa Bridge to Corlies & Monmouth Ave.	5,149	607	4,186.2	11.8	3	-	15	4	3	-	-	5	10	5	4	5	
	Corlies & Monmouth Ave. to Norwood & Wall St.	6,125	750	2,469.8	12.2	6	-	15	2	9	5	1	-	6	15	9	5	
	Norwood & Wall St. to Broadway & Liberty Ave.	11,463	1,344	8,428.7	11.7	14	6	34	24	13	30	11	7	18	20	13	23	
	Broadway & Liberty Ave. to Atlantic & Presley Ave.	3,066	1,001	2,838.9	32.6	3	2	14	2	33	8	2	13	4	30	2	5	
	Route Total	39,553	6,667	5,259.7	16.9	29	29	89	89	72	72	35	35	81	81	41	41	14.5

Table 12

Typical Daily Ridership and Coverage Area Characteristics of Local Bus Routes in the Study Area

Company	Route and Route Segment	Total Population	Elderly Population (62 yrs. and Over)	Population Density (persons/sq.mi.)	Percentage of Elderly Population	Total Daily Passenger - Trips: A.M. Peak Off	A.M. Peak On	Off-Peak Off	Off-Peak On	P.M. Peak Off	P.M. Peak On	A.M. Peak Off	A.M. Peak On	Off-Peak Off	Off-Peak On	P.M. Peak Off	P.M. Peak On	Average Passenger Per Trip
	#4 Deal - Neptune					To Neptune						To Deal						
	Norwood & Roseld Ave. to Deal Lake Rd. & Grand Ave.	2,281	403	3,124.7	17.7	-	1	-	-	-	3	5	-	6	-	5	-	
	Deal Lake Rd. & Grand Ave. to Cookman & Main St.	7,605	2,822	10,864.3	37.1	-	21	5	59	1	22	11	1	31	17	23	5	
	Cookman & Main St. to Morris & Sylvania Ave.	9,665	1,213	9,383.5	12.6	12	6	23	4	18	-	5	16	12	12	12	10	
	Morris & Sylvania Ave. to Fitkin Hospital	2,705	628	4,226.6	23.2	14	-	20	-	3	-	-	-	2	8	-	4	
	Fitkin Hospital to Asbury Gardens	3,469	458	4,282.7	13.2	3	1	15	-	3	-	-	4	-	14	-	21	
	Route Total	25,725	5,524	6,579.3	21.5	29	29	63	63	25	25	21	21	51	51	40	40	10.0
	#2 - 16 Asbury Park - Manasquan					To Manasquan						To Asbury Park						
	8th & Park Ave. to Cookman & Main St.	7,342	2,575	7,269.3	35.1	6	36	61	187	6	70	13	1	134	43	48	20	
	Cookman & Main St. to 18th & F Ave.	11,611	2,776	6,276.2	23.9	33	17	89	41	53	47	24	24	69	103	40	34	
	18th & F Ave. to 22nd & F Ave.	711	167	5,078.6	23.5	3	3	11	1	2	1	2	2	8	5	1	-	
	22nd & F Ave. to Sea Girt Bridge	4,147	908	3,399.2	21.9	12	-	28	21	30	-	-	6	17	24	2	16	
	Sea Girt Bridge to Brielle Boro Line	6,116	1,385	3,236.0	22.6	2	-	68	7	27	-	-	6	2	55	-	21	
	Route Total	29,927	7,811	4,898.0	26.1	56	56	257	257	118	118	39	39	230	230	91	91	16.1
	#20 Asbury Park - Pt. Pleasant					To Pt. Pleasant						To Asbury Park						
	8th & Park Ave. to Cookman & Main St.	7,342	2,575	7,269.3	35.1	6	27	7	26	1	45	26	-	19	6	23	3	
	Cookman & Main St. to 18th & F Ave.	11,611	2,776	6,276.2	23.9	11	6	15	11	38	18	33	20	25	23	15	21	
	18th & F Ave. to Spring Lake/Sea Girt Line	5,272	1,053	3,876.5	20.0	2	1	7	6	6	1	-	11	3	6	-	10	
	Spring Lake/Sea Girt Line to Manasquan/Brielle Line	4,146	950	3,838.9	22.9	11	4	6	-	2	-	-	15	1	5	2	2	
	Manasquan/Brielle Line to Pt. Pleasant R.R. Station	3,303	708	3,176.0	21.4	9	1	8	-	17	-	-	13	-	8	2	6	
	Route Total	31,647	8,062	4,995.9	25.5	39	39	43	43	64	64	59	59	48	48	42	42	14.8

Sources: Populations characteristics based on 1970 U.S. Census.
Ridership based on FB&D field surveys.

population densities being served are within the coverage areas of Boro Routes 10 and 4. The population densities served range from 2,708 to 6,579 persons per square mile. It is interesting to note that CCC Route 4 serves the most densely-populated coverage area and produces one of the lowest passengers per trip averages. Boro Route 4 serves one of the least densely-populated areas and produces the largest passengers-per-trip average. It will be seen in Chapter VI (Table 21) that both of these routes produce the highest passengers per bus-mile averages. Therefore, the adequacy of the service offered by a route cannot be measured solely by the size of the immediate population being served. Residential-origin trip ends must be linked to desired generator-destination trip-ends. Other factors to be considered include the safety, comfort, schedule, fare level, and speed of the service. One other important consideration is the characteristics of the immediate population served, i.e., the number of elderly, young, poor, and/or handicapped residents in the area.

The distributions of total population, elderly population, and no-car households in relation to the composite bus service coverage area of the local transit routes are shown in Exhibits 7, 8, and 9, respectively. The local service portions of the New York services are included. Most concentrations of the total population are currently being served. The locations of senior citizen residents and zero car households both coincide, to a high degree, to the area served by the bus network.

EXHIBIT NO. 7

BUS SERVICE COVERAGE OF TOTAL POPULATION

NEW JERSEY PUBLIC TRANSPORTATION STUDY

EASTERN MONMOUTH - OCEAN - MIDDLESEX CORRIDOR

Ford, Bacon & Davis
Incorporated
Engineers

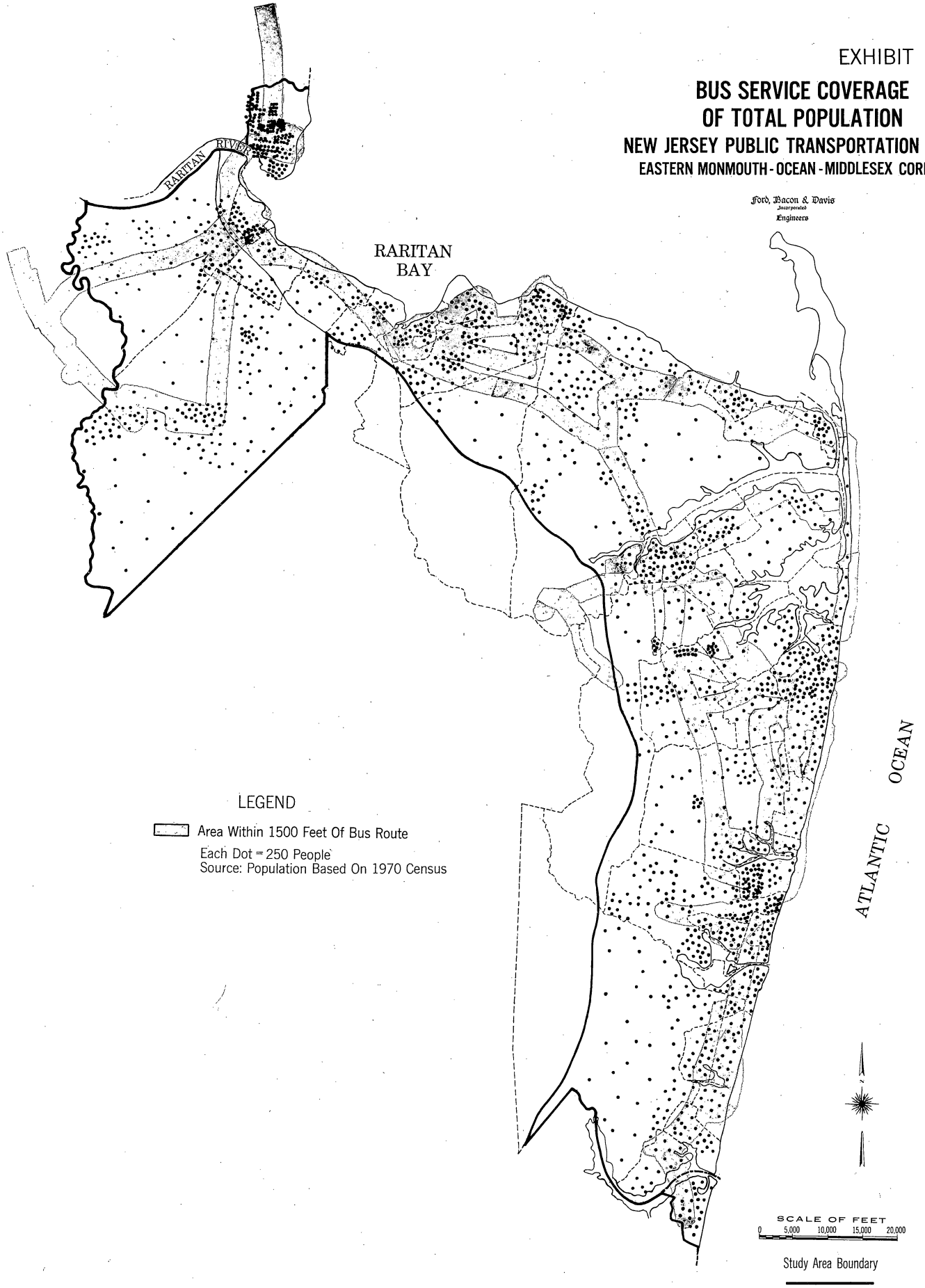


EXHIBIT NO. 8

BUS SERVICE COVERAGE OF POPULATION AGED 62 YEARS AND OVER

NEW JERSEY PUBLIC TRANSPORTATION STUDY

EASTERN MONMOUTH-OCEAN-MIDDLESEX CORRIDOR

Ford, Bacon & Davis
Incorporated
Engineers

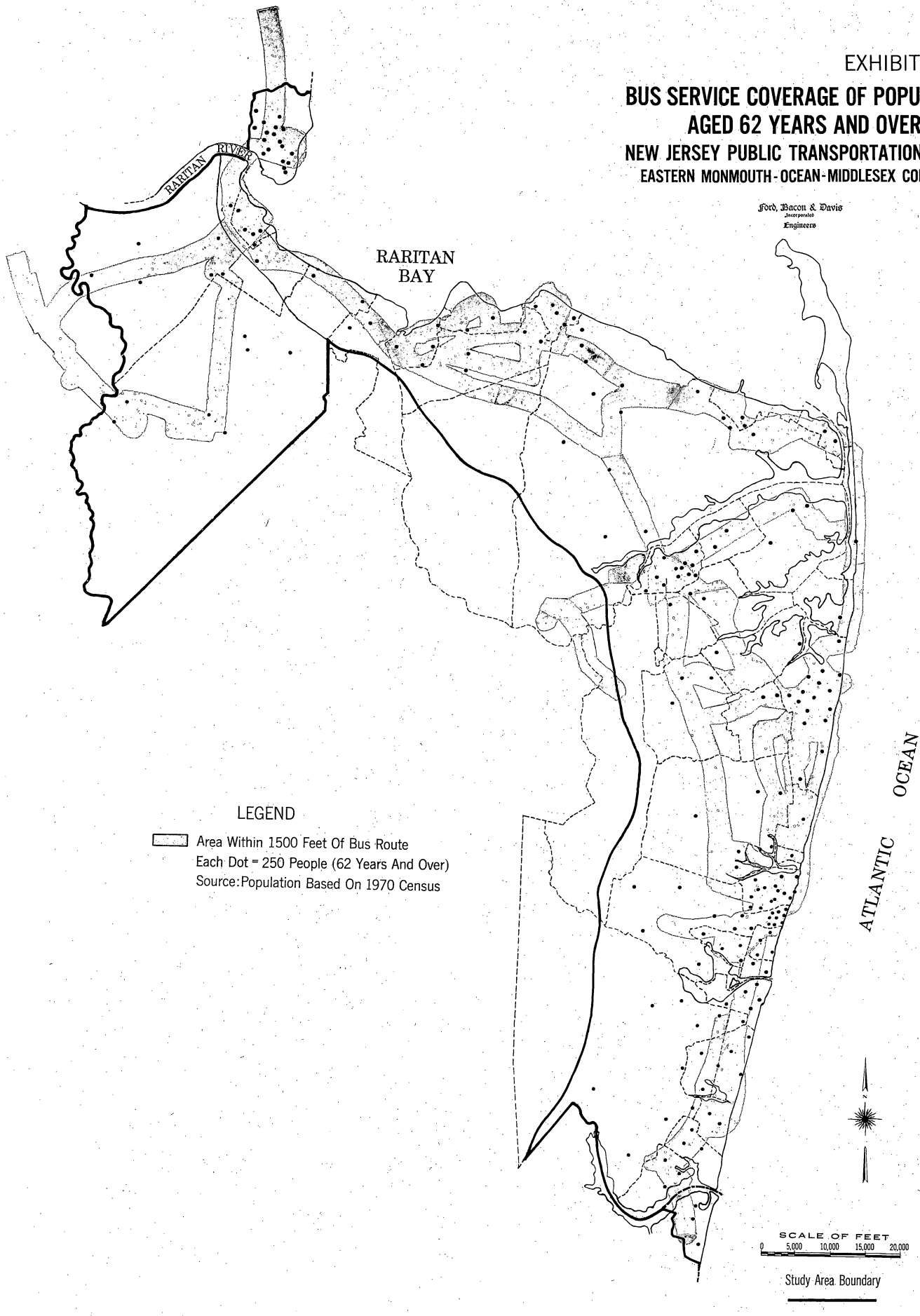


EXHIBIT NO. 9

BUS SERVICE COVERAGE OF ZERO-CAR HOUSEHOLDS

NEW JERSEY PUBLIC TRANSPORTATION STUDY

EASTERN MONMOUTH - OCEAN-MIDDLESEX CORRIDOR

Ford, Bacon & Davis
Incorporated
Engineers

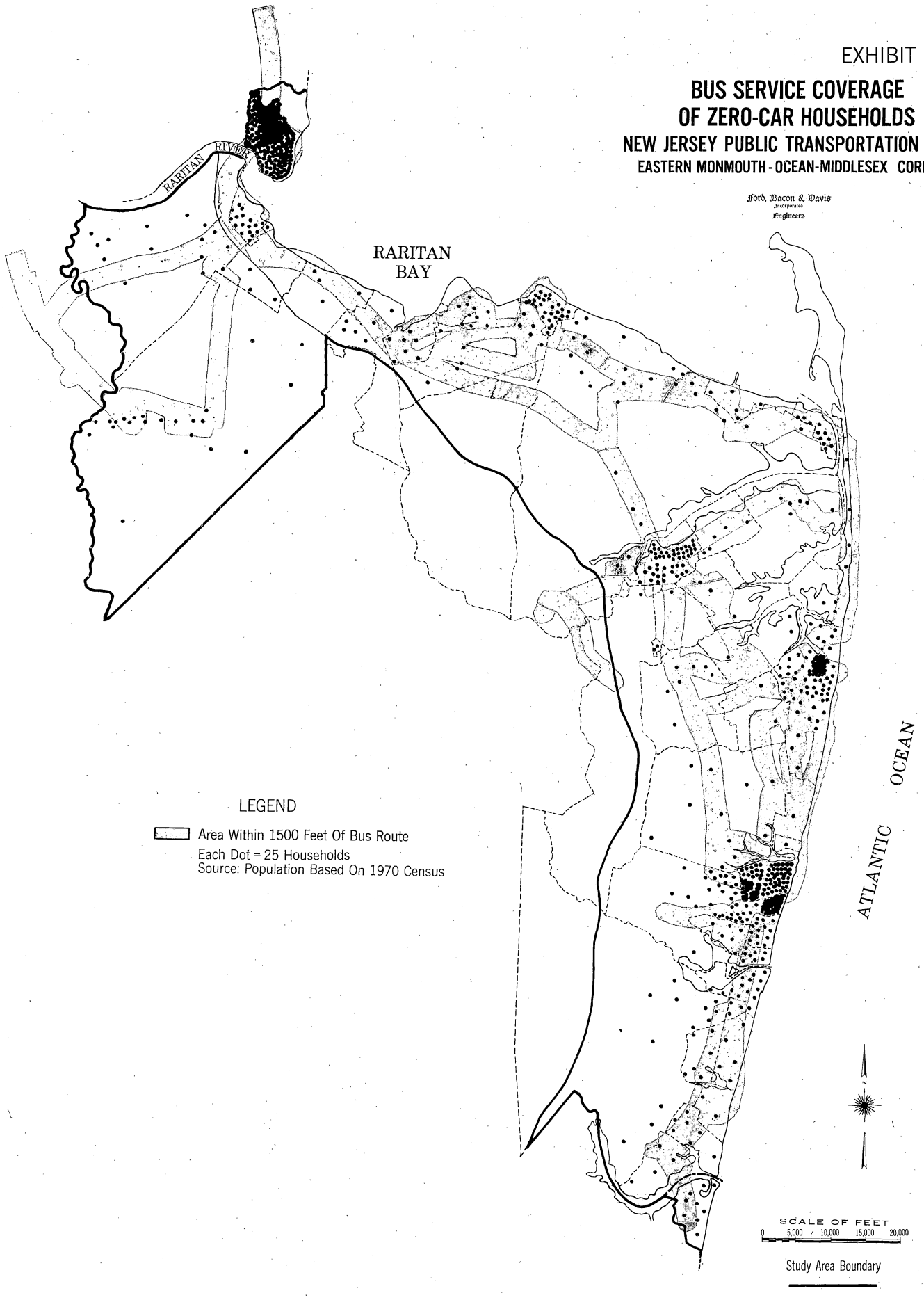


Exhibit 10 compares the bus network coverage area with the location of the major traffic generators in and near the Study Area. Most employment concentrations are served by at least one route. The high concentration of job centers in Perth Amboy is served by some or all of the Amboy Coach/Bayview routes as shown and additionally by some of the routes of TNJ not shown. Other generators appear well-served, especially shopping and medical facilities.

Bus Travel Time Characteristics

The bus travel time survey results were tabulated and analyzed by route segment and total route by direction and by time of day. Total travel time, total delay time, and running time (total travel time less total delay time) were developed for each route. Regarding the local transit routes, total delay as a proportion of total travel time ranged from 10.6 percent (CCC Route 7) to 37.2 percent (Boro Route 5) in the morning peak period, from 9.8 percent (Amboy) to 40.5 percent (Boro Route 5) in the evening peak period, and from 10.5 percent (Boro Route 5) to 38.2 percent (Boro Route 1) in the base period. Boro Route 5 showed the greatest fluctuation in delay percentage for the various time periods and directions. The primary cause of delay varied widely both between routes and within routes by time period, direction, and route segment, so that no generalizations can be made for all the routes.

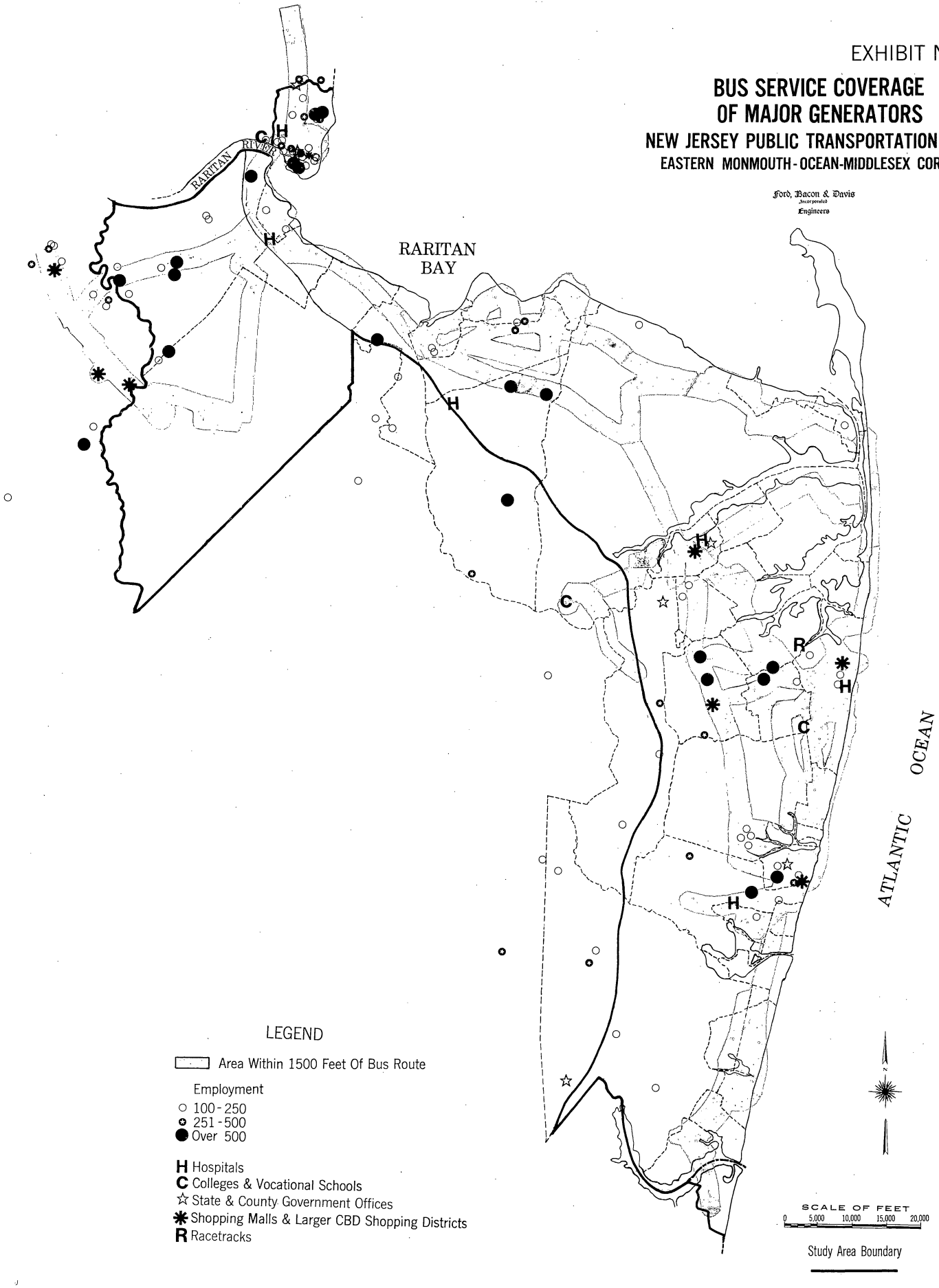
EXHIBIT NO. 10

BUS SERVICE COVERAGE OF MAJOR GENERATORS

NEW JERSEY PUBLIC TRANSPORTATION STUDY

EASTERN MONMOUTH-OCEAN-MIDDLESEX CORRIDOR

Ford, Bacon & Davis
Incorporated
Engineers



CCC Routes 2/16 and 4 and Boro Route 1 showed the slowest average speeds in the morning peak, midday, and evening peak periods, respectively. The fastest speeds for those time periods were recorded by Boro Route 10 and the Bayview route.

Comparing actual trip duration to the scheduled trip duration, only Boro Routes 10, 8, and 1 traveled faster than scheduled in all time periods in each direction. CCC Route 4 traveled slower in all time periods in both directions. All other routes were inconsistent in this respect. According to the operator, summer traffic congestion (caused by nearby drawbridge operations and by the influx of summer visitors) causes the CCC routes to operate beyond their scheduled time durations.

Not surprisingly, the commuter routes showed faster average speeds and generally a lower ratio of delay time-to-total travel time compared to the local transit route. This is due to the time and distance of service operated express via the New Jersey Turnpike and/or Garden State Parkway. In the peak periods, delay time as a percentage of total time were similar for the two New York routes. During midday, the AP-NY service experienced about twice the percentage of delay as did the NY-K-LB service on northbound trips. On southbound trips, the opposite was true.

During peak periods, the two New York services traveled at nearly equal average speeds. The off-peak period average speed of NY-K-LB was higher on northbound trips. The average running speeds were similar in all time periods except the morning

peak period when the AP-NY service operated nearly 5 mph faster.

The NY-K-LB service require more time than scheduled in all instances. The AP-NY actual times exceeded the scheduled times only during midday in the northbound direction and during the evening peak period when operating southbound via Garden State Parkway Interchange 117.

The NY-K-LB Newark service experienced a higher ratio of delay to total travel time than the TNJ service. The NY-K-LB actual trip durations were slightly more than those scheduled. The TNJ actual trip durations exceeded the scheduled travel times on almost every trip. Excluding one trip driven by a substitute driver unfamiliar with the route, the TNJ trips required an average of over 11 minutes per trip more than the scheduled travel times.

Fares

The fares on the AP-NY service range from $2.05 to $3.15 for a one-way trip. A representative sampling of interstate fares in effect during March 1975 follows:

New York To:	One way	Round Trip	10 Trip
Asbury Park	$2.75	$4.95	$18.25
Brielle	3.15	5.65	18.75
Red Bank/ Middletown	2.35	4.20	16.45

A flat $1.00 fare is charged for any intrastate trip south of Laurence Harbor.

The one-way fares on the NY-K-LB service range from $1.69 (for the Keansburg zone) to $2.22 (for the Long Branch zone). There are six fare zones. The fare for a 10-trip commutation pass to the PABT ranges from $13.78 to $15.90. The fares on the once-daily round trip service to downtown New York (Wall Street) range from $2.12 to $2.62 for a one-way trip. The 10-trip fares range from $19.08 to $21.08. The Newark service fares range from $1.50 to $2.00 for a one-way ticket and from $12.25 to $14.45 for 10 trips.

The one-way fares for local trips originating and terminating south of the Raritan River on the TNJ route range from 40¢ to 95¢. The one-way fares to and from Newark range from $1.10 (Sayreville) to $1.60 (Asbury Park). Ten-trip ticket books for Newark-oriented trips cost between $9.70 and $14.10.

The fares on the Boro Busses routes range from a minimum of 25¢ to a maximum of 75¢. The maximum fare occurs on the Freehold route which has a base fare of 40¢. Fares are collected using an on-and-off system. Depending on which zone boarding takes place, part of the fare is paid when boarding the bus, and the balance is paid when alighting.

The Coast Cities Coaches routes have from three to five fare zones. The base fare is 25¢, and the maximum fare of 45¢ occurs on the Asbury Park-to-Point Pleasant route. The charge for transfers is 5¢.

The three routes operated by Amboy and Bayview have from six to eight zones. The basic fare is 25¢ on the Keansburg

route with a maximum of 55¢. The basic fare on the Woodbridge-New Brunswick route is 35¢ with a maximum of 70¢. The Perth Amboy-East Brunswick route also has a 35¢ base fare, with a maximum of 65¢.

In New Jersey, senior citizens aged 62 and over can travel intrastate on any regularly-scheduled bus route during off-peak hours for one-half the regular fare. The difference in fare revenue is paid to the bus operators through a state-funded subsidy program. This half-fare program has been extended to cover commuter railroad and some interstate bus carriers.

As of December 15, 1975, intrastate bus fares on all Study-Area bus routes increased as recommended by the Commuter Operating Agency of NJDOT. These fare increases were designed to overcome a shortage of available state subsidy funds.

Operating Subsidies

Since 1969, the State of New Jersey has carried out a funding program designed to provide subsidies to offset operating losses on bus services deemed essential by NJDOT. All of the bus companies under study are now in this program and receive subsidy funds as follows:

Company	FY 1974	Total to date	Year of first Payment	Estimated Fy 1975
AP-NY	$150,000	$249,000	1973	$485,724
NY-K-LB	99,364	99,364	1974	325,030
Boro	266,640	635,525	1971	334,595
CCC	224,078	709,612	1970	288,271
Amboy/Bayview	182,000	395,217	1970	325,748

In addition to the above amounts, TNJ has received funds in subsidy of specific routes statewide. As of July 1, 1974, TNJ began receiving a subsidy to cover general operating expenses. Between that date and June 30, 1975, TNJ received over $14 million.

Table 13 presents the subsidies and subsidies per passenger for each company during the calendar year 1974. The company payments were apportioned to each individual route according to net operating revenues (net operating revenue data is shown in Table 22). No value is listed for the TNJ route due to the complexity involved in estimating that route's portion of the entire TNJ system subsidy payment. Two of the routes, Boro Route 10 and the Bayview East Brunswick route, have average subsidy per passenger values which are much higher than the other routes. CCC Route 31 and the Amboy route also show high values. The AP-NY service exhibits the lowest value, 23¢ per passenger. Several other routes have values near that of AP-NY.

AP-NY and NY-K-LB have the lowest average subsidy per passenger on a company basis. Of the local transit operators, CCC has the lowest value, followed by Boro, Bayview, and Amboy.

Highway Network

The Garden State Parkway, New Jersey Routes 35, 36 and 71, and U.S. Route 9 are the major north-south roads serving the Study Area. Major east-west roads are New Jersey Routes 36, 38, 33, and 440. Other highly-utilized roads are Monmouth County Routes 16, 516, 537, and 520, New Jersey Routes 34, 66 and 18, and Middlesex County Routes 516 and 535. The Garden State Parkway, New Jersey Routes 18, 35, and 440, and U.S. Route 9

Table 13
Average Bus Routes Subsidies
per Passenger for Calendar Year 1974

Company and Route	Total Passengers	Estimated Route Subsidy	Average Subsidy per Passenger
Boro	697,358	$320,682	$ .46
#1/8	148,848	81,774	.55
#2	197,088	65,098	.33
#4	218,606	84,981	.39
#10	11,531	26,296	2.28
CCC	698,139	272,375	.39
#2/16/20	323,455	88,794	.27
#4	74,482	21,245	.29
#7	201,863	83,892	.42
#31	86,420	72,452	.84
#5	11,919	5,992	.50
Bayview	320,446	178,142	.56
Keansburg	195,268	52,017	.27
E. Brunswick	125,178	126,125	1.01
Amboy	149,787	100,126	.67
AP-NY	1,055,646	246,311	.23
NY-K-LB	884,114	247,382	.28

Sources: Figures based on the 1974 PUC and ICC Annual Reports. Individual route subsidies allocated on basis of estimated net operating revenues.

connect the northern portion of the Study Area to the nearby New Jersey Turnpike/U.S. Route 1 corridor. Recent average annual daily traffic (AADT) figures for key locations in the highway network are shown in Table 14. Not surprisingly, AADT and AADT per lane figures are highest for the Garden State Parkway and New Jersey Turnpike. In general, the AADT's increase toward the northern portions of highway.

Comparison of the 1973 and 1974 AADT's reveals the effects of the early 1974 gas shortage. At all points but one, the 1974 figures were lower than those of the previous year. From 1964 to 1974 and from 1969 to 1974, most points show heavy traffic growth. Only New Jersey Route 35 traffic over the Victory Bridge showed a decrease in traffic, this between 1969 and 1974. Traffic at that point continually fluctuated during this period.

The fastest traffic growth rates between 1964 and 1974 occured at the Garden State Parkway Interchange 114 (traffic more than tripled), on New Jersey Route 38 near New Jersey Route 34, and on the Garden State Parkway at the Raritan Toll Plaza. Between 1969 and 1974, New Jersey Route 38 experienced the fastest traffic growth rate. In terms of total traffic growth, the Garden State Parkway and New Jersey Turnpike show the greatest increases both from 1964 to 1974 and from 1969 to 1974. Of the points on the other roads, New Jersey Route 18 shows the largest absolute growth between 1964 and 1974. U.S. Route 9 at the Edison Bridge and New Jersey Route 38 near New Jersey Route 34 show the largest growth in the 1969 to 1974 period.

Table 14
Average Annual Daily Traffic Trends at Major Roadway Points
In and Near the Study Area

Location	Number of Lanes	Direction	1964 AADT	1969 AADT	1972 AADT	1973 AADT	1974 AADT	1974 AADT (Both directions)	1974 AADT Per Lane	AADT Percent Change 1964-74	AADT Percent Change 1969-74	1972 Percent of Cars
U.S. Route 9:												
0.2 miles north of N.J. 34 (Madison Twp.)	4	North	16,836	21,185	22,415	23,904	22,611	45,200	5,650	34.3	6.7	83
At Edison Bridge (Woodbridge)	5	South	25,145	28,664	31,191	31,953	31,915	63,800	6,380	26.9	11.3	79
N.J. Route 35:												
At Victory Bridge (Sayreville)	4	Both	13,324	22,342	20,753	22,574	18,492	18,492	4,623	38.8	(17.2)	86
1.0 miles south of Kings Hwy. (Middletown)	4	North	n.a.	12,771	15,279	15,890	15,140	29,100	3,638	n.a.	18.5	88
100 feet north of Allaire Rd. (Wall Twp.)	2	North	n.a.	6,504	7,271	7,117	7,243	14,500	3,625	n.a.	11.4	85
200 feet east of Jct. N.J. 71 (Brielle)	4	North	n.a.	10,073	10,992	11,283	10,646	21,300	2,663	n.a.	5.7	88
N.J. Route 18:												
600 feet east of So. River Bridge (Madison Twp.)	4	West	9,811	15,228	18,870	19,003	17,918	35,800	4,475	82.6	17.7	85
N.J. Route 36:												
200 feet west of Main St. (Keyport)	4	West	8,662	13,667	15,103	15,893	15,011	30,000	3,750	73.3	9.8	87
N.J. Route 66:												
0.2 miles west of N.J. 35 (Ocean Twp.)	4	West	6,268	9,889	10,869	11,019	10,578	21,200	2,650	68.8	7.0	90
N.J. Route 38:												
0.6 miles east of N.J. 34 (Wall Twp.)	2	Both	3,466	5,873	8,511	n.a.	9,100	9,100	4,550	162.6	54.9	85
Garden State Parkway:												
Asbury Toll Plaza (New Shrewsbury)	4	Both	24,412	37,120	48,139	50,977	46,668	46,668	11,667	91.2	25.7	
Raritan Toll Plaza (Sayreville)	6	Both	38,756	59,696	74,514	86,685	81,890	81,890	13,648	111.3	37.2	
Interchange 105 road to N.J. 36 (New Shrewsbury)	4	Both	5,823	9,317	11,400	11,800	11,400	11,400	2,850	95.8	22.4	
Interchange 109 ramp to County Rd. 520 (Middletown)	4	Both	3,952	5,843	7,000	6,800	6,000	6,000	1,500	51.8	2.7	
Interchange 114 to Red Hill Rd. (Middletown)	4	Both	899	1,986	2,600	3,200	2,800	2,800	700	211.5	41.0	
New Jersey Turnpike:												
Between Exits 11 and 12	12	Both	57,122	79,117	115,078	121,032	112,968	112,968	9,414	97.8	42.8	n.a.

Source: New Jersey Department of Transportation

Traffic on U.S. Route 9 at the Edison Bridge had the lowest 1972 percentage of cars (79 percent) of all the highway locations. Although information is not available for the Garden State Parkway and New Jersey Turnpike, it can safely be assumed that car traffic made up most of the 1972 traffic on the Parkway, because trucks and motorcycles were not allowed to use that road at the time.

Auto Travel Times

Exhibits 11, 12, and 13 present the total auto travel times required to travel over selected portions of the Study Area's major road network during the morning peak, midday, and evening peak periods. These times were obtained from the auto travel time surveys conducted by the Consultant during April and May 1975.

Competition and Coordination

Exhibit 1 shows the existing primary bus and railroad network serving the Study Area. This exhibit shows that several instances of route and service duplication or overlap exist, descriptions of which follow.

Intramodal

CCC Routes 2/16 and 20 are identical from their starting point at 8th and Park Avenues in Asbury Park to 18th and F Avenues in South Belmar. From that point they parallel each other south as far as Brielle.

The AP-NY service duplicates portions of several of the local transit routes in the area. A limited situation of competition exists in each instance. The AP-NY service

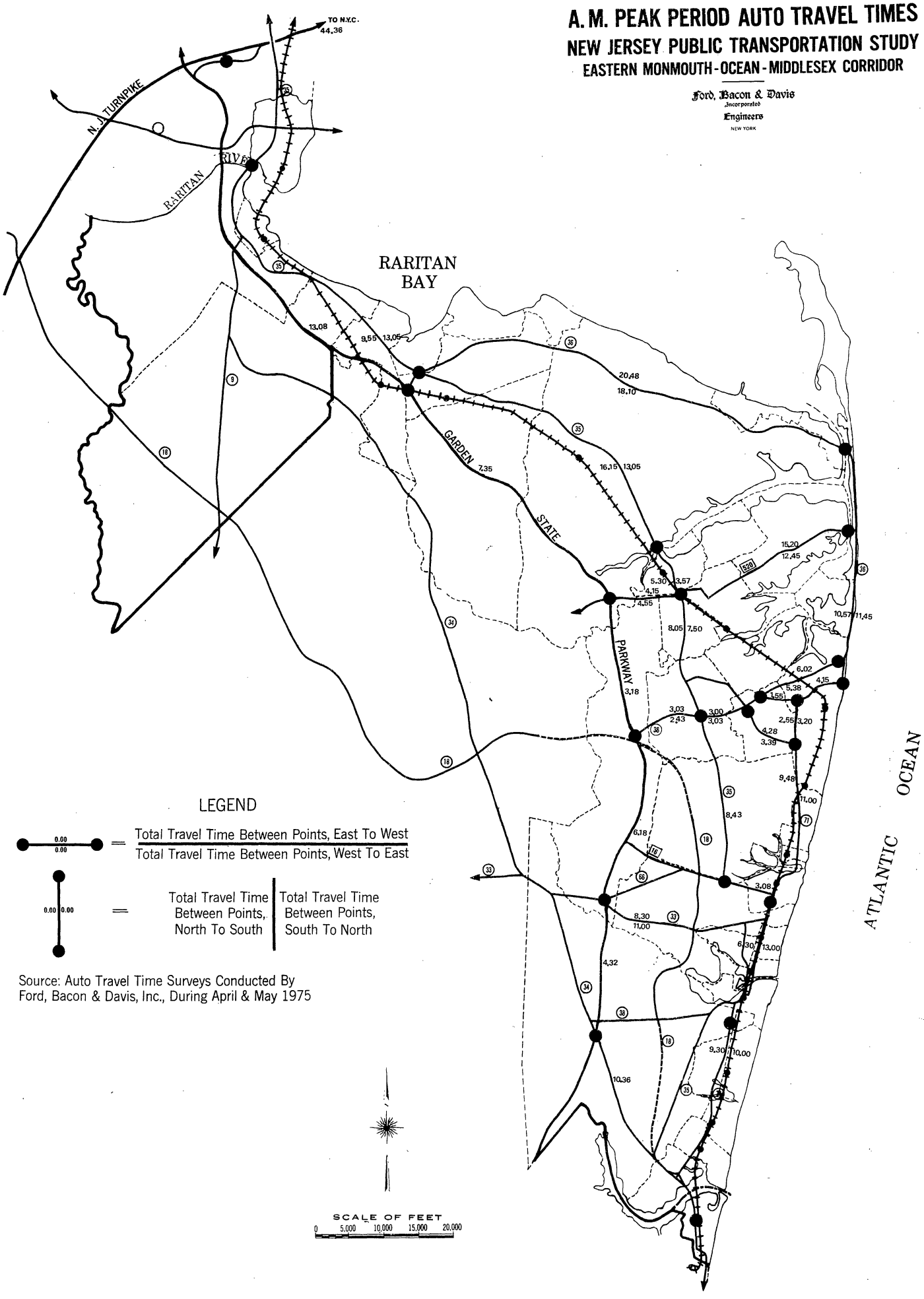
EXHIBIT NO. 11

A.M. PEAK PERIOD AUTO TRAVEL TIMES

NEW JERSEY PUBLIC TRANSPORTATION STUDY

EASTERN MONMOUTH-OCEAN-MIDDLESEX CORRIDOR

Ford, Bacon & Davis
Incorporated
Engineers
NEW YORK



LEGEND

0.00 / 0.00 = Total Travel Time Between Points, East To West / Total Travel Time Between Points, West To East

0.00 | 0.00 = Total Travel Time Between Points, North To South | Total Travel Time Between Points, South To North

Source: Auto Travel Time Surveys Conducted By Ford, Bacon & Davis, Inc., During April & May 1975

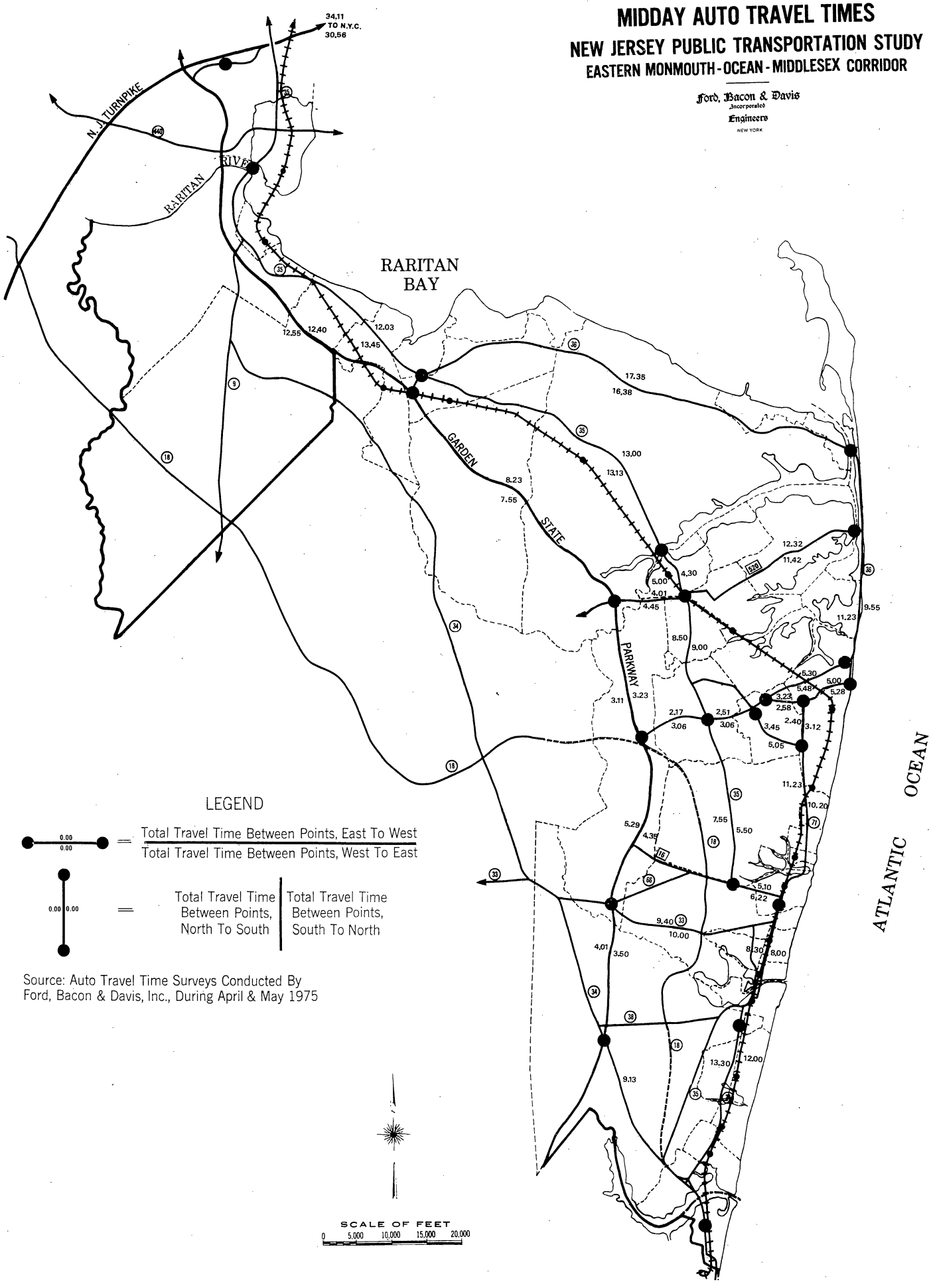
EXHIBIT NO. 12

MIDDAY AUTO TRAVEL TIMES

NEW JERSEY PUBLIC TRANSPORTATION STUDY

EASTERN MONMOUTH-OCEAN-MIDDLESEX CORRIDOR

Ford, Bacon & Davis
Incorporated
Engineers
NEW YORK



Source: Auto Travel Time Surveys Conducted By Ford, Bacon & Davis, Inc., During April & May 1975

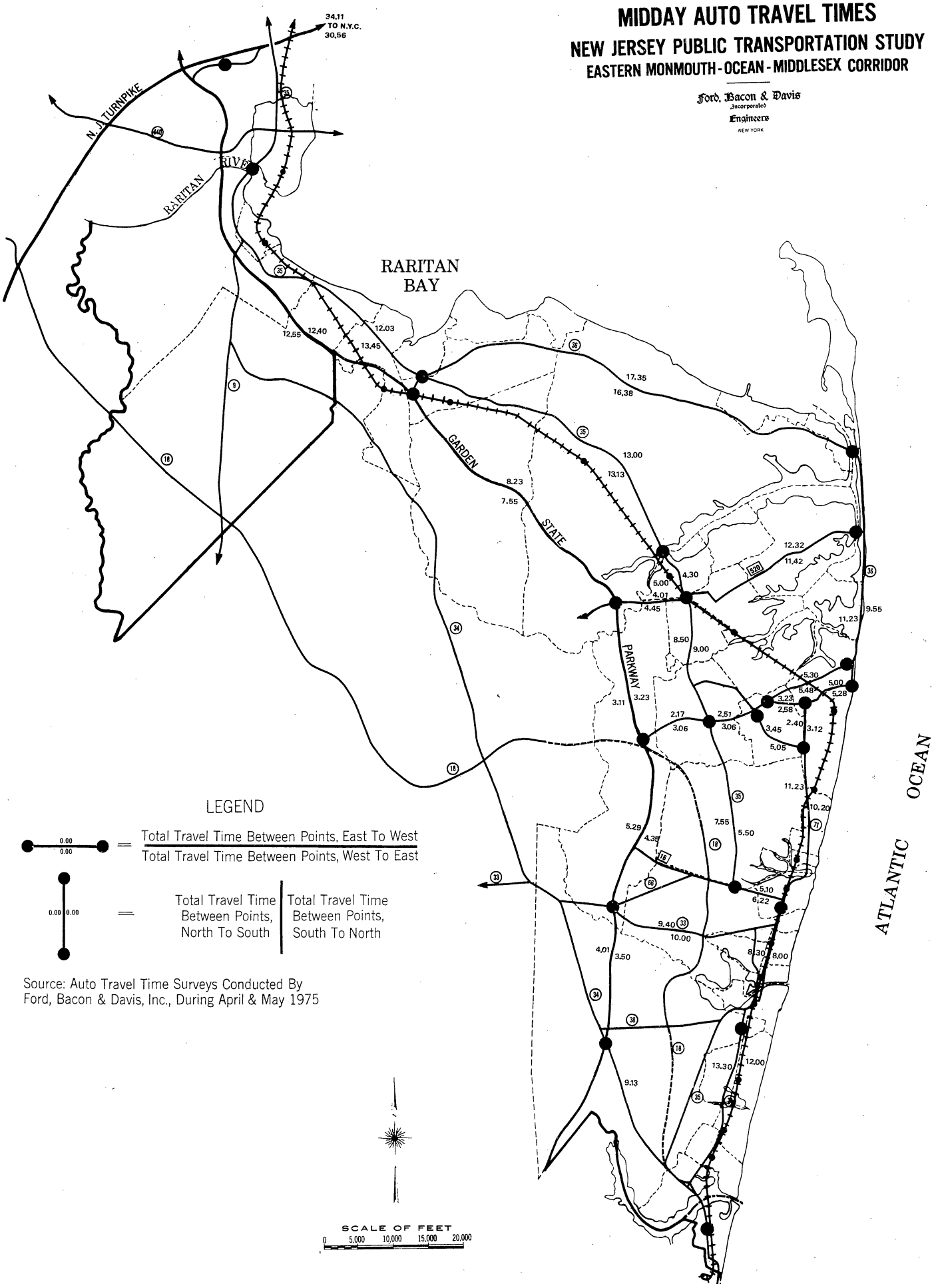
EXHIBIT NO. 12

MIDDAY AUTO TRAVEL TIMES

NEW JERSEY PUBLIC TRANSPORTATION STUDY

EASTERN MONMOUTH-OCEAN-MIDDLESEX CORRIDOR

Ford, Bacon & Davis
Incorporated
Engineers
NEW YORK



Source: Auto Travel Time Surveys Conducted By Ford, Bacon & Davis, Inc., During April & May 1975

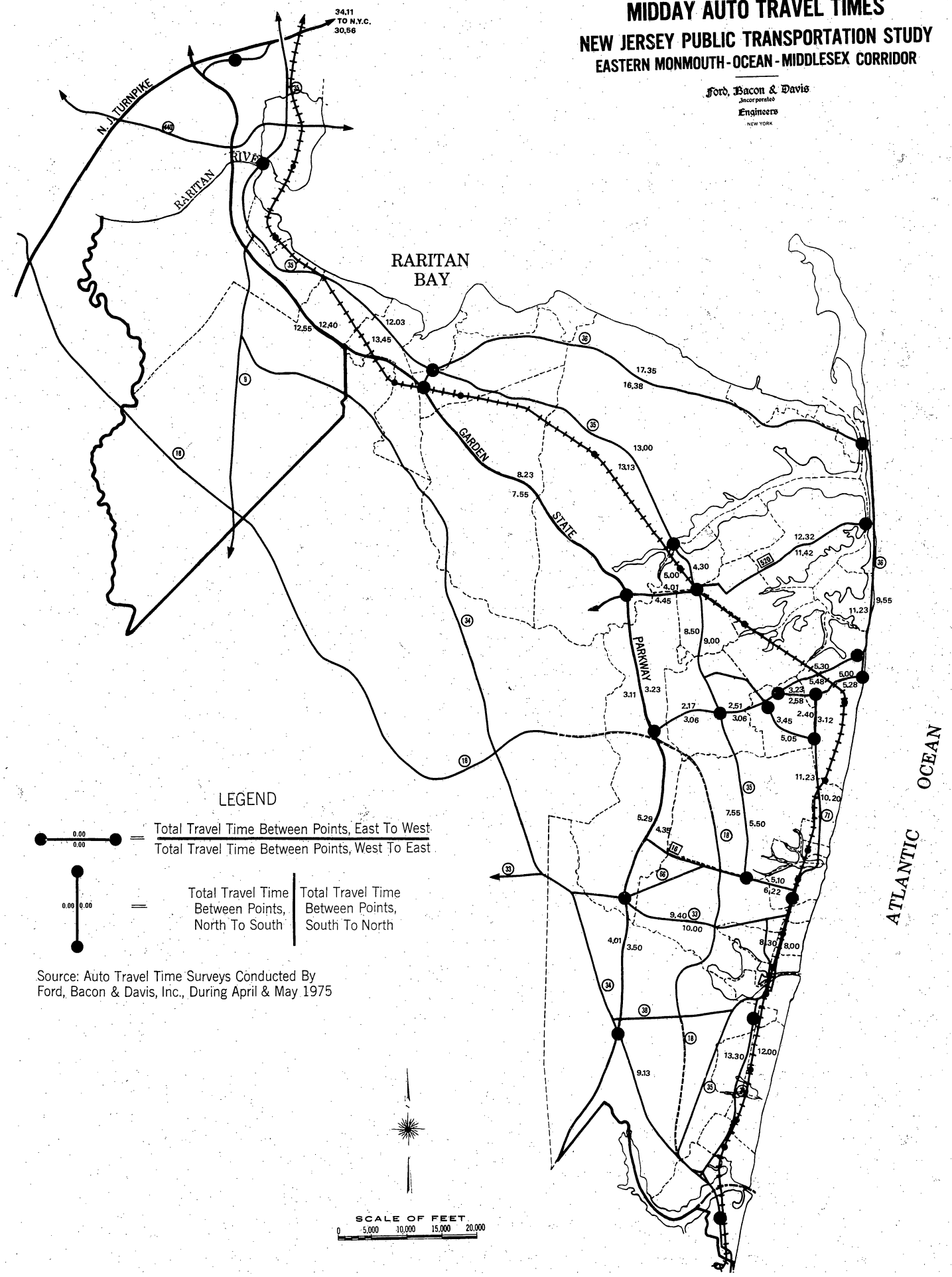
EXHIBIT NO. 12

MIDDAY AUTO TRAVEL TIMES

NEW JERSEY PUBLIC TRANSPORTATION STUDY

EASTERN MONMOUTH-OCEAN-MIDDLESEX CORRIDOR

Ford, Bacon & Davis
Incorporated
Engineers
NEW YORK



Source: Auto Travel Time Surveys Conducted By Ford, Bacon & Davis, Inc., During April & May 1975

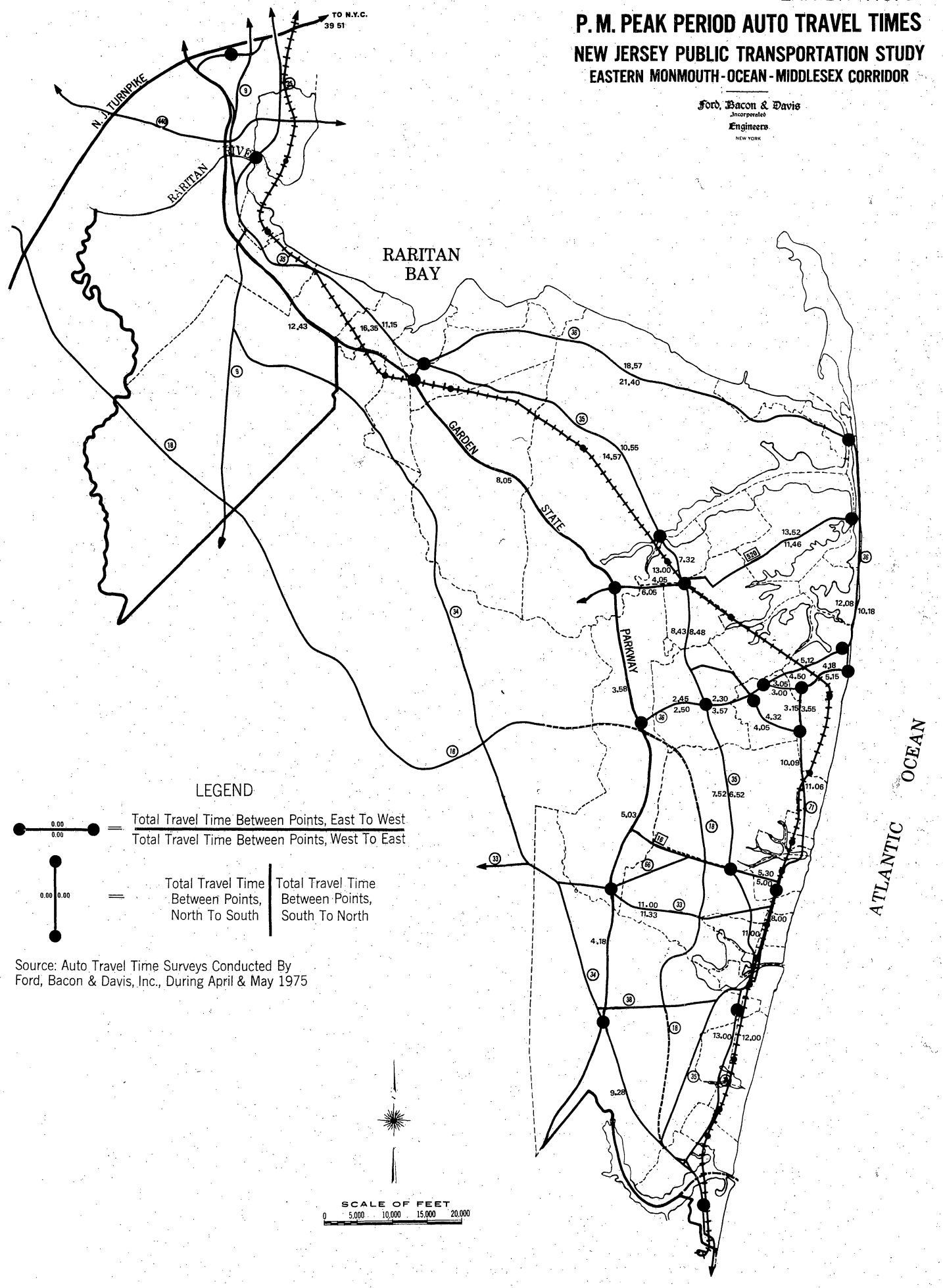
EXHIBIT NO. 13

P. M. PEAK PERIOD AUTO TRAVEL TIMES

NEW JERSEY PUBLIC TRANSPORTATION STUDY

EASTERN MONMOUTH-OCEAN-MIDDLESEX CORRIDOR

Ford, Bacon & Davis
Incorporated
Engineers
NEW YORK



Source: Auto Travel Time Surveys Conducted By Ford, Bacon & Davis, Inc., During April & May 1975

provides local service between points in the Study Area, but only to and from scheduled stops and at a much higher fare than comparable local services. These areas of duplication are as follows:

a. Along Broadway and Oceanport Avenue from Morris Avenue in Long Branch to the Monmouth Street Bus Terminal in Red Bank, duplicating most of Boro Route 8.

b. Along New Jersey Route 35 and Asbury Avenue from Asbury Park to the Monmouth Street Bus Terminal in Red Bank, duplicating Boro Routes] and 2.

c. Along New Jersey Route 35 from the Monmouth Street Bus Terminal to Tindall Road (Five Corners) in Middletown, duplicating Boro Route 4.

d. The AP-NY service and CCC Routes 2/16 and 20 operate over many identical portions of New Jersey Routes 35 and 71, Third Avenue, and Washington Boulevard, between the Point Pleasant railroad station and Asbury Park. In addition, they operate parallel service within blocks of each other along most other portions between those points.

Several of the bus routes overlap along Broadway in Long Branch. Boro Routes 1 and 8 meet at Oceanport Avenue and travel east where they both meet CCC Route 7. All three then operate over the same street to their terminal point at Ocean Avenue. As mentioned previously, the AP-NY route travels on Broadway between Morris and Oceanport Avenues. In addition, CCC

Route 31 also operate along Broadway for the short distance between Third and Liberty Avenues.

The NY-K-LB service duplicates and/or parallels Bayview's Keansburg route between Keansburg and the junction of Union Avenue and New Jersey Route 36 in Union Beach. Although these two routes differ in the basic nature of service offered, a limited competitive situation exists due to the fact that NY-K-LB can serve intrastate trips within this area, although at a higher fare. A similar situation exists between the NY-K-LB service and Boro Route 4 between Highlands and the Belford area of Middletown.

Five instances of limited competition exist between duplicated portions of the Amboy route and various routes of TNJ. TNJ Route 46/139 and the Amboy route both operate along Amboy Avenue and Convery Boulevard from Green Street in Woodbridge to New Jersey Route 440 in Perth Amboy. From that point they split, meeting again at Fayette and Rector Streets in Perth Amboy, the end point of the TNJ route. Primarily a New York-oriented service, TNJ Route 46/139 provides local service between Perth Amboy and Green Street.

TNJ Route 84 and some Route 46/139 trips duplicate the Amboy route along Amboy Avenue between Green Street and Convery Boulevard in Woodbridge and between New Jersey Route 440 and Hall Avenue in Perth Amboy. They also meet at Fayette and Rector Streets, the end point of the TNJ route.

TNJ Route 62 and the Amboy route both operate along Smith Street and State Street from Davidson Avenue to Hall Avenue, all within Perth Amboy.

During peak hours, TNJ Route 12/58 duplicates the Amboy route along Washington Road from Roosevelt Boulevard to South River. From there they take separate routes to New Brunswick, TNJ via Milltown and Amboy via New Jersey Route 18.

The Amboy route has common end points with TNJ Route 4. Both begin in Perth Amboy, travel along Smith Street, and terminate in New Brunswick, the TNJ route operating via Metuchen.

Finally, the AP-NY route and TNJ Route 130/133 operate over common sections of New Jersey Route 35 and the Garden State Parkway from Asbury Park north. The former route serves New York-bound riders and the latter serves those who are Newark-bound. The TNJ route and the NY-K-LB service both connect Long Branch and Newark but operate via different routing within the Study Area. Regarding the AP-NY and NY-K-LB New York services, only a very limited amount of competition exists, this being for passengers originating in Long Branch and in parts of Middletown and Hazlet.

Except as noted below, the transfer between two bus routes requires the payment of two full fares. The transfer from Bayview's East Brunswick route to Amboy's New Brunswick route for passengers destined for New Brunswick can be made for only a two-zone charge because the transfer is made at Tanners Corner (Main and Hillside) in South River, a zone boundary. As previously discussed, transfers can be made among CCC routes at a charge of 5¢.

Exhibit 1 also indicates points where the local routes serve as feeders to the New York and Newark line-haul services. Some of these connections have been discussed above, as transfers can be made along those areas where the local and line-haul services overlap. Other interface descriptions follow:

a. All Boro routes interface with the AP-NY service and TNJ Route 130/133 at the Monmouth Street Bus Terminal in Red Bank.

b. Boro Route 4 meets the NY-K-LB service near the Leonardo Bus Terminal and at various other points along New Jersey Route 36.

c. CCC Route 31 meets the terminal point of the NY-K-LB route at the Monmouth Medical Center in Long Branch. Route 31 also intersects the AP-NY route along Second Avenue in Long Branch between Brighton and Pavilion Avenues.

d. CCC Route 7 meets the AP-NY route at Broadway and Norwood Avenue and along Broadway to Morris Avenue, all in Long Branch.

e. Bayview's Keansburg route connects with the NY-K-LB route in Keansburg and along portions of New Jersey Route 36.

f. The Bayview and Amboy routes interface with TNJ New York and Newark routes in Perth Amboy.

g. All of the CCC bus routes pass within one block of the Asbury Park Bus Terminal and the AP-NY service.

Intermodal

As Exhibit 1 shows, the AP-NY service duplicates the route of the New York & Long Branch Railroad from Point Pleasant Beach north. TNJ Route 130/133, also parallels the railroad from Asbury Park north. The NY-K-LB service originates across the street from the Long Branch railroad station but swings far to the east of the railroad route from that point northward. Only in the Hazlet/Matawan area do the two services again come in proximity to each other.

Also evident are instances of bus-railroad interfacing. These connections are as follows:

a. All Boro routes feed the Red Bank railroad station.

b. CCC Route 31 serves the Long Branch railroad station.

c. CCC Routes 7 and 31 and Boro Route 2 serve the Asbury Park railroad station. All other CCC routes operate within one block of this station.

d. CCC Route 20 interfaces with or operates within one block of the railroad stations in Point Pleasant Beach, Belmar, Manasquan, Avon, and Bradley Beach.

e. CCC Route 2/16 interfaces with or operates within one block of the railroad stations in Belmar, Bradley Beach, Avon, Spring Lake, Manasquan, and Sea Girt.

f. Boro Route 8 serves the Little Silver railroad station.

g. CCC Route 7 serves the North Asbury Park and Allenhurst railroad stations and operates within one block of the Elberon railroad station.

h. The Amboy and Bayview routes serve the Perth Amboy and South Amboy railroad stations.

Some of the above bus-bus and bus-railroad interfaces appear to be accidents of location rather than the result of deliberate planning. In many cases, bus stops are more than a one-block walk from the railroad station platforms. Little or no attention is given to bus accomodations. Only the Red Bank railroad station has an off-street bay-type bus facility, however it is a primitive, poorly identified, unpaved area frequently shared with taxicabs. In general, there are few indications of the presence of bus service at railroad stations.

CHAPTER V

RIDERSHIP CHARACTERISTICS

Certain characteristics of the passengers who ride the AP-NY and NY-K-LB bus services and the NY&LB rail service can be derived from the 1972 Bus Passenger Survey and from the 1974 Rail Passenger Survey, both conducted by the Port Authority of New York and New Jersey.

Trip Purpose

Table 15 shows ridership by trip purpose for the peak period and for all day. The bus data is for southbound evening peak period trips while the rail data is for northbound morning peak period trips. In all cases, work trips are by far the greatest single trip purpose. Work trips comprise a smaller percentage of total trips on the AP-NY service than on the other two. The AP-NY service shows that peak-period trips comprise nearly half of all trips. In contrast, peak-period trips comprise 87.8 percent and 72.5 percent of all trips on the NY&LB and NY-K-LB services respectively. School trips are generally the next most significant trip purpose.

Trip Frequency

Table 16 shows the frequency of person-trips between New York and the Study Area carried by all bus companies or made by NY&LB passengers. Similar values of consistent ridership are shown for all peak-period passengers. The bus services which operate more frequent off-peak service have lower values of

Table 15
Commuter Person-Trips by Purpose of Trip

Company	Time Period	Total Trips	Trip Purpose											
			To/From Work	%	Company Business	%	Shopping	%	Rec./Soc.	%	School	%	Other	%
AP-NY	Peak[1]	500	420	84.0	16	3.2	12	2.4	10	2.0	20	4.0	22	4.4
	All Day	1,084	667	61.5	65	6.0	21	1.9	143	13.2	85	7.9	103	9.5
NY-K-LB	Peak[1]	1,166	1,135	97.3	4	0.3	3	0.3	4	0.3	9	0.8	11	1.0
	All Day	1,609	1,449	90.1	18	1.1	12	0.8	49	3.0	50	3.1	31	1.9
NY&LB	Peak[2]	8,180	7,915	96.8	36	0.4	27	0.3	4	-	131	1.6	53	0.6
	All Day	9,321	8,766	94.0	48	0.5	63	0.7	63	0.7	224	2.4	157	1.7

Sources: 1972 Port Authority Bus Passenger Survey

1974 Port Authority Rail Passenger Survey

---

1 P.M. peak period. Trips in this time period departed New York between 4:00 P.M. and 6:59 P.M.

2 A.M. peak period. Trips in this time period arrived in New York between 7:00 A.M. and 9:59 A.M.

Table 16
Frequency of Bus and Rail Passenger-Trips

Company	Time Period	Trip Frequency Percentage		
		Five or more trips per week	Four or more trips per week	One or fewer trips per week
All bus companies[1]	Peak[2]	91.1%	94.1%	1.8%
	All Day	80.9%	83.8%	7.9%
NY&LB	Peak[3]	93.1%	94.4%	0.6%
	All Day	90.3%	93.8%	0.7%

Sources: 1972 Port Authority Bus Passenger Survey.
1974 Port Authority Rail Passenger Survey.

---

1 All companies offering bus services between New York and the Study Area.

2 P.M. peak period. Trips in this time period departed New York between 4:00 P.M. and 6:59 P.M.

3 A.M. peak period. Trips in this time period arrived in New York between 7:00 A.M. and 9:59 A.M.

consistent off-peak ridership and a greater frequency of occasional riders for the entire day.

Ridership Age, Income, and Sex

Various socioeconomic breakdowns of the total bus ridership between the Study Area and New York (PABT) are shown in Table 17. Separate percentage values are given for portions of the Study Area as well as for the total study area. For each breakdown, the percentages increase slightly for all-day ridership compared to peak period ridership.

Overall, very few elderly residents ride buses to New York. Only in Area E do elderly residents comprise an appreciable portion of total riders. Younger riders, under the age of 25, comprise 12.2 percent of the total ridership. Areas A and F show significantly larger percentages, but not large absolute numbers. Most riders (71.7 percent) are male, with variations occurring in Areas A, F, and G. Again, as the total number of riders attributed to these areas are small, the percentages do not represent large absolute numbers.

Riders with annual incomes of less than $7,500 comprise 12.6 percent of the total ridership and 8.4 percent of the peak-period ridership. While riders under the age of 25 comprise 12.2 percent of the total ridership, they comprise 43.7 percent of those riders earning less than $7,500. And while male riders represent 71.7 percent of all riders, they represent only 35.9 percent of those riders earning less than $7,500. Riders

Area	Municipalities Within Area
A	Perth Amboy
B	South Amboy, Sayreville, Old Bridge Township
C	Matawan, Keyport, Union Beach, Keansburg, Hazlet, Holmdel
D	Middletown, Atlantic Highlands, Highlands
E	Fair Haven, Little Silver, Tinton Falls, Red Bank, Rumson, Sea Bright, Shrewsbury, Shrewsbury Township, Colts Neck
F	Eatontown, Long Branch, Monmouth Beach, West Long Branch, Oceanport
G	Allenhurst, Loch Arbour, Interlaken, Asbury Park, Avon, Bradley Beach, Deal, Neptune Township, Neptune City, Ocean Township
H	Belmar, South Belmar, Brielle, Manasquan, Sea Girt, Spring Lake, Spring Lake Heights, Wall Township, Point Pleasant Beach.

Table 17
Selected Bus and Rail Passenger Characteristics

Company	Time Period	Area of Origin	Total Trips	Percentage of Trips Comprised of Riders Meeting Certain Socioeconomic Conditions: Age Under 25	Age 65 or Greater	Males	Income Under $7,500	Income Under $7,500 Male	Income Under $7,500 Age Under 25	Income Under $7,500 Age 65 or Greater	Income Under $10,000	Income Under $10,000 Male	Income Under $10,000 Age Under 25	Income Under $10,000 Age 65 or Greater
All Bus Companies[1]	Peak[2]	A	32	37.5	0	37.5	50.0	12.5	25.0	0	87.5	37.5	37.5	0
		B	1,340	13.3	0.3	73.0	5.1	1.8	2.4	0	18.1	5.8	7.3	0
		C	1,384	9.7	0.6	70.9	10.5	2.5	4.3	0	23.0	6.6	7.1	0.3
		D	526	7.2	0.8	75.3	5.7	1.9	1.5	0	14.8	4.9	3.8	0
		E	176	7.9	4.5	69.3	7.9	2.3	3.4	0	19.3	2.3	5.7	0
		F	58	44.8	0	58.6	27.6	6.9	13.8	0	58.6	17.2	44.8	0
		G	32	12.5	0	25.0	18.7	0	0	0	43.7	12.5	0	0
		H	302	10.6	4.6	68.9	9.3	3.3	1.3	1.3	17.2	10.6	3.3	1.3
		Study Area	3,850	11.4	1.0	71.1	8.4	2.3	3.3	0.1	20.8	6.7	7.1	0.2
	All Day	A	52	23.1	0	34.6	42.3	7.7	15.4	0	92.3	34.6	23.1	0
		B	1,848	12.2	0.4	75.7	9.6	3.5	4.3	0	20.9	7.0	8.3	0.2
		C	1,786	11.2	1.1	71.9	13.1	4.4	5.7	0.7	24.9	8.7	8.4	0.9
		D	722	9.1	0.5	71.2	9.1	3.3	3.6	0	17.2	6.9	5.3	0
		E	288	8.3	9.0	68.7	8.3	3.5	5.5	0	19.4	3.5	6.9	0
		F	144	48.6	0	50.0	36.1	12.5	27.8	0	52.8	16.7	34.7	0
		G	140	14.3	7.1	42.8	38.6	11.4	11.4	0	55.7	18.6	11.4	0
		H	462	10.4	6.5	77.1	12.1	6.9	3.4	2.2	20.8	10.4	5.6	1.3
		Study Area	5,442	12.2	1.8	71.7	12.6	4.5	5.5	0.4	24.0	8.5	8.6	0.5
NY&LB	Peak[3]	A	113	28.3	0	60.2	11.5	11.5	11.5	0	40.7	22.1	17.7	0
		B	715	14.3	0	69.8	5.5	1.1	2.9	0	15.8	5.6	9.2	0
		C	1,411	4.1	0.3	83.8	2.2	0.4	0.6	0	8.9	2.2	1.5	0
		D	1,450	5.0	0.3	87.9	1.3	0.6	0.7	0	3.7	0.8	1.7	0
		E	1,637	2.9	1.4	87.0	1.5	0.5	0.8	0	4.3	1.0	1.2	0
		F	569	8.1	1.4	85.4	2.6	1.2	1.6	0	11.2	3.0	4.4	0
		G	985	10.1	4.8	74.0	6.2	2.6	2.9	0	19.1	6.6	4.4	0.5
		H	1,101	1.5	3.5	72.8	4.0	1.8	0	0	11.8	3.8	0	0
		Study Area	7,981	5.9	1.6	80.9	3.1	1.2	1.3	0	9.9	3.1	2.7	0.1
	All Day	A	148	30.4	0	55.4	8.8	8.8	8.8	0	32.4	18.2	13.5	0
		B	877	14.6	0	74.0	6.8	3.3	3.1	0	16.6	5.5	8.2	0
		C	1,570	5.2	0.3	84.3	3.6	1.8	1.7	0	11.0	3.8	2.3	0
		D	1,572	4.6	0.3	87.1	1.8	0.6	0.6	0	5.1	1.0	1.5	0
		E	1,735	2.7	1.3	85.1	2.4	0.5	0.7	0	5.5	1.1	1.4	0
		F	653	7.0	1.2	77.2	3.2	2.0	1.4	0	14.1	4.1	3.8	0
		G	1,069	9.8	4.4	74.6	6.3	2.4	3.9	0	19.4	6.6	5.5	0.5
		H	1,399	1.8	5.6	73.1	5.7	1.4	0	2.0	15.2	4.7	0	2.4
		Study Area	9,023	6.1	1.8	80.1	4.1	1.6	1.6	0.3	11.7	3.7	2.9	0.4

Sources: 1972 Port Authority Bus Passenger Survey - 1974 Port Authority Rail Passenger Survey

---

[1] "All bus companies" refers to all bus services operating between New York and the study area.

[2] "Peak" refers to the PM peak period. Trips in this time period departed New York between 4:00 PM and 6:59 PM.

[3] "Peak" refers to the AM peak period. Trips in this time period arrived in New York between 7:00 AM and 9:59 AM.

earning less than $10,000 annually constitute 20.8 percent of the peak-period patronage and nearly one quarter of the total patronage.

Table 17 also lists similar socioeconomic data for riders of the NY&LB whose trips originate in the Study Area. Again, slight percentage increases exist for the daily trips compared to the peak-period trips, except in the male ridership category. As with the bus patronage, elderly ridership is small. The percentage of elderly ridership increases from northern to southern areas of the Study Area.

Ridership of passengers under 25 years of age makes up 6.1 percent of the total ridership and 38.4 percent of the ridership earning less than $7,500 annually. Male riders comprise 39.8 percent of those earning less than $7,500 while comprising 80.1 percent of all riders.

Comparison of the bus and railroad ridership results shows that the railroad has a lower percentage of young riders and a higher percentage of male riders than the bus patronage. Elderly riders comprise similar proportions of the ridership of the two modes.

The proportion of bus riders earning less than $7,500 is significantly higher than the corresponding proportion of railroad riders. This applies to peak-period riders as well as total daily ridership. The bus proportions are also higher for riders earning less than $10,000. In terms of actual numbers, the buses carry 31.2 percent more riders earning less than $7,500 than the railroad carries in the peak-period and nearly twice the amount

all day. The differences are smaller when comparing the respective passengers earning less than $10,000. Equal numbers of these passengers are carried in the peak period by the two modes while the buses carry 24 percent more all day.

Mode of Arrival/Departure

Table 18 shows modes of transportation used to get to or from the line-haul bus and railroad services. The bus data relates to mode of departure after southbound trip disembarkation. The railroad data reflects mode of arrival at Study-Area railroad stations to complete northbound trips.

Local buses provide access for only a small number of commuters. Automobile is the primary access mode for the railroad patronage; walking and the automobile are the primary access modes for bus riders. Comparison of the two bus services shows that the NY-K-LB route has a slightly higher incidence of walk-only access than does the AP-NY.

The Long Branch/Sea Bright area has the highest percentage of walk-only access to the NY-K-LB service while the Middletown and Hazlet area has the lowest percentage. The percentage of riders meeting the AP-NY service by car was highest among those passengers boarding in Point Pleasant Beach, Red Bank, and Keyport.

Table 18
Commuter Person-Trips by Mode of
Departure/Arrival at Study Area End of Trip[1]

Company	Time Period	Total Trips	Walk Only	%	Auto	%	Local Bus	%	Other	%
NY-K-LB	Peak[2]	1,166	608	52.1	541	46.4	6	0.5	7	0.6
	All-Day	1,609	866	53.8	716	44.5	8	0.5	12	0.7
AP-NY	Peak[2]	500	229	45.8	256	51.2	8	1.6	7	1.4
	All-Day	1,084	463	42.7	536	49.4	19	1.8	63	5.8
NY&LB	Peak[3]	6,165	603	9.8	5,360	86.9	60	1.0	75	1.2
	All-Day	6,596	688	10.4	5,640	85.5	74	1.1	117	1.8

Sources: 1972 Port Authority Bus Passenger Survey.
1974 Port Authority Rail Passenger Survey.

---

1 Modes of arrival are indicated for rail trips. Modes of departure are indicated for bus trips.

2 "Peak" refers to the P.M. peak period. Trips in this time period departed New York between 4:00 P.M. and 6:50 P.M.

3 "Peak" refers to the A.M. Peak period. Trips in this time period arrived in New York between 7:00 A.M. and 9:50 A.M.

CHAPTER VI

SERVICE STANDARDS

A set of standards was developed to aid in the evaluation of the service performance of the bus system and individual routes of the Study Area. These standards are presented in Table 19. This chapter discusses the bus services in comparison with the recommended standards. (Compliance to the bus shelter standard is discussed in Chapter IX.)

Headways, Hours of Operation, and Schedule Adherence

Table 20 presents a summary of the average headways by time of day, the weekday hours of operation, and the on-time performance of the bus routes in the Study Area. Similar data for the NY&LB are included for comparison purposes. The headways of the line-haul routes serving New York generally meet the maximum standard. Only the peak-period trips between New York and Long Branch fail to do so. The routes serving Newark do not consist of enough trips in most time periods on which to base meaningful average headway calculations. Where headways could be determined, only the TNJ Route 130/133 peak-period headways met the maximum recommended standards.

Only one local transit route (Boro Route 8) does not meet the recommended maximum off-peak headway standard. Of the other routes, only CCC Route 7 and the combined operation of CCC Routes 20 and 2/16 between Asbury Park and Belmar meet the desired

Table 19

Recommended Standards for Bus Services in the Study Area

Criteria	Recommended Standard
1. Headway	Local Service / Line Haul Service Peak: 30 min. (maximum) / 15 min. (desirable), 30 min. (maximum) Off-Peak: 30 min. (desirable), 60 min. (maximum) / 60 min. (maximum)
2. Hours of Operation	Local Service: 6 A.M.-7 P.M. minimum Monday-Friday with evening service on those routes operating to major shopping centers. Line-Haul Service: Interstate trips should leave between 5:30 A.M. and midnight Intrastate trips should leave between 5:30 A.M. and 9:30 P.M.
3. Schedule Adherence	Minimum Percent of Vehicles On Time[1] with Headway of:

	<30 Minutes	> 30 Minutes
Peak	85	90
Off-Peak	90	95
Express	95	95

Criteria	Recommended Standard
4. Revenue - Expense	Route revenue ÷ total operating expenses should equal a minimum of 0.4, and/or route revenue should be greater than total transportation (over-the-road) expenses.
5. Walking Distance	1,500 feet or less. Service should operate closer to areas of high senior citizen occupancy.
6. Coverage Area	At least 70 percent of the population of urban areas should be within the recommended walking distance of a bus route.
7. Operating Speed	Local Service: 10 m.p.h. minimum in CBD areas 15 m.p.h. minimum in other areas Line-Haul Service: 25-35 m.p.h. minimum
8. Load Factors	Local Service: A load factor of 125 percent is acceptable for the heaviest peak trips of each route. No passenger should stand for more than 15 minutes. Each passenger should be provided a seat during the off-peak period. Line Haul Service: Each passenger should be provided a seat at all times.
9. Bus Shelters	As a minimum, at locations with 300 or more daily boarding passengers. Also at park-ride stops and major transfer points.

[1] "On-time" defined as 0 minutes early to 5 minutes late, inclusive.

Table 20
Bus and Rail Service Levels

Company and Route	Average Headways in Minutes: AM Peak	Base	PM Peak	Evening	Weekday Hours Of Operation: From	To	Daily Round Trips[1]	Average Off-Schedule Performance (minutes - seconds)	Percent of Peak Period Trips On-Time[2]	Percent of Off-Peak Period Trips On-Time[2]
Asbury Park - New York Transit Corp.										
Asbury Park to New York	30	60	24	60	5:30 AM	2:42 AM	35	5.21	60	78
New York - Keansburg - Long Branch Bus Co.										
Long Branch to New York (PABT)										
a) from Long Branch	36	60	32	60	5:35 AM	2:15 AM	20	)	)	)
b) from Highlands	25	60	16	60	5:05 AM	2:15 AM	30	)4.43	)60	)44
c) from Hazlet	9	60	9	60	4:40 AM	2:15 AM	40	)	)	)
Highlands to Newark	39	-	38	-	5:15 AM	9:23 PM	6	)	)	)
Boro Busses Co.										
#1 Red Bank - Long Branch	30	-	64	-	6:30 AM	6:15 PM	9	8.35	29	0
#2 Red Bank - Asbury Park	59	60	60	60	6:30 AM	11:20 PM	15	.45	100	100
#4 Red Bank - Highlands	48	60	60	60	6:00 AM	8:50 PM	16	1.46	100	83
#5 Red Bank - Sea Bright	30	60	30	-	5:40 AM	8:00 PM	23	5.55	20	100
#8 Red Bank - Long Branch	34	78	42	-	6:00 AM	7:00 PM	15	4.00	50	100
#10 Red Bank - Freehold	-	-	-	-	7:30 AM	5:30 PM	4	4.45	33	80
Coast Cities Coaches										
#4 Deal - Neptune	60	60	60	-	6:45 AM	5:57 PM	12	14.26	0	60
#2/16 Asbury Park - Manasquan	50[3]	50[3]	50[3]	-	6:20 AM	6:50 PM	20	5.25	17	33
#20 Asbury Park - Pt. Pleasant	50[3]	50[3]	50[3]	-	6:50 AM	6:25 PM	10	1.24	83	75
#7 Asbury Park - Long Branch	25	25	25	-	6:05 AM	7:04 PM	30	1.43	78	80
#31 Asbury Park - North Long Branch	60	60	60	-	6:39 AM	6:49 PM	12	3.00	60	100
Amboy Coach Inc.										
Woodbridge - New Brunswick	60	60	60	-	5:05 AM	7:05 PM	13	2.00	50	67
Bayview Bus Line Inc.										
Perth Amboy - Keansburg	60	60	60	-	5:10 AM	7:40 PM	14	22.40	0	0
Perth Amboy - East Brunswick	60	60	60	56[4]	5:40 AM	10:50 PM	17	2.24	86	100
New York and Long Branch R.R.										
Bay Head to Newark/New York	17	226	12	78	4:24 AM	2:41 AM	17			
South Amboy to Newark/New York	15	76	13	78	4:24 AM	2:41 AM	25			
Transport of New Jersey										
#130/133 Asbury Park - Newark	-	118	-	-	6:30 AM	10:25 PM	8	)2.18	)100	)33
#130/133 Red Bank - Newark	28	148	30	-	5:40 AM	10:10 PM	8	)	)	)

[1] Or maximum trips in one direction.

[2] "On-time" defined as 0 minutes early to 5 minutes late, inclusive.

[3] The combined Routes 2/16 and 20 provide a 25 minute headway between Asbury Park and Belmar.

[4] Between South Amboy and Brunswick Square Shopping Center, only.

Sources: FB&D field surveys, NJ DOT field surveys, and bus and rail public timetables.

Table 20
Bus and Rail Service Levels

Company and Route	Average Headways in Minutes: AM Peak	Base	PM Peak	Evening	Weekday Hours Of Operation: From	To	Daily Round Trips[1]	Average Off-Schedule Performance (minutes - seconds)	Percent of Peak Period Trips On-Time[2]	Percent of Off-Peak Period Trips On-Time[2]
Asbury Park - New York Transit Corp.										
Asbury Park to New York	30	60	24	60	5:30 AM	2:42 AM	35	5.21	60	78
New York - Keansburg - Long Branch Bus Co.										
Long Branch to New York (PABT)										
a) from Long Branch	36	60	32	60	5:35 AM	2:15 AM	20	)	)	)
b) from Highlands	25	60	16	60	5:05 AM	2:15 AM	30	)4.43	)60	)44
c) from Hazlet	9	60	9	60	4:40 AM	2:15 AM	40	)	)	)
Highlands to Newark	39	-	38	-	5:15 AM	9:23 PM	6	)	)	)
Boro Busses Co.										
#1 Red Bank - Long Branch	30	-	64	-	6:30 AM	6:15 PM	9	8.35	29	0
#2 Red Bank - Asbury Park	59	60	60	60	6:30 AM	11:20 PM	15	.45	100	100
#4 Red Bank - Highlands	48	60	60	60	6:00 AM	8:50 PM	16	1.46	100	83
#5 Red Bank - Sea Bright	30	60	30	-	5:40 AM	8:00 PM	23	5.55	20	100
#8 Red Bank - Long Branch	34	78	42	-	6:00 AM	7:00 PM	15	4.00	50	100
#10 Red Bank - Freehold	-	-	-	-	7:30 AM	5:30 PM	4	4.45	33	80
Coast Cities Coaches										
#4 Deal - Neptune	60	60	60	-	6:45 AM	5:57 PM	12	14.26	0	60
#2/16 Asbury Park - Manasquan	50[3]	50[3]	50[3]	-	6:20 AM	6:50 PM	20	5.25	17	33
#20 Asbury Park - Pt. Pleasant	50[3]	50[3]	50[3]	-	6:50 AM	6:25 PM	10	1.24	83	75
#7 Asbury Park - Long Branch	25	25	25	-	6:05 AM	7:04 PM	30	1.43	78	80
#31 Asbury Park - North Long Branch	60	60	60	-	6:39 AM	6:49 PM	12	3.00	60	100
Amboy Coach Inc.										
Woodbridge - New Brunswick	60	60	60	-	5:05 AM	7:05 PM	13	2.00	50	67
Bayview Bus Line Inc.										
Perth Amboy - Keansburg	60	60	60	-	5:10 AM	7:40 PM	14	22.40	0	0
Perth Amboy - East Brunswick	60	60	60	56[4]	5:40 AM	10:50 PM	17	2.24	86	100
New York and Long Branch R.R.										
Bay Head to Newark/New York	17	226	12	78	4:24 AM	2:41 AM	17			
South Amboy to Newark/New York	15	76	13	78	4:24 AM	2:41 AM	25			
Transport of New Jersey										
#130/133 Asbury Park - Newark	-	118	-	-	6:30 AM	10:25 PM	8	)2.18	)100	)33
#130/133 Red Bank - Newark	28	148	30	-	5:40 AM	10:10 PM	8	)	)	)

[1] Or maximum trips in one direction.

[2] "On-time" defined as 0 minutes early to 5 minutes late, inclusive.

[3] The combined Routes 2/16 and 20 provide a 25 minute headway between Asbury Park and Belmar.

[4] Between South Amboy and Brunswick Square Shopping Center, only.

Sources: FB&D field surveys, NJ DOT field surveys, and bus and rail public timetables.

Table 20
Bus and Rail Service Levels

Company and Route	Average Headways in Minutes: AM Peak	Base	PM Peak	Evening	Weekday Hours Of Operation: From	To	Daily Round Trips[1]	Average Off-Schedule Performance (minutes - seconds)	Percent of Peak Period Trips On-Time[2]	Percent of Off-Peak Period Trips On-Time[2]
Asbury Park - New York Transit Corp.										
Asbury Park to New York	30	60	24	60	5:30 AM	2:42 AM	35	5.21	60	78
New York - Keansburg - Long Branch Bus Co.										
Long Branch to New York (PABT)										
a) from Long Branch	36	60	32	60	5:35 AM	2:15 AM	20	)	)	)
b) from Highlands	25	60	16	60	5:05 AM	2:15 AM	30	)4.43	)60	)44
c) from Hazlet	9	60	9	60	4:40 AM	2:15 AM	40	)	)	)
Highlands to Newark	39	-	38	-	5:15 AM	9:23 PM	6	)	)	)
Boro Busses Co.										
#1 Red Bank - Long Branch	30	-	64	-	6:30 AM	6:15 PM	9	8.35	29	0
#2 Red Bank - Asbury Park	59	60	60	60	6:30 AM	11:20 PM	15	.45	100	100
#4 Red Bank - Highlands	48	60	60	60	6:00 AM	8:50 PM	16	1.46	100	83
#5 Red Bank - Sea Bright	30	60	30	-	5:40 AM	8:00 PM	23	5.55	20	100
#8 Red Bank - Long Branch	34	78	42	-	6:00 AM	7:00 PM	15	4.00	50	100
#10 Red Bank - Freehold	-	-	-	-	7:30 AM	5:30 PM	4	4.45	33	80
Coast Cities Coaches										
#4 Deal - Neptune	60	60	60	-	6:45 AM	5:57 PM	12	14.26	0	60
#2/16 Asbury Park - Manasquan	50[3]	50[3]	50[3]	-	6:20 AM	6:50 PM	20	5.25	17	33
#20 Asbury Park - Pt. Pleasant	50[3]	50[3]	50[3]	-	6:50 AM	6:25 PM	10	1.24	83	75
#7 Asbury Park - Long Branch	25	25	25	-	6:05 AM	7:04 PM	30	1.43	78	80
#31 Asbury Park - North Long Branch	60	60	60	-	6:39 AM	6:49 PM	12	3.00	60	100
Amboy Coach Inc.										
Woodbridge - New Brunswick	60	60	60	-	5:05 AM	7:05 PM	13	2.00	50	67
Bayview Bus Line Inc.										
Perth Amboy - Keansburg	60	60	60	-	5:10 AM	7:40 PM	14	22.40	0	0
Perth Amboy - East Brunswick	60	60	60	56[4]	5:40 AM	10:50 PM	17	2.24	86	100
New York and Long Branch R.R.										
Bay Head to Newark/New York	17	226	12	78	4:24 AM	2:41 AM	17			
South Amboy to Newark/New York	15	76	13	78	4:24 AM	2:41 AM	25			
Transport of New Jersey										
#130/133 Asbury Park - Newark	-	118	-	-	6:30 AM	10:25 PM	8	)2.18	)100	)33
#130/133 Red Bank - Newark	28	148	30	-	5:40 AM	10:10 PM	8	)	)	)

[1] Or maximum trips in one direction.

[2] "On-time" defined as 0 minutes early to 5 minutes late, inclusive.

[3] The combined Routes 2/16 and 20 provide a 25 minute headway between Asbury Park and Belmar.

[4] Between South Amboy and Brunswick Square Shopping Center, only.

Sources: FB&D field surveys, NJ DOT field surveys, and bus and rail public timetables.

off-peak headway standard. These same services plus Boro Route 1 (A.M. peak only) and Boro Route 5 are the only local transit routes whose headways are within the recommended maximum peak-period standard. Most other routes operate at 60-minute headways.

Both of the New York bus services operate beyond the recommended hours of operation. The TNJ service adequately spans the recommended hours of operation while the NY-K-LB Newark service does not operate as late as recommended. In general, the local transit services operate from the morning peak period until between 6:00 P.M. and 7:00 P.M. Only Boro Routes 2 and 4 and Bayview's East Brunswick route operate substantially beyond that time. Only Boro Route 5 and CCC Routes 7 and 2/16 operate 20 or more daily round trips.

The average off-schedule times are based on the field surveys and represent the average difference between the actual and scheduled departure times of each of the one-way bus trip sampled. Two routes show poor results, CCC Route 4 and Bayview's Keansburg route. On their respective survey dates, each of these routes fell far behind schedule early in the afternoon and all subsequent trips were late. The best results were shown by Boro Route 2.

Few of the bus routes have survey results which meet the recommended schedule adherence standards. Only TNJ Route 130/133 and Boro Routes 2 and 4 meet or exceed the peak-period standard. Boro Route 2 also meets the off-peak period standard,

along with Boro Routes 5 and 8, CCC Route 31, and Bayview's East Brunswick service.

One third of the AP-NY trips arrived more than 5 minutes later than their respective scheduled destination arrival times. Many of the trips arrived earlier than scheduled. Forty percent of the NY-K-LB trips arrived more than 5 minutes later than scheduled.

Revenue and Expense Statistics

Annual Revenue Statistics

The 1974 statistical operating characteristics of the bus routes are presented in Table 21. The NY-K-LB New York service exhibits $1.92 in average revenue per bus-mile, nearly double the figure of the AP-NY service. The NY-K-LB service carries over double the average amount of passengers per bus-mile of AP-NY. The AP-NY service collects an average fare of $1.95, which is 50¢ higher than that of NY-K-LB.

The TNJ average passenger and revenue statistics on either a round-trip or bus-mile basis are substantially lower than those of the NY-K-LB service. The NY-K-LB average fare is $1.34, which is 17¢ higher than the TNJ average fare.

Of the local transit routes, Boro Route 2 shows the highest average revenue per bus-mile while the Bayview East Brunswick route, CCC Route 31, and Boro Route 10 have the lowest figures. The East Brunswick route average revenue per bus-mile was twice as large before service was extended from Sayrewoods to East Brunswick. The Amboy route has the highest average revenue

Table 21

1974 Bus Operating Statistics of Routes in the Study Area

Company and Route	Total Trips (Round Trips)	Total Passengers	Total Bus-Miles	Total Revenue ($)	Average Passengers Per Round-Trip	Average Revenue Per Round-Trip	Average Passengers Per Bus-mile	Average Revenue Per Bus-mile
Asbury Park - New York Transit Corp.	N.A.	1,055,646	2,075,125	2,062,734	N.A.	N.A.	0.5	$ .99
Asbury Park to New York								
New York - Keansburg - Long Branch Bus Co.								
Long Branch to New York	12,395	819,354	619,750	1,190,588	66.1	$96.05	1.3	1.92
Long Branch to Newark	1,429	64,760	64,305	86,861	45.3	60.78	1.0	1.35
Boro Busses Company								
#1/8 Red Bank - Long Branch	N.A.	148,848	112,246	60,703	N.A.	N.A.	1.3	.54
#2 Red Bank - Asbury Park	N.A.	197,088	127,475	92,610	N.A.	N.A.	1.5	.73
#4 Red Bank - Highlands	N.A.	218,606	137,258	80,157	N.A.	N.A.	1.6	.58
#5 Red Bank - Sea Bright	N.A.	121,285	85,081	44,964	N.A.	N.A.	1.4	.53
[1] #10 Red Bank - Freehold	N.A.	11,531	27,814	8,917	N.A.	N.A.	0.4	.32
Coast Cities Coaches								
#4 Deal - Neptune	3,312	74,482	46,079	20,983	22.5	6.34	1.6	.46
#2/16/20 Asbury Park - Pt. Pleasant	9,607	323,455	210,413	95,281	33.7	9.92	1.5	.45
#7 Asbury Park - Long Branch	9,595	201,863	158,157	64,719	21.0	6.75	1.3	.41
#31 Asbury Park - No. Long Branch	3,436	86,420	110,659	25,820	25.2	7.51	0.8	.23
#5 Asbury Park - Spring Lake	622	11,919	8,790	3,677	19.2	5.91	1.4	.42
Amboy Coach Inc.								
Woodbridge - New Brunswick	3,718	149,787	183,669	63,394	40.3	17.05	0.8	.35
Bayview Bus Line Inc.								
Perth Amboy - Keansburg	5,168	195,268	182,947	77,936	37.8	15.08	1.1	.43
[2] Perth Amboy - Sayrewoods	348	7,400	5,498	2,322	21.3	6.67	1.3	.42
[3] Perth Amboy - East Brunswick	4,777	117,778	237,895	50,176	24.7	10.50	0.5	.21
Transport of New Jersey								
#130/133 Asbury Park - Long Branch - Newark	7,558	212,480	628,431	249,504	28.1	33.01	0.3	.40
#4 Perth Amboy - New Brunswick	9,733	406,166	309,811	189,049	41.7	19.42	1.3	.61

Source: 1974 P.U.C. and I.C.C. Annual Reports

N.A. denotes information not available

[1] Initiated February, 1974

[2] Operated until 2/2/74

[3] Formerly operated to Sayrewoods only; extended to East Brunswick as of 2/2/74

on a round-trip basis and also one of the lowest average revenues per bus-mile. On a company basis, Boro has the highest average revenue per bus-mile, 59¢. CCC averages 39¢, Amboy averages 35¢, and Bayview averages 31¢.

Boro Route 10 collects the highest average fare, 77¢ per passenger. The lowest average fares are found on the CCC routes.

Net Revenues

Table 22 presents annual net revenue statistics of each company and route, based on the 1974 Public Utility Commission (PUC) and Interstate Commerce Commission (ICC) Annual Reports. The TNJ expense figure was prepared by TNJ. The other expense figures are estimated values developed by the Consultant.

The total operating expenses of each route exceed the respective direct route revenues. The largest operating losses occur on the AP-NY service, the TNJ route, the East Brunswick route, the NY-K-LB Newark service, and the Amboy route. The smallest losses occur on CCC Routes 4 and 5 and on Boro Route 10.

The New York services show the smallest losses per bus-mile of operation. Of the local routes, the Keansburg route has the smallest loss per bus-mile. The largest losses per bus-mile are shown by the NY-K-LB Newark service and Boro Route 10.

On a bus-hour basis, the largest losses are shown by the NY-K-LB Newark service, Boro Route 10, and the TNJ route.

Table 22

1974 Bus Route Financial Statistics

Company and Route	Revenue	Total Operating Expenses	Net Operating Revenue	Bus-Miles	Bus-Hours	Cents Per Bus - Mile			Dollars Per Bus - Hour		
						Revenue	Expenses	Net	Revenue	Expenses	Net
Boro	$ 287,351	$ 591,810	$(304,459)	489,874	34,440	58.7	120.8	(62.1)	8.34	17.18	(8.84)
#1/8	60,703	138,559	(77,856)	112,246	8,610	54.1	123.4	(69.3)	7.05	16.09	(9.04)
#2	92,610	154,304	(61,694)	127,475	9,057	72.6	121.0	(48.4)	10.23	17.04	(6.81)
#4	80,157	160,793	(80,636)	137,258	8,472	58.4	117.1	(58.7)	9.46	18.98	(9.52)
#5	44,964	104,276	(59,312)	85,081	6,303	52.8	122.6	(69.8)	7.13	16.54	(9.41)
#10	8,917	33,878	(24,961)	27,814	1,998	32.1	121.8	(89.7)	4.46	16.96	(12.49)
CCC	210,480	464,974	(254,494)	534,098	38,943	39.4	87.1	(47.7)	5.40	11.94	(6.54)
#2/16/20	95,281	178,276	(82,995)	210,413	14,292	45.3	84.7	(39.4)	6.67	12.47	(5.80)
#4	20,983	40,899	(19,916)	46,079	3,544	45.5	88.8	(43.3)	5.92	11.54	(5.62)
#7	64,719	143,104	(78,385)	158,157	12,695	40.9	90.5	(49.6)	5.10	11.27	(6.17)
#31	25,820	93,514	(67,694)	110,659	7,477	23.3	84.5	(61.2)	3.45	12.51	(9.06)
#5	3,677	9,181	(5,504)	8,790	935	41.8	104.4	(62.6)	3.93	9.82	(5.89)
Bayview	130,434	310,090	(179,656)	426,340	21,116	30.6	72.7	(42.1)	6.18	14.69	(8.51)
Keansburg	77,936	130,317	(52,381)	182,947	8,461	42.6	71.2	(28.6)	9.21	15.40	(6.19)
E. Brunswick	52,498	179,773	(127,275)	243,393	12,655	21.6	73.9	(52.3)	4.15	14.21	(10.06)
Amboy	63,394	164,350	(100,956)	183,669	13,096	34.5	89.5	(55.0)	4.84	12.55	(7.71)
TNJ											
#130/133	253,038	516,331	(263,293)	628,431	24,642	40.3	82.2	(41.9)	10.27	20.95	(10.68)
AP-NY	2,062,734	2,431,182	(368,448)	2,075,125	N.A.	99.4	117.2	(17.8)	-	-	-
NY-K-LB	1,277,449	1,430,885	(153,436)	684,055	26,577	186.7	209.2	(22.5)	48.07	53.84	(5.77)
New York	1,190,588	1,232,103	(41,515)	619,750	23,095	192.1	198.8	(6.7)	51.55	53.35	(1.80)
Newark	86,861	198,782	(111,921)	64,305	3,482	135.1	309.1	(174.0)	24.95	57.09	(32.14)

Sources: Figures are based on 1974 P.U.C. and I.C.C. Annual Reports

The smallest losses are shown by CCC Routes 4, 2/16/20, and 5.

By company, the largest operating loss is incurred by AP-NY, followed by Boro, TNJ (Route 130/133 only), CCC, Bayview, NY-K-LB, and Amboy, in that order. Boro shows the largest loss per bus-mile while AP-NY has the smallest. On a bus-hour basis, NY-K-LB has the smallest loss and, of the local route operators, Boro has the largest. The total operating expenses are highest for NY-K-LB on both a bus-mile and bus-hour basis.

Revenue to Expense Ratios

Table 23 presents the ratio of direct revenue to both over-the-road expenses and total operating expenses for each bus route studied. The over-the-road expenses are estimated values based on total transportation expenses (Account No. 4200) as reported in the PUC and ICC Annual Reports.

On a company basis, only NY-K-LB, AP-NY, and Boro meet the recommended standard that revenue exceed transportation expenses. Individually, eight routes comply to this standard, while nine do not. All routes except Boro Route 10, CCC Route 31, the East Brunswick route, and the Amboy route meet the recommended standard that revenue be at least 40 percent of total operating expenses. These same four routes fail to meet both parts of the recommended standard.

Coverage Area

The percentage of the general population residing within 1,500 feet of any of the local transit bus routes is

Table 23

1974 Bus Route Revenue/Expense Ratios

Company and Route	Direct Route Revenue (000's)	Over the Road Expenses (000's)	Net Revenue After Over the Road Expenses (000's)	Ratio of Revenue ÷ Over the Road Expenses	Total Operating Expenses (000's)	Ratio of Revenue ÷ Total Operating Expenses
Boro	$ 287.4	$ 218.0	$ 69.4	1.32	$ 591.8	0.49
#1/8	60.7	53.0	7.7	1.15	138.6	0.44
#2	92.6	57.1	35.5	1.62	154.3	0.60
#4	80.2	56.1	24.1	1.43	160.8	0.50
#5	45.0	39.2	5.8	1.15	104.3	0.43
#10	8.9	12.6	(3.7)	0.71	33.9	0.26
CCC	210.5	236.2	(25.7)	0.89	465.0	0.45
#2/16/20	95.3	88.1	7.2	1.08	178.3	0.53
#4	21.0	21.2	(0.2)	0.99	41.0	0.51
#7	64.7	75.4	(10.7)	0.86	143.1	0.45
#31	25.8	46.2	(20.4)	0.56	93.5	0.28
#5	3.7	5.3	(1.6)	0.70	9.2	0.40
Bayview	130.4	135.5	(5.1)	0.96	310.1	0.42
Keansburg	77.9	55.4	22.5	1.41	130.3	0.60
E. Brunswick	52.5	80.1	(27.6)	0.66	179.8	0.29
Amboy	63.4	74.4	(11.0)	0.85	164.4	0.39
TNJ						
#130/133	253.0	353.1	(100.1)	0.72	516.3	0.49
AP-NY	2,062.7	1,032.8	1,029.9	2.00	2,431.2	0.85
NY-K-LB	1,277.4	665.6	611.8	1.92	1,430.9	0.89
New York	1,190.6	555.6	635.0	2.14	1,232.1	0.97
Newark	86.9	110.0	(23.1)	0.79	198.8	0.44

Source: Figures based on the 1974 P.U.C. and I.C.C. Annual Reports

listed for selected municipalities in Table 24. These municipalities consist primarily of urban and suburban area and contain the highest population densities in the Study Area. The percentage figures give a relative indication of the coverage adequacy of the local bus network in each of the municipal areas. Six of the municipalities fall below the 70 percent coverage level, indicating a potential need for public transportation improvements. These areas are Point Pleasant Beach, Belmar, Keansburg, Avon, Bradley Beach, and Fair Haven. Within Keansburg, consideration of the NY-K-LB service would substantially increase the percent of population covered by bus service. The NY-K-LB service was not included in the development of the covered population because, in spite of the fact that local service is offered, the service is primarily a line-haul commuter route and there is but one major generator along the route within Keansburg and the immediate Keansburg area. Similarly, inclusion of the AP-NY service would have increased the covered population percentage in Point Pleasant Beach. But the service was not considered because local service is limited to scheduled stops only. The AP-NY service duplicates the local transit routes serving Avon, Bradley Beach, and Belmar. Therefore, the exclusion of the AP-NY service from consideration did not affect the percentage of covered population.

The bus network in Perth Amboy barely meets the recommended coverage standard, but only the Bayview and Amboy routes were considered. The addition to the analysis of TNJ local

Table 24
Proportions of Municipal Populations Within Walking Distance (1,500 feet) of a Local Bus Route

Municipality	Percent of Population Within Walking Distance
Perth Amboy	71.2
South Amboy	97.0
Keyport	75.3
Union Beach	77.6
Keansburg	59.6
Highlands	100.0
Atlantic Highlands	94.6
Red Bank	92.3
Fair Haven	63.4
Long Branch	86.0
Asbury Park	100.0
Neptune City	92.3
Bradley Beach	61.9
Avon	60.6
Belmar	43.2
South Belmar	91.3
Spring Lake	90.0
Sea Girt	97.1
Manasquan	69.2
Point Pleasant Beach	31.9

Source: Based on 1970 U.S. Census Block Statistics.

transit routes operating within the City would substantially increase the total covered population.

The heaviest-populated area of Neptune Township (Census Tracts 74,75, and 76) is located in the northeastern portions of the Township. The population covered by bus service is 81 percent of the total area population.

Operating Speed

With limited exceptions, all of the bus routes meet the recommended speed standards, based on the results of the bus travel time surveys. The AP-NY service often exceeded 35 mph, overall, while the NY-K-LB and TNJ services averaged between 30 and 35 mph.

Boro Route 1 operated at 8.6 mph westbound along Broadway in Long Branch during the evening peak period, thus failing to meet the 10 mph standard. CCC Route 31 failed to meet this standard throughout the day on the route segment between the intersection of Main Street and Asbury Avenue and the Asbury Park Casino in the direction from the Casino. Average speeds ranged from 6.4 to 9.1 mph. Still, the entire route exhibited average speeds ranging from 16.5 to 19.7 mph. Bayview's East Brunswick route averaged 9.1 mph within Perth Amboy and South Amboy in the southbound direction during the evening peak period. The entire route averaged 16.2 mph in that time period.

Load Factor

During the midday period, no standees were observed on any of the bus trips sampled during the field surveys. During

the peak periods, a few instances of standing passengers were observed on Boro Route 4 but never exceeding 1.25 times the number of available seats and never for a time period of more than a few minutes. Most of the passengers on these trips were school children.

No standees were observed on the line-haul commuter services.

CHAPTER VII

BUS ROUTING MODIFICATIONS

In response to some of the problems identified in the preceding chapters, several plans for modifying the existing bus network were developed by the Consultant so that the bus network would be more responsive to the Study Area's needs and demands without increasing operating expenses excessively. These plans were designed to reduce travel time and mileage, improve feeder to line-haul services, provide service to areas currently without service, and to reduce competitive service duplication. Each plan would produce an increase or decrease of daily route mileage and/or labor requirements, resulting in a corresponding change of operating expenses. Each plan would also cause a net change in daily ridership, resulting in an increase or decrease of operating revenues. The Consultant estimated these expense and revenue changes to determine the net fiscal results that could be expected from each plan. This chapter presents these plans along with discussion of their potential benefits or drawbacks.

Local Transit Route Modifications

Modifications to Boro Routes 1 and 5

Several modifications to Boro Routes 1 and 5 were developed by the Consultant to introduce bus service to Shrewsbury Township and the Camp Charles Wood area of Eatontown. These two areas of relatively high population density are not currently

served by any public transit bus routes. Areas of Camp Charles Wood are served by a military shuttle bus as described in Chapter IV, but area residents may still be attracted to a direct bus service to Red Bank, the Monmouth Shopping Center, or other nearby points. The service modifications would also provide service to the Mid-Monmouth Industrial Park and to the Stony Hill Garden Apartments on New Jersey Route 36.

According to a Boro spokesman, Boro Route 5 previously operated to Shrewsbury Township, but the Route was since shortened to its present configuration due to low ridership demand. Census data indicates that 86 percent of the Shrewsbury Township housing units have one or more autos available, which, when confirmed by field observation, indicated little demand for local bus service. According to the Census, persons over the age of 61 represent 5 percent of the Shrewsbury Township population, compared to 11.7 percent of the Study Area population. For all of the preceding reasons, the Consultant abandoned analysis of the feasibility of bus service to Shrewsbury Township exclusively.

Some modifications were eliminated from further analysis due to relatively low potential for attracting ridership or substantially high extra mileage and/or labor involved. No modifications to Route 5 that were considered could be made without seriously disrupting the current schedules. In effect, these modifications would become the equivalent of a new individual route. Rather, it was felt that the service could be provided

at less expense by re-routing Route 1. Two of the modifications are as follows:

1. Operate Route 1 via Tinton Avenue, Hope Road, and New Jersey Route 36 between Fort Monmouth and the Monmouth Shopping Center.

2. Operate Route 1 via Lewis Street, Pine Brook Road, Hope Road, and New Jersey Route 36 from Main and Lewis Streets to the Monmouth Shopping Center.

These modifications are shown in Exhibit 14.

Modification 1 would require an extra 2.1 miles per one-way trip, 0.1 miles more than would Modification 2. The latter change provides direct bus service to more people, principally the civilian and military family apartments located along Pine Brook Road. Modification 1 would serve undeveloped land, a golf course, and military officers' homes. Only a garden apartment development in the vicinity of Tinton Avenue and Violante Court might generate passengers along the potential bus routing. Modification 2 would continue bus service to the Broad Street area of Eatontown, an active area of the bus routes currently operating there. By making these changes, service would be eliminated along portions of New Jersey Route 35. Of the current Route-1 ridership (on trips operating to the Monmouth Shopping Center), 15.5 percent would be adversely affected by Modification 1 while only 3.4 percent would be affected by Modification 2. All of the affected trips could still be made via Boro Route 2. Modification 2 changes could be accommodated within the layover time on Boro Route 1, without adversely affecting an acceptable schedule recovery allowance.

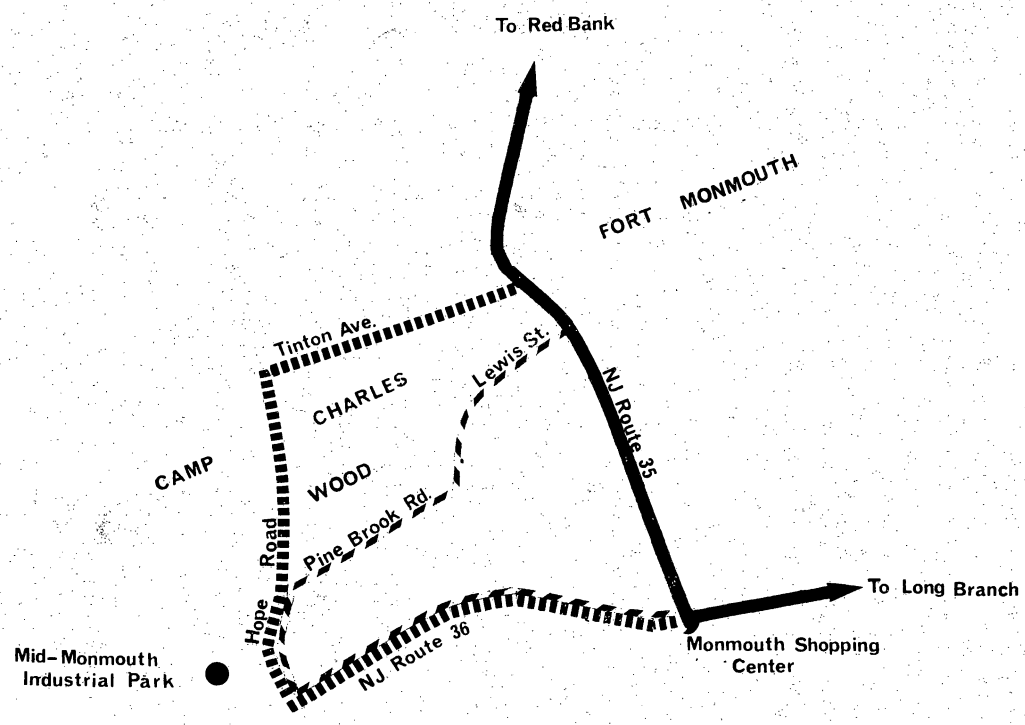
EXHIBIT NO. 14

BORO ROUTE 1 MODIFICATIONS

NEW JERSEY PUBLIC TRANSPORTATION STUDY

EASTERN MONMOUTH-OCEAN MIDDLESEX CORRIDOR

Ford, Bacon & Davis
Incorporated
Engineers
NEW YORK



Existing route

Modification (1)

Modification (2)

Scale in feet

0 4000 8000

The Route 1 service should be provided during the midday period. Assuming the addition of midday service and the implementation of Modification 2 for all midday trips and some peak-period trips, daily mileage would increase 68 miles and 3.5 extra daily bus-hours would be required. Without the extra midday service, daily mileage would increase only 22 miles.

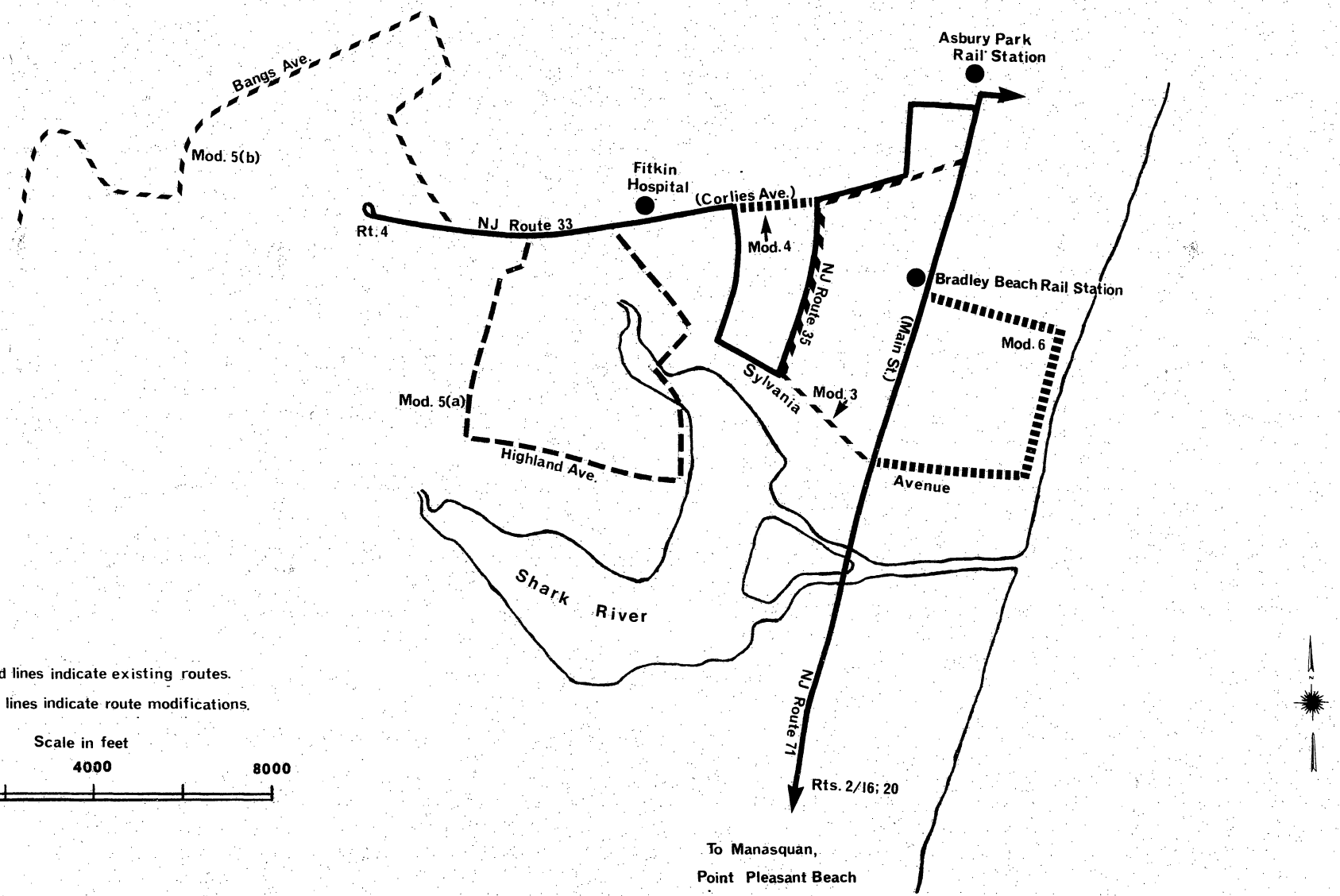
The alteration of Boro Route 1 to serve the Camp Charles Wood area (under Modification 2 with service throughout the midday period) would increase the route's annual net operating revenue by $455. Due to the increase in general population that would be offered bus service under this plan, and the net revenue improvement, the service change is recommended.

Modifications to CCC Routes 4, 20, and 2/16

CCC Routes 2/16 and 20 duplicate each other for their first 4.8 miles between Asbury Park and South Belmar. The Consultant studied the possibility of re-routing one or the other of these routes, with little additional mileage being incurred, to provide service to areas currently without transit service while continuing service to all or most areas that are now served. Some of these changes, in conjunction with potential modifications to CCC Route 4, would serve to consolidate the routes. The possible changes are shown in Exhibit 15 and described as follows:

1. Discontinue Route 4 service between Asbury Park and Deal. Terminate the Route at the Asbury Park Casino.

2. Operate either Route 2 or Routes 16 and 20 via Grand Avenue, rather than via Kingsley and Ocean Avenues in Asbury Park.



Solid lines indicate existing routes.

Broken lines indicate route modifications.

Scale in feet

0 4000 8000

EXHIBIT NO. 15

CONSOLIDATION OF CCC
ROUTES 4, 20, & 2-16
NEW JERSEY PUBLIC TRANSPORTATION STUDY
EASTERN MONMOUTH-OCEAN MIDDLESEX CORRIDOR

Ford, Bacon & Davis
Incorporated
Engineers
NEW YORK

3. Operate Route 2 via New Jersey Routes 35 and 33 between Sylvania Avenue in Avon and Broadway in Ocean Grove.

4. Eliminate Route 4 service along New Jersey Route 35, Sylvania Avenue, Neptune Avenue, and Taylor Avenue in Neptune City and Neptune Township.

5. Extend Route 4 to provide bus service to areas of Neptune Township (and areas further west) presently not served:

   a. Operate a loop via Corlies Avenue, Brighton Avenue, Highland Avenue, Riverside Drive, East End Avenue, Sylvania Avenue, and Oxford Way in Neptune Township.

   b. Operate via Wayside Road, West Bangs Avenue, Corlies Avenue, Jumping Brook Road, Crescent Drive, West Jumping Brook Road, and Schoolhouse Road in Neptune Township.

   c. Operate via New Jersey Route 33 and Monmouth County Route 537 to Freehold (as suggested by the Monmouth County Transportation Coordinating Committee).

6. Operate Routes 20 and 16 via Brinley, Ocean, and Sylvania Avenues in Bradley Beach and Avon.

Modification 1 is designed to eliminate an unproductive segment of Route 4. North of Asbury Park, the Route generates only 15 daily passenger-trips, or 3.5 percent of all passenger-trips generated on the entire route, on 19.3 percent of the daily route mileage. Most of the passenger are employed as domestics in private homes and likely to be captive riders. Most of the trips could be made using CCC Route 7, some requiring a transfer. (All of these trips could be made by CCC Route 7 or 31 if changes discussed later in this Chapter are implemented.) This route change would reduce the one-way travel time by 9 to 10 minutes and the one-way mileage by 1.9 miles.

Modification 2 should be made in conjunction with Modification 1 to preserve bus service along Grand Avenue. In addition, this change would eliminate route duplication along Kingsley and Ocean Avenues. Headways along the latter segments would lengthen from 25 to 50 minutes. Service along Grand Avenue would begin an hour earlier and terminate an hour later than currently provided by the Route 4 schedule. Headways would be shortened from 60 to 50 minutes. A mileage savings of 0.3 miles per one-way trip would result.

Modification 3 should be implemented only in conjunction with Modification 4. Of the daily Route 4 passenger-trips currently generated along New Jersey Route 35, all but 5 (13 percent) could be handled by this Route-2 service change. Headways along this segment would be shortened from 60 to 50 minutes and the hours of operation could be expanded. Service along portions of Corlies Avenue east of New Jersey Route 35 could be similarly improved. Route 2 service duplicating Routes 16 and 20 along Main Street between Sylvania Avenue in Avon and Corlies Avenue in Neptune could be eliminated, affecting 17.5 percent of the current daily route ridership. All of the affected northbound trips and most of the affected southbound trips could still be made, utilizing the Route 20 and Route 16 services. Bus service headways in this segment would be doubled, from the present 25 minutes to 50 minutes. Modification 3 would require 0.75 additional one-way miles.

The implementation of Modification 4 would inconvenience or eliminate only 16 daily passenger-trips, or 7 percent of all

passenger-trips currently served by Route 4. Some of the terminal points of these trips would be within the coverage area of the remaining Route 4 service on Corlies Avenue, the Route 2 service described in Modification 3, or the Route 4 service described in Modification 5a. Modification 4 would reduce the Route 4 one-way mileage by 1.5 miles and the one-way travel time by 6 to 7 minutes.

The time and mileage savings resulting from the above modifications would enable the alternative route extensions of Modification 5 to be made. These extensions could be operated initially on an experimental basis. Modification 5a is designed to provide bus service to the current and projected residents of the Shark River Hills section of Neptune Township (isolated due to geographic configuration) and the westernmost portion of the West Sylvania Avenue area of Neptune City. These are relatively heavily-populated areas, the former area currently without any bus service. This modification would increase the current Route 4 Fitkin Hospital round-trip mileage by 4.4 miles.

The present Route 4 segment between Fitkin Hospital and Asbury Gardens generates only 4 daily passenger-trips on 3-1/2 daily round-trips. This segment contains 6.4 percent of the daily route mileage and generates only 1.7 percent of the daily ridership. Modification 5b is designed to attract more ridership from the area west of Fitkin Hospital by providing a more direct service to some areas, introducing service to areas without service, and increasing the daily service frequency. This

extension would increase the current one-way mileage (to Asbury Gardens) by 3.4 miles.

Modifications 5a and 5b could both be operated, on an alternate-trip basis. Furthermore, either service extension could be operated during peak or midday periods only if demand patterns so warrant. The new Route 4 evolving from the implementation of Modifications 1 and 4 and either 5a or 5b could be operated at current headways.

Modification 5c could accomplish, to an extent, some of the objectives of Modification 5b while also providing a connection between Freehold and Neptune and Asbury Park. Each one-way trip between Asbury Gardens and Freehold would require 13.2 miles of travel and 30 minutes of travel time. Most of the additional area to be served (parts of Tinton Falls, Howell Township, and Freehold Township) is very lightly populated and is not expected to grow substantially in the near future. Due to the low patronage that would be generated along this route segment, Modifications 5a and/or 5b are preferred at this time.

Modification 6 is designed to provide a more direct bus service to the residents of Bradley Beach and Avon and to increase the proportion of total population within the coverage area of the local bus network. The bus route segment proposed for elimination under the route change generates 4.8 percent of the daily person-trips carried by Routes 20 and 16. Based on population distribution data and the configuration of the NY&LB (it acts as a buffer zone between the bus service and residents

to the west), it can safely be assumed that most of the potential affected ridership is generated east of Main Street. Under this route change, less than 1 percent of the daily ridership would not be within walking distance of the bus routes. Thus, the change would add little inconvenience to the entire ridership, would increase convenience to some riders (by reducing walking distances), and will serve more residents. In addition, service to the Bradley Beach railroad station would continue. The walking distance reductions are an important factor because of the high proportion of senior citizens in this area. According to the 1970 Census, residents aged 62 or greater constitute 22 and 25 percent of the total populations of Bradley Beach and Avon, respectively, approximately double the elderly proportion of the Study Area as a whole. Modification 6 would require an additional 2.3 miles more per round-trip than currently required.

Combinations of the above route changes would result in the following net daily mileage changes:

Route Modification Combination	Net Daily Mileage Change
1&2	-50.8
3&4	-12.0
1,2,3,4,5a,&5b	+12.8*
1,2,3,4,5a,5b&6	+46.4*

The consolidation of CCC Routes 4, 2/16, and 20 (under Modifications 1,2,3,4,5a and 5b) would result in an increase of

---

* Assumes alternate-trip operation of Modifications 5a and 5b.

$1,895 in annual net operating revenue. Daily ridership is estimated to increase by 20 passenger-trips under this operating pattern. If Modification 6 were operated in addition to the other changes, an increase of $1,127 in annual net operating revenues would result. The implementation of these changes is therefore found favorable.

Modifications to CCC Routes 7 and 31

A number of CCC Route 7 and Route 31 service changes were considered, each designed to eliminate service to relatively unproductive route segments or to introduce the routes into areas currently without bus service. One of the changes studied was the elimination of service along Monmouth Road between Corlies Avenue in Ocean Township (West Allenhurst) and Cedar and Locust Avenues in West Long Branch. This change would convert Route 31 into two separate routes, one serving the Long Branch area and the other serving the Asbury Park area. The Monmouth Road segment comprises 20.4 percent of the daily Route-31 mileage and generates 14.7 percent of the daily ridership. An additional 17 percent of the daily ridership travels through the Monmouth Road segment between the Long Branch and Asbury Park areas. Thus the elimination of this segment would adversely affect over 30 percent of the daily ridership and the change is not recommended.

Other changes, which were studied but are not recommended due to significant potential ridership losses, concern direct operation of Route 31 in Asbury Park, Wannamassa, and Interlaken, eliminating circuitous route mileage.

Other potential service changes are described as follows:

1. Operate Route 31 via Cedar and Westwood Avenues from Monmouth Road and Locust Avenue in West Long Branch to Brighton Avenue in Long Branch.

2. Operate Route 31 via Joline, Seventh, and Atlantic Avenues in Long Branch.

3. Operate Route 7 via High Street and Bath Avenue in Long Branch.

4. Operate Route 31 via Corlies, Norwood and Sherman Avenues in Allenhurst, Deal, and Ocean Township.

5. Operate Route 31 via Roosevelt Avenue, Highwood Road, Freehold Street, Whale Pond Road, and West Park Avenue in the Oakhurst section of Ocean Township.

These modifications are shown in Exhibit 16.

Modifications 1, 2, and 3 are designed to be implemented simultaneously, although it would be possible to make each change separately. Modification 1 would eliminate a relatively weak segment of Route 31. There is one heavy load point along this section, the Long Branch High School. On those trips that normally carry heavy student patronage, the service should continue to serve the school, operating via Westwood Avenue, Wooley Avenue, Ellen Lane, and Hoey Street. Modification 1 would increase bus service to Monmouth College and southern West Long Branch. The change would produce a savings of 0.5 miles per one-way trip. This saving would enable Modification 2 to be made with little net time or mileage changes. This re-routing would substantially increase the bus coverage in the western Joline/Atlantic Avenue area (Census Tract 55). Only 56 percent of the residents of this area are currently within walking distance of a bus route. Modification 2 would require 0.9 miles more than presently required per one-way

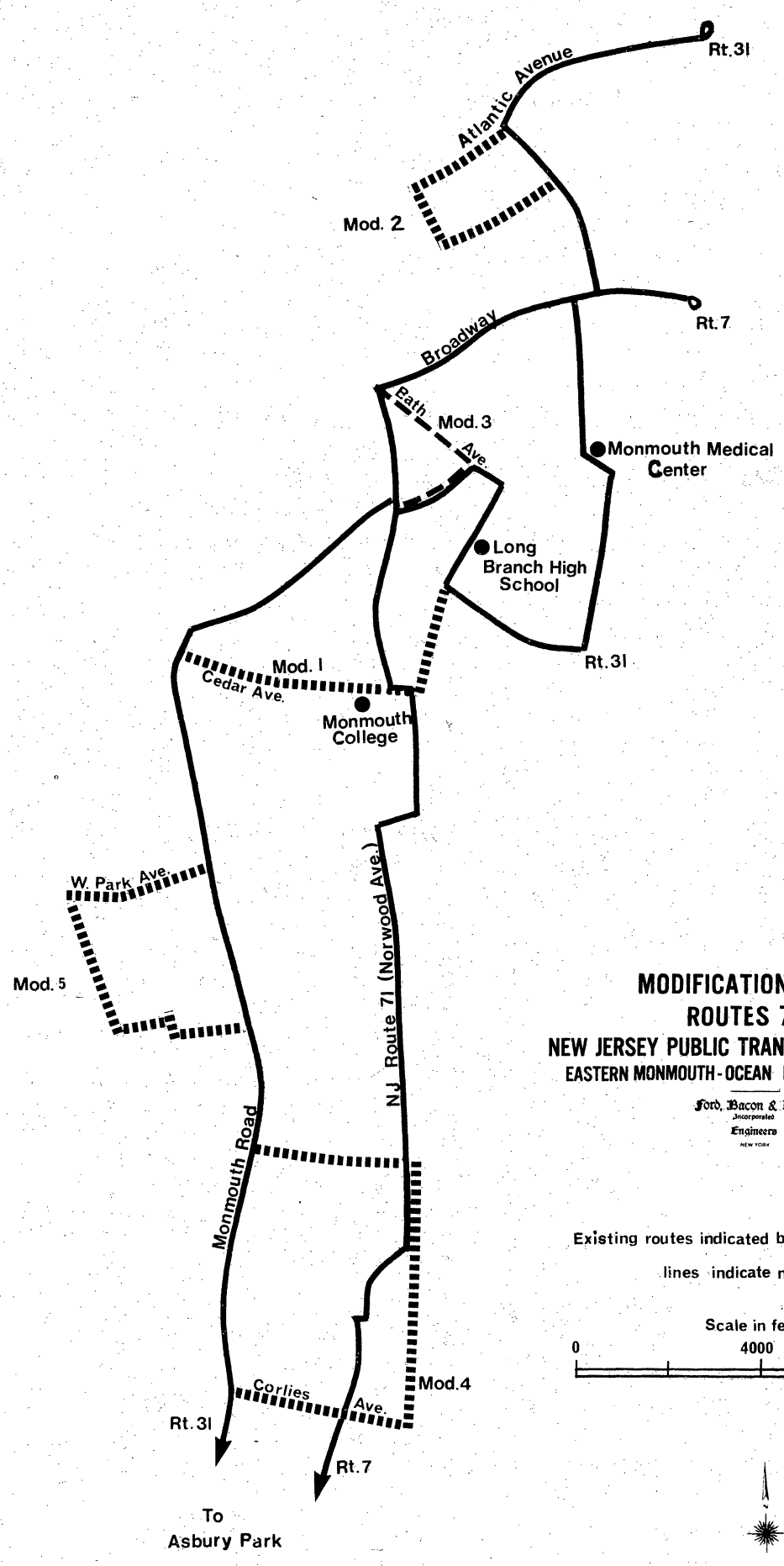


EXHIBIT NO. 16

MODIFICATIONS OF CCC ROUTES 7&31

NEW JERSEY PUBLIC TRANSPORTATION STUDY

EASTERN MONMOUTH-OCEAN MIDDLESEX CORRIDOR

Ford, Bacon & Davis
Incorporated
Engineers
NEW YORK

Existing routes indicated by solid lines. Broken lines indicate modifications.

Scale in feet

0 4000 8000

trip. Modification 3 would continue bus service to most of the riders who would be adversely affected by Modification 1. The change would affect less than 2 percent of the present Route 7 ridership, all of which would still be within the Route 7 coverage area. Bus service in the High Street area would be improved with headways shortened from 60 to 25 minutes.

As an alternative to Modification 3, Boro Route 1 or 8 could be re-routed to serve many of the riders affected by Modification 1. Either route could operate via Bath and Third Avenues within Long Branch, thus continuing direct service to the Long Branch railroad station and the Monmouth Medical Center. Although this may develop some competition along Third Avenue between the Boro service and CCC Route 31, at the same time competition would be reduced along Broadway, both between CCC Route 7 and the Boro routes and between the Boro routes themselves. This change would offer direct bus service to Red Bank and Fort Monmouth to more Long Branch residents than presently served. And if Boro Route 1 were changed, more Long Branch residents would be offered direct bus service to the Monmouth Shopping Center.

Modification 4 would replace a relatively weak segment of Route 31 with a segment that would serve the Allenhurst railroad station and would preserve bus service along Norwood Avenue in Deal (if CCC Route 4 service is discontinued as previously discussed). The segment of proposed service elimination presently comprises 7 percent of the route mileage yet generates only 1 percent of the daily ridership. Modification 4 would expand the

Route 31 coverage and would increase the current one-way mileage by 1.5 miles. Some duplication of Route 7 would result.

Modification 5 was designed to increase the potential Route 31 ridership in the Oakhurst area by providing direct bus service to more residential areas. Modification 5 would require 1.1 more miles per one-way trip than currently operated.

Route 31 currently operates on a one-hour headway and a longer headway is not recommended. The changes in modifications 2, 4, and 5 could not easily be made while maintaining the current schedule. The time and mileage savings resulting from Modification 1 would offset the extra time and mileage requirements of one of the other changes. Modification 2 is given priority because the areas that would be served as a result of the other two modifications are less-densely populated and relatively more affluent than the area to be served by Modification 2. They also would require more mileage than would Modification 2. It appears that no other feasible change would be made to the present Route 31 that would reduce travel time (with little or no ridership loss) to allow the implementation of Modifications 4 and/or 5.

Combinations of the changes described above would produce the following net daily mileage changes:

Route Modification Combination	Net Daily Mileage Change
1&2	+10.8
1,2,&3	+34.8
1,2,&3	+32.4*
1&4	+25.2
1&5	+15.6
1,2,&4	+46.8

These service modifications combinations would produce the following annual expense and revenue changes:

Route Modification Combination	Operating Expense Increase	Operating Revenue Increase	Change to Net Operating Revenue
1&2	$248	$ 361	$ 113
1,2,&3[1]	805	1,267	462
1,2,&3[2]	697	3,694	2,997
1,2,&3[3]	804	1,819	1,015
1&4	580	(1,337)	(1,917)
1&5	331	(1,446)	(1,777)
1,2,&4	994	1,337	343

The combination of Modifications 1 and 2 and the re-routing of Boro Route 1 in Long Branch would provide the most effective bus

---

* Assumes re-routed Boro services in Long Branch as previously described

1 CCC Route 7 re-routed

2 Boro Route 1 re-routed

3 Boro Route 8 re-routed

coverage and would produce the greatest savings in net operating revenue and is therefore recommended.

Modifications to Amboy Coach Service

The Consultant considered several service modifications designed to reduce or eliminate competition between the Amboy route and various TNJ routes. The Amboy route and TNJ Route 84 are currently scheduled 5 minutes apart on northbound trips between Perth Amboy and Woodbridge and only 1 minute apart on southbound trips. At the very least, efforts should be made to coordinate the schedules of these two routes. Two modifications designed to eliminate entirely the duplicated service in this area are described as follows:

1. Operate TNJ Route 84 between the Middlesex Community College and Main Street in Woodbridge only. Operate TNJ Route 46/139 between New York City and the Woodbridge Shopping Center only.

2. Terminate the Amboy route at Hall and Amboy Avenues in Perth Amboy.

Modification 1 would eliminate direct bus service between Perth Amboy, the Woodbridge Shopping Center, and New York City. Therefore, it is not recommended. Modification 2 appears feasible. Nearly 15 percent of the Amboy ridership is generated between Green Street in Woodbridge and the intersection of Hall and Amboy Avenues. Almost all of these trips are oriented to downtown Perth Amboy along Smith Street and could therefore be handled by the TNJ routes. Those trips that are generated between Green Street and the Korvettes store in Woodbridge account for 4 percent of

the Amboy ridership and could not be made via any other existing bus service. The route segment north of Green Street comprises 10 percent of the entire Amboy route mileage.

To recoup some of the fares lost due to the route reduction, the Amboy route should be extended from Amboy Avenue to the Perth Amboy General Hospital via Hall, Pacific, and Brace Avenues and Convery Boulevard. (See Exhibit 17.) This change would create direct bus service between the Hospital and the State Street/Hall Avenue area of Perth Amboy as well as points south of the Raritan River. The current schedule would be increased by two daily round-trips while the headway would be shortened from 60 to 50 minutes. The total daily mileage would be reduced 9.4 miles.

The termination of Amboy Coach's Woodbridge service and implementation of service to Perth Amboy General Hospital would produce a decrease of $7,000 in the annual Amboy Coach net operating revenue. The TNJ/Amboy bus network would experience a daily net increase of 8 passenger-trips and an increase of $2,494 in annual net operating revenue. Seventy-four daily passenger-trips would be made at a higher fare than at present. The increase in Amboy's operating loss (and therefore subsidy requirement) would be more than offset by the decrease in TNJ's operating loss (and therefore subsidy requirement).

Because of the introduction of new service, the increased Amboy service level, and the overall network financial improvement, this change is recommended. It should be noted that Middlesex

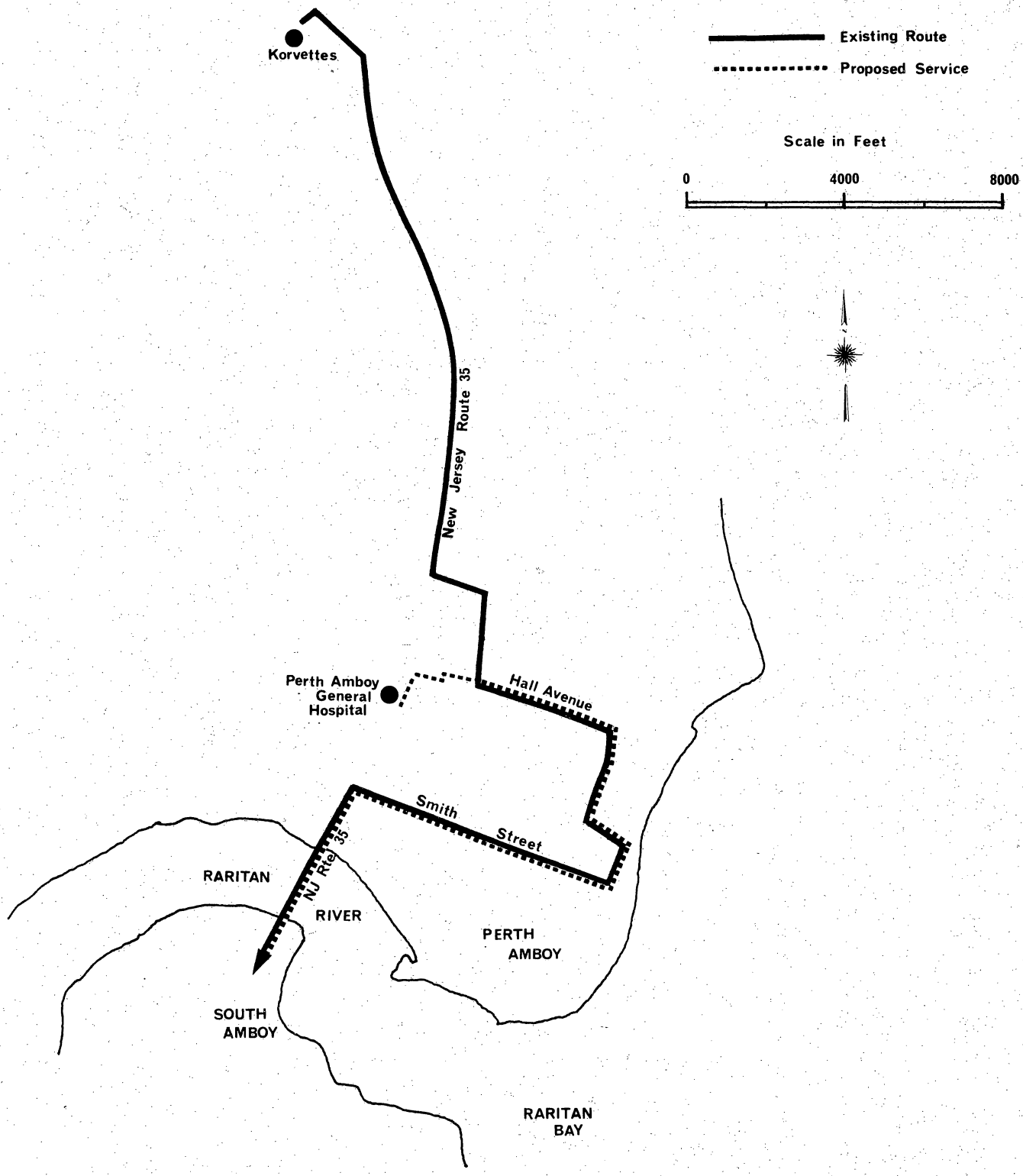
EXHIBIT NO. 17

AMBOY SERVICE MODIFICATION

NEW JERSEY PUBLIC TRANSPORTATION STUDY

EASTERN MONMOUTH-OCEAN MIDDLESEX CORRIDOR

Ford, Bacon & Davis
Incorporated
Engineers
NEW YORK



County contributes to the subsidy payments to Amboy but not to TNJ and that contribution would therefore increase after the service change.

The Amboy route and TNJ Route 12/58 each operate during peak hours along Main Street in Sayreville enroute to New Brunswick. Each route operates every 60 minutes but the two services often operate minutes apart. Either the schedules should be coordinated to produce 30 minute headways or Amboy trips should assume exclusive operation of the Sayreville to New Brunswick services.

Modifications to Bayview Service

The Consultant joins the Monmouth County Transportation Coordinating Committee in recommending an extension of Bayview's Keansburg route to Campbell's Junction in Middletown. At Campbell's Junction, transfer could be made to Boro Route 4 to travel to Red Bank (or Highlands). The service should be re-routed within Keansburg and Hazlet and operate via Laurel Avenue, Beachway, Carr Avenue, Church Street, Main Street, Port Monmouth Road, Bray Avenue, Main Street, Campbell Avenue, and Main Street within Keansburg, Hazlet, and the Port Monmouth and Belford sections of Middletown. This routing would increase the coverage area within Keansburg, and the bus would operate to the Keansburg Junior/Senior High School. Service would be discontinued along 10th Street in the West Keansburg Beach section of Hazlet and along Church Street in Keansburg. This route segment now generates less than 1 percent of the daily ridership and all of those trips would be within walking distance of the new service. By operating along Beachway,

the route would serve directly several senior citizen rest homes and apartments. Each one-way trip would require 4.6 miles more than at present, and an extra bus and driver would be required so that the current 60 minute headways would be maintained between Perth Amboy and Keansburg. Daily mileage would increase 129 miles. (This extension is shown in Exhibit 18.)

Another scheme to provide a transit link between Keansburg and Campbell's Junction is to operate the NY-K-LB service via Thompson Avenue and Leonardville Road from the Leonardo Terminal to Campbell's Junction.

The extension of the Bayview service from Keansburg to Campbell's Junction would increase that route's annual operating loss by $12,039. The net operating revenue of Boro Route 4 would increase $2,026. Therefore, the annual net operating revenue of the Bayview/Boro network would experience a decrease of $10,013. If the NY-K-LB service is changed to provide the Keansburg/Campbell's Junction connection, NY-K-LB would experience an increase of $9,647 and Boro would experience an increase of $2,345 in annual net operating revenues, for a total network increase of $11,992. Although this latter change would produce better financial results, the Bayview route extension is recommended. The NY-K-LB service is subject to more potential delays which could disrupt the high degree of schedule coordination that would be necessary to provide the service effectively.

EXHIBIT NO. 18

EXTENSION OF BAYVIEW SERVICE TO CAMPBELL'S JCT.

NEW JERSEY PUBLIC TRANSPORTATION STUDY

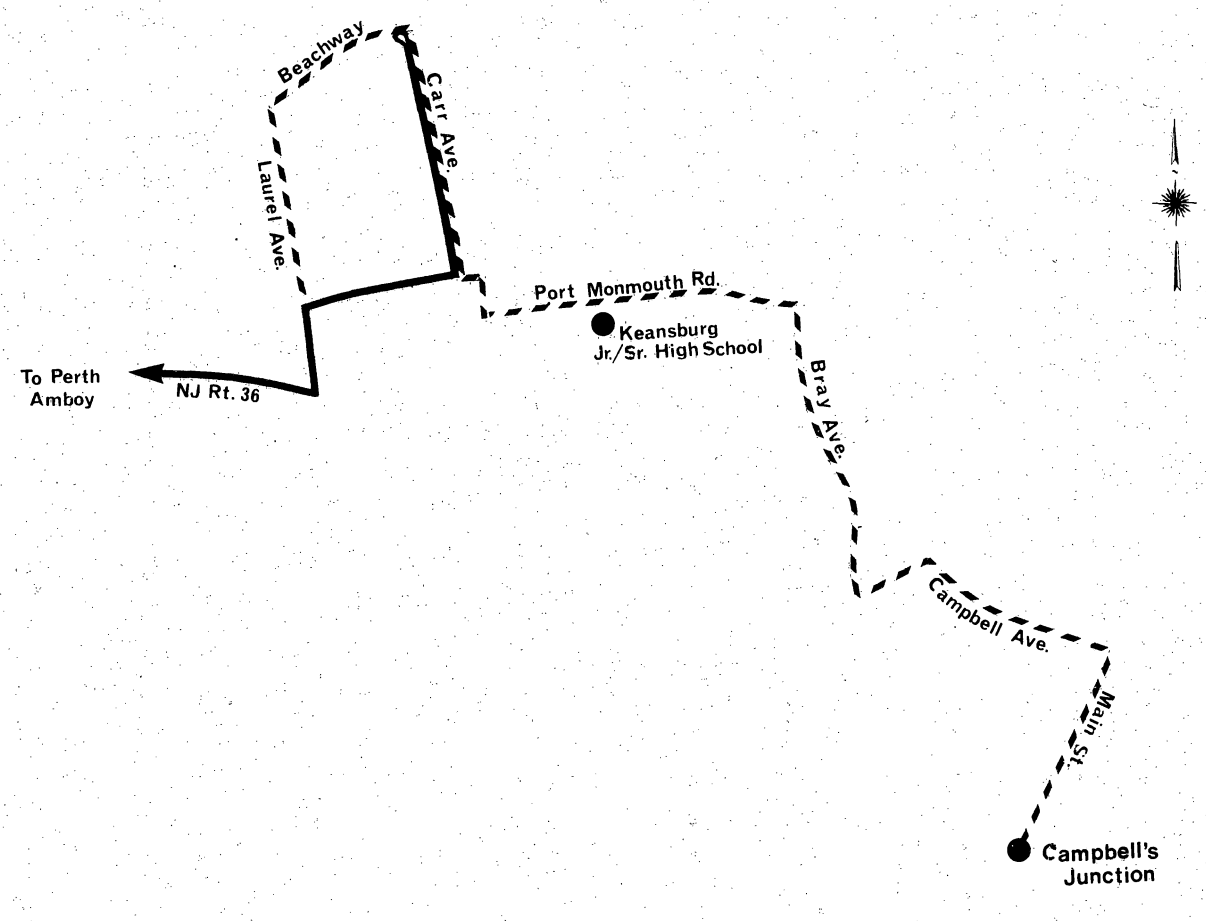
EASTERN MONMOUTH-OCEAN MIDDLESEX CORRIDOR

Ford, Bacon & Davis
Incorporated
Engineers
NEW YORK

Broken line indicates extension of route.
Solid line indicates existing route.

Scale in feet

0 4000 8000



The Consultant also considered the feasibility of operating the Keansburg route between Keansburg and South Amboy only. By eliminating the service between South Amboy and Perth Amboy a savings of 4.4 miles and approximately 15 minutes per one-way trip could be realized. Thus, the route extension to Campbell's Junction could be operated with no increase of labor and equipment requirements and with no change of service headway. It was thought that service between Perth Amboy and South Amboy would be continued by the other Bayview route and by the Amboy route. Trips between Perth Amboy and points south of South Amboy would require a transfer in South Amboy. This modification is not recommended because the field surveys indicate that nearly 45 percent of the present ridership would require this transfer.

Modifications to Boro Routes 4 and 5

Survey results show that one quarter of all trips generated on Boro Route 4 originate or terminate in Highlands and 46 percent of the Route's passengers board or disembark in Red Bank. The Consultant considered three alternative consolidations of Boro Routes 4 and 5 for the purpose of determining if travel time between Red Bank and Highlands could be reduced while simultaneously reducing operating expenses and continuing service to a majority of the present riders. These modifications are shown in Exhibit 19.

Modification 1: Travel time between Red Bank and Highlands could be reduced from the current 55 minutes to an estimated 30

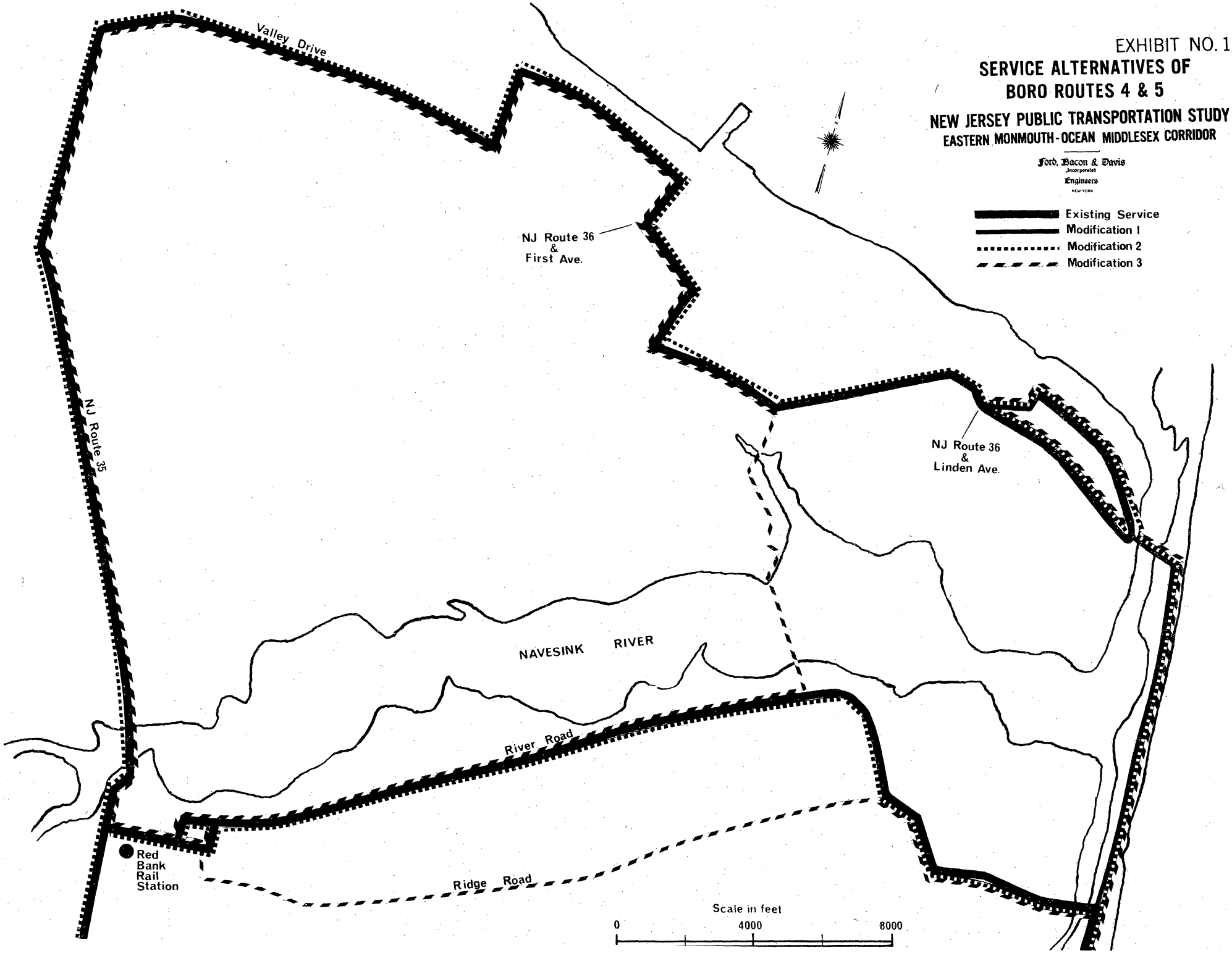
EXHIBIT NO. 19

SERVICE ALTERNATIVES OF BORO ROUTES 4 & 5

NEW JERSEY PUBLIC TRANSPORTATION STUDY

EASTERN MONMOUTH-OCEAN MIDDLESEX CORRIDOR

Ford, Bacon & Davis
Incorporated
Engineers
NEW YORK



minutes by extending Route 5 north along New Jersey Route 36 from Sea Bright to Highlands. From the Highlands Bridge, the route would operate in a loop via New Jersey Route 36 and Linden, Waterwitch, and Bay Avenues. Along with this change, Route 4 would be shortened by discontinuing service between Highlands (New Jersey Route 36 and Linden Avenue) and Atlantic Highlands (New Jersey Route 36 and First Avenue). Thus, except for the local service offered by NY-K-LB, there would no longer be any direct bus service between Highlands and the Atlantic Highlands, Leonardo, or Belford areas. The area between Highlands and Sea Bright, currently offered local service by NY-K-LB, would be additionally served by the modified Route 5.

It is doubtful that reduced travel time between Red Bank and Highlands, shortened Route 4 headways, and introduction of service between Highlands and Sea Bright could attract sufficient new riders to offset the potential patronage loss of this alternative.

Modification 2: The major disadvantage of Modification 1 could be eliminated by combining Routes 4 and 5 into one loop operating via New Jersey Route 36 and Linden, Waterwitch, and Bay Avenues in Highlands. (This Highlands service could be alternated with service via New Jersey Route 36.) The service would operate in both directions. Operation within Red Bank would be via East Front, Broad, and Monmouth Streets and Shrewsbury Avenue in the counter-clockwise direction. In the opposite direction, the route would be operated via Maple Avenue rather than Broad Street.

Service between Monmouth Street and Newman Springs Road along Shrewsbury Avenue should not be eliminated because this segment currently carries 14 percent of the current Route-5 ridership. Operation to Church Street in Sea Bright should be continued. This loop route arrangement would provide direct bus service between any two points currently being served by Routes 4 and 5, and, in many cases, in faster time than at present.

A major problem to be met in operating this potential loop route is the establishment of a fare structure and collection system. The route length would preclude a flat fare between any two points, and without route end points, an on-and-off system of payment would be difficult to monitor.

The consolidation of Boro Routes 4 and 5 under Modification 2 would increase annual operating expenses by $6,926 due to increased mileage and labor costs. The net passenger increase that would result would add only $1,664 to the annual revenue, thus an additional loss of $5,262 would be applied to the net operating revenue. For this reason, it is not recommended to implement this modification unless an accompanying change is made to another component(s) of the transportation network, substantially increasing ridership on these routes.

Modification 3: Under this scheme, Route 5 would be extended to Highlands as described in Modification 1. Route 4 would become a loop route, leaving the present route at Locust Road and Navesink Avenue in Middletown and traveling to Red Bank via Locust Avenue, Locust Point Road, Oceanic Bridge, and River Road. Route

5 would then be re-routed via Ridge Road, Harding Road, and Broad Street to Monmouth Street in Red Bank. This modification would increase bus coverage through Rumson and Fair Haven and provide direct bus service to Red Bank, Red Bank Regional, Red Bank Catholic, and Rumson-Fair Haven Regional High Schools. Service would be discontinued along River Road from the Oceanic Bridge to Ridge Road.

Route 4 would have the same fare structure and collection problem described in Modification 2. As in Modification 1, direct service between Highlands and other points along Route 4 would be limited only to those trips which could be accommodated by NY-K-LB. Finally, owing to the relatively affluent characteristics of the area, the new bus service in Fair Haven and Rumson is not likely to attract significant ridership. For these reasons, this modification is not recommended.

Minor Route Modifications

Local bus routes that now operate within one block of railroad stations should experimentally operate to the railroad stations during peak periods. These route modifications would not significantly affect travel time or daily mileage. Any passengers that ride these routes to or from the railroad stations would be provided a more convenient transfer. The sight of the buses at the railroad terminals would serve to remind railroad users of the bus service and may attract some to use it. Specifically, CCC Route 20 could operate via Main Street and Euclid Avenue to serve the Manasquan railroad station. CCC Route 7 could

travel via Lincoln Avenue and Truax Street to serve the Elberon railroad station in Long Branch. CCC Route 2 could serve the Spring Lake railroad station via Mercer and Sussex Avenues. These three changes would require 0.15, 0.2, and 0.3 additional miles per one-way trip, respectively.

Line-Haul Route Modifications

Several modifications were considered concerning the reduction of service on the line-haul routes or the conversion of those routes to railroad-station-feeder services. These modifications were designed to reduce operating mileage and to reduce or eliminate competition between the bus and railroad lines. For the most part, proposed service eliminations were limited to areas with alternate public transit access to railroad or other bus line-haul service.

Partial Elimination of NY-K-LB Service

The Consultant considered the elimination of NY-K-LB service between Highlands and Long Branch. This service elimination would affect local trips within the Study Area as most of those trips could not be made by an alternate public transit service. Few local trips were observed during peak hours. Most of the off-peak period trips generated along this segment are local in nature. In view of the lack of alternate service, midday and evening service to Long Branch should be continued. Elimination of peak-period service would save 95 miles, or 7 percent of the total daily NY-K-LB mileage east of Airport Plaza (Hazlet).

During peak hours, the segment generates 3.5 percent of the daily NY-K-LB ridership.

If the NY-K-LB peak period service between Highlands and Long Branch was eliminated, CCC Route 31 was extended to Monmouth Beach, and Boro Routes 4 and 5 were consolidated (Modification 2), then the entire bus and railroad network would experience an increase of $1,806 in annual net operating revenues. The annual net operating revenue of NY-K-LB would decrease by an estimated $37,113. All of the present NY-K-LB commuter passenger-trips generated along the segment could be made either by using AP-NY or NY&LB services at Long Branch or Red Bank at additional expense and/or inconvenience over the current routing. In view of the disruption to current travel patterns, increased passenger expense and inconvenience, and relatively small network net operating revenue increase, this service modification is not recommended.

TNJ Service Modifications

According to field surveys, 96 percent of the Route 130/133 ridership generated in Red Bank boards or alights the bus at (or within walking distance of) the Red Bank railroad station. During peak hours, when the NY&LB operates frequent service, these trips could be made by railroad. The TNJ route could by-pass Red Bank during peak periods. Daily ridership would decrease 8 percent. The TNJ route should operate to either Lincroft or the Monmouth Shopping Center in Eatontown via Navesink River Road, Hubbard Road,

West Front Street, Half Mile Road, Newman Springs Road, Shrewsbury Avenue, and New Jersey Route 35. (See Exhibit 20.) The introduction or increase of bus service on these road segments would generate new riders, helping to offset the loss of the Red Bank riders. Service to Long Branch should be eliminated* as the two daily round trips generate only 4 to 5 passenger-trips, all of which could be made via the NY&LB using various other bus services for railroad station access. Most (85 percent) peak-period trips to or from Newark terminate or originate within walking distance of Pennsylvania Station 92 percent terminate or originate between Pennsylvania Station and the immediate area of Raymond Boulevard and Broad Street. Including the possible necessity of a subway trip in Newark, most railroad trips from Red Bank or Long Branch would require the same time and expense as the current trips by bus.

If the TNJ route were to by-pass Red Bank, the net annual passenger loss would produce an additional annual route loss of $15,642. The alternate bus routings would attract few new daily passengers to offset those lost. The present bus passenger-trips to or from Red Bank could be made by railroad, but at a slightly higher fare. Under this scheme, the TNJ/NY&LB network would experience a decrease in annual net operating revenue of $765. Due to these negative potential fiscal results, this service modification is not recommended.

---

*This service elimination was made by TNJ after, and independent of, the analysis of the change performed by the Consultant.

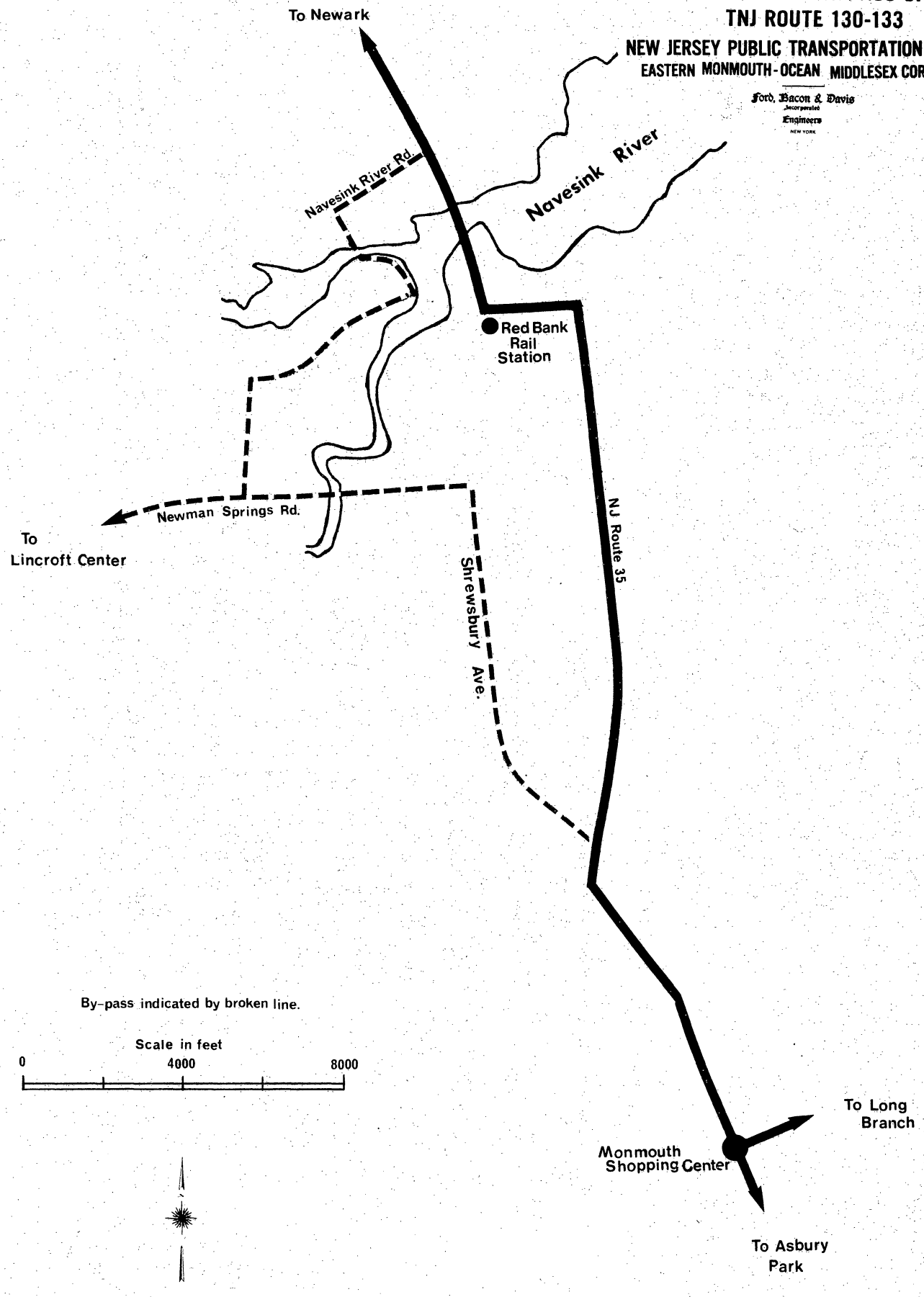
EXHIBIT NO. 20

RED BANK BY-PASS OF TNJ ROUTE 130-133

NEW JERSEY PUBLIC TRANSPORTATION STUDY

EASTERN MONMOUTH-OCEAN MIDDLESEX CORRIDOR

Ford, Bacon & Davis
Incorporated
Engineers
NEW YORK



The elimination of the Long Branch service of TNJ Route 130/133 would increase that company's annual net operating revenue by an estimated $715. Trips between Newark and Long Branch would have to be made by railroad at a fare lower than by bus. The TNJ/NY&LB network would therefore experience an increase of $1,968 in annual net operating revenue. Due to the low daily ridership on the segment, the availability of the railroad service, and the potential annual savings, this service elimination is recommended.

Conversion to Feeder Service

The Consultant studied the institutional feasibility of restructuring bus routes now operating in competition with the NY&LB into a feeder orientation. In doing so, consideration was made of the following factors:

1. It is desirable to maximize the benefits of the planned improvements to the NY&LB due to its greater line-haul capacity. Within this framework, the effectiveness of operating subsidy funds paid to competing carriers should be maximized.

2. Conversion to feeder bus orientation should result in fewer bus-miles operated, improvements in air quality through traffic reductions, and reduction of bus, fuel, and maintenance expenses. Reductions in equipment and driver requirements could be mitigated from a labor relations standpoint by increases in experimental feeder services.

3. Travel times, including transfer times, from various Study-Area points should be as attractive as possible within the constraints of terminal capacities and railroad and bus equipment type and availability.

The ability of the railroad service to accommodate additional passengers from the potential feeder services would be

limited by the size and number of trains that would be operated and the type of cars used. These factors, in turn, would be limited by station and platform capacities in Newark and New York and in the Study Area and by the train capacity of the PC mainline. Currently, the longest trains operating into New York consist of 12 cars (eleven coaches and one bar car). Trains of up to 16 cars could be operated assuming (a) the availability of the largest platforms in Pennsylvania Station, New York (Platforms 5 and 6); (b) the availability of extra cars; and; (c) the availability of an extra motive power. The planned acquisition of electric M-U cars for operation between New York and Red Bank would make available the additional equipment required for longer trains on the NY&LB service. Line capacity could also be increase by operating extra trains, assuming they could be scheduled into the present NY&LB and PC mainline operations. Extra peak-hour trains could operate to Newark in view of the fact that the short-range distribution of peak-hour capacity in Pennsylvania Station, New York allocates space for only the existing seven NY&LB peak-hour trains.

Current rail passenger statistics indicate that many morning peak-period trips carry a substantial number of standees. Assuming an average of 70 seats per car, the three peak-half-hour trains (Numbers 1108, 1110, and 1112) have an average load factor of 1.29 passengers per seat between South Amboy and Newark. The implementation of M-U service to the northernmost Study-Area railroad stations and the lengthening of trains would increase seating

capacity in 1980 and alleviate (or eliminate) most crowded conditions. Estimated patronage increases would offset some of the additional seating. Assuming the addition of 10 cars to the three peak-half-hour trains, the average load factor on those trains would be 1.22 passengers per seat. Ridership is expected to increase further between 1980 and 1985 and railroad ridership would be further increased by the conversion of commuter bus routes to rail feeders. It could be expected that much of this additional ridership would desire to ride the three peak-half-hour trains because of their convenient New York and Newark arrival times. To achieve a 100-percent-seating standard, passengers would have to be induced to travel at an earlier or later time (causing personal inconvenience), and/or an extra train (or trains) would have to be operated during the critical peak-half-hour and possibly during other portions of the peak period, depending upon the capacity restraints discussed previously.

NY-K-LB operates 3,200 bus-miles daily between the Airport Plaza terminal in Hazlet and New York or Newark. This mileage, and the time required to travel it, could be saved by rerouting the bus service to the planned consolidated Matawan/Hazlet railroad station or to the Middletown railroad station.

Due to the high degree of route duplication between the AP-NY service and the Boro and CCC routes between Red Bank and Point Pleasant Beach, it appears that no viable feeder routes could be established by AP-NY in this area that would not provide competition to the existing local transit routes.

The AP-NY service could continue operation as a line-haul service to New York from south of Red Bank while also providing railroad feeder service along the current New Jersey Route 35 coverage area from Red Bank north. Bus travel times from points south of Red Bank are generally faster than railroad travel times by between 5 and 24 minutes. In spite of expected reductions of railroad travel time through improved scheduling and station stop patterns and the electrification plans, bus travel times would still be faster. By operating all trips express from Interchange 109 of the Garden State Parkway or points further south, bus travel time would be even faster. But most current peak-period trips operate half-full south of the Red Bank railroad station. Survey results show that one fourth of the daily northbound AP-NY passengers board at the Red Bank railroad station and nearly half (47 percent) board between that location and points further north. Thus, to operate a productive service, fewer trips would have to be operated and headways would be lengthened. Off-peak trips now operate every 60 minutes, the maximum that is recommended.

To compensate for the loss of passengers and to increase bus ridership south of Red Bank, railroad service could be eliminated at one of the southernmost stations (e.g., Spring Lake or Manasquan). This plan would result in a travel time savings on railroad trips to or from Ocean County. Current railroad passenger projections indicate a slightly declining pattern in ridership at these southern stations.

The feeder service would operate between the Red Bank railroad station and the proposed consolidated Matawan/Hazlet railroad station, with an intermediate stop at the Middletown railroad station. Current AP-NY passengers in Cliffwood Beach and Laurence Harbor could travel via the Bayview Keansburg route to the South Amboy railroad station. Few of the current AP-NY riders in the area between Red Bank and Matawan would utilize the feeder service. Over one half (56.8 percent) of these riders now board or alight at the Red Bank railroad station. Riders who are now met at their bus stop by auto would probably ride directly to the nearest railroad station, as would many of the current bus riders who now drive and park at their bus stops. The result is that approximately 75 daily passenger-trips would be made in each direction, one half during the peak period. This is equivalent to one full bus in each direction during both the peak and off-peak periods. Thus many trips would operate with only a handful of passengers. The operation of fewer trips would limit passenger choice of time of travel. Ridership could be nearly doubled by discontinuing the trips of TNJ Route 133 between Newark and Red Bank or Long Branch, forcing passengers on those trips to travel by railroad or feeder bus and railroad. The present AP-NY passengers that would have to travel by railroad would require an additional 5 to 10 minutes in line-haul travel time. Railroad-station-access time and transfer and waiting times would lengthen this time difference even more. Travel by feeder bus and railroad would be more expensive as well. This

overall operating pattern would eliminate direct bus service between Study-Area points and would inconvenience local trips made on the present services. This feeder operation of the AP-NY service is not recommended.

Field survey results show that 55 percent of the daily northbound AP-NY ridership boards at three major points: the Rollo terminal in Keyport (where four out of five riders arrive by auto), the Rollo terminal in Asbury Park, and at the Red Bank railroad station bus stop. Each of these points is within a short distance of and easily accessible to a railroad station, and passengers from these areas make a choice of one mode based on expense, travel time, comfort, convenience, and/or other factors. The important fact is that they have a choice available and perhaps the optimally-responsive public transit network that could be provided should include a choice at the heaviest load points. The service modifications and eliminations discussed thus far concerned limiting choice and forcing modal usage.

One operating pattern that would include a conversion of commuter bus to feeder bus service while still continuing some availability of choice would consist of continued operation of the AP-NY service to New York and the operation of the NY-K-LB service to feed the AP-NY, TNJ, and NY&LB services. Thus, trips to New York or Newark could be completed by either bus or railroad.

Several new routes should be initiated to expand the feeder service coverage. The feeder routes should be operated as follows*:

(a) Leonardo Bus Terminal to Matawan/Hazlet railroad station via Thompson Avenue, Leonardville Road, Main Street, Campbell Avenue, Main Street, Bray Avenue, and Port Monmouth Road in Middletown; Main Street, Center Avenue, Raritan Avenue, Beachway, and Laurel Avenue in Keansburg; New Jersey Route 36 in Hazlet; New Jersey Route 35 and Broadway in Keyport to the Rollo terminal in Keyport and the Matawan railroad station. One-way distance: 13.4 miles. Estimated travel time: 35 minutes.

(b) Leonardo Terminal to Rollo terminal in Keyport via New Jersey Route 36 and Main Street in Middletown; Middle Road, Union Avenue, Appleton Drive, Lynn Boulevard, Middle Road, Hazlet Avenue, Bethany Road, Cresci Boulevard, and Oakgrove Road in Hazlet; Lloyd Road in Matawan; and Broadway in Keyport to the railroad and bus stations. One-way distance: 11.8 miles. Estimated travel time: 28 minutes.

(c) Highlands to Middletown railroad station via Bay Avenue, in Highlands and New Jersey Route 36, Main Street, Valley Drive, Cherrytree Farm Road, Harmony Road, and Kings Highway in Middletown. Connection can be made at Harmony Road and New Jersey Route 35 for the AP-NY bus. One-way distance: 10.8 miles. Estimated travel time: 27 minutes.

(d) Local feeder service in Matawan via South Concourse Drive, Cliffwood Avenue, Cross Road, Ravine Drive, and Main Street in Matawan; Maple Place and Broadway in Keyport; and Lloyd Road, Idlewild Lane, Iris Way, Ivy Hill Drive, Iron Gate Lane, Inner Way, Van Brackle Road, and Reid's Hill Road in Matawan. One-way distance: 8.3 miles. Estimated travel time: 30 minutes.

These feeder routes are shown in Exhibit 21.

---

*For purpose of analysis, the site of the Matawan/Hazlet railroad station was chosen to be at the intersection of Lloyd and Oakgrove Roads at the municipal border. The eventual site may necessitate further route modification.

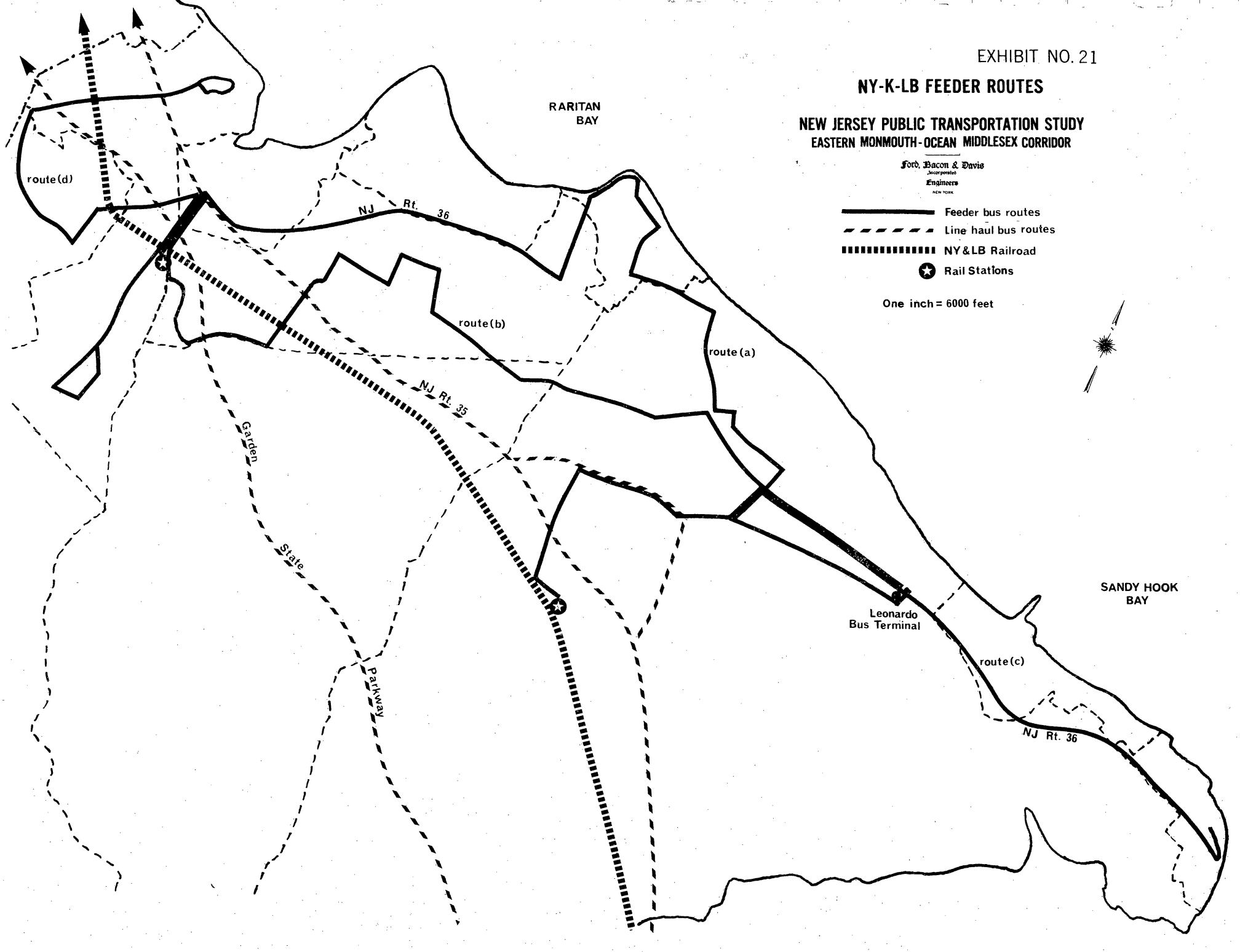


EXHIBIT NO. 21
NY-K-LB FEEDER ROUTES
NEW JERSEY PUBLIC TRANSPORTATION STUDY
EASTERN MONMOUTH-OCEAN MIDDLESEX CORRIDOR
Ford, Bacon & Davis
Incorporated
Engineers
NEW YORK
Feeder bus routes
Line haul bus routes
NY&LB Railroad
Rail Stations
One inch = 6000 feet
RARITAN BAY
SANDY HOOK BAY
route(d)
route(b)
route(a)
route(c)
NJ Rt. 36
NJ Rt. 35
Garden State Parkway
Leonardo Bus Terminal

Proposed Feeder Routes (c) and (d) need not be operated during the off-peak period. In addition to these routes, Boro Route 4 would continue connections with the AP-NY, TNJ, and NY&LB services in Middletown and Red Bank. Bayview's Keansburg route would do likewise in Laurence Harbor and South Amboy. The operation of proposed Feeder Route (a) described above would make the extension of the Bayview route to Campbell's Junction unnecessary.

The operation of this feeder network would involve a high degree of coordination between all the services involved so that transfers could be made with a minimum of waiting time and inconvenience. Where presently the NY-K-LB passenger is only concerned with traffic conditions along New Jersey Route 36, the Garden State Parkway, New Jersey Turnpike, and Lincoln Tunnel, that passenger could be affected by both highway conditions and train breakdowns if he traveled via the feeder service. The on-time performances of all the services would have to be improved to ensure a dependable service.

If the NY-K-LB commuter bus service is changed to a feeder bus service, CCC Route 31 extended to Monmouth Beach, and Boro Routes 4 and 5 consolidated (Modification 2), each of the individual transportation service operators would experience the annual net operating revenue changes listed in Table 25. The NY-K-LB feeder routes were assumed to operate at 20-minute headways during peak periods. Feeder Route (a) would operate at 40-minute headways and Feeder Route (b) at hourly headways during

Table 25
Annual Net Operating Revenue Changes Resulting from the Elimination of NY-K-LB Line Haul Service and Implementation of Feeder Service

Operator	Operating Expense Increase	Operating Revenue Increase	Net Operating Revenue Increase
NY-K-LB	(378,709)	(1,042,066)	(663,357)
Boro	6,926	16,641	9,715
CCC	348	3,253	2,905
TNJ	11,834	26,929	15,095
AP-NY	124,873	557,435	432,562
NY&LB	104,504	762,098	657,594
Total Network	(130,224)	324,290	454,514

off-peak and evening service periods. Feeder Routes (c) and (d) would operate during peak periods only. The NY-K-LB routes would require 13 vehicles during peak periods. The extra passenger demands on the AP-NY service would require 11 additional peak-period round trips daily. As discussed previously, NY&LB would have to operate longer trains plus an additional train during the peak-half-hour to alleviate crowded conditions which could be expected based on the railroad ridership forecasts. The feeder route services would produce even more demand for train service. A requirement of four additional peak-period cars in each direction was used to determine the increase in NY&LB operating expenses.

Table 25 shows that the financial condition of the aggregate public transportation network in the Study Area would improve by $454,514 under this feeder service operating pattern. But there are additional factors that should be given careful consideration before a final decision is made to implement the feeder service. The NY-K-LB management is now working to eliminate the necessity of state subsidy reliance. Under the feeder service plan, the annual operating loss would be enormously increased, making self-sufficiency impossible. The State's annual subsidy payments to the other operators should decrease by approximately $928,100, but much of this would have to be applied to the increased NY-K-LB loss for a net subsidy savings of $270,500. If the feeder network is desired, then a considerable feeder subsidy on a continuing basis would be necessary.

As previously mentioned, the feeder bus-to-line-haul system would be difficult to provide on a dependable basis due to the high degree of modal schedule coordination required and the sensitivity of each component to local and systemwide conditions.

The implementation of this feeder network would disrupt the present travel patterns of 3,200 daily line-haul passenger-trips, 3,000 of which are made to or from New York. Under the feeder service system, most, if not all of these trips would be made at increased travel time, cost, or inconvenience. The line-haul fares of the New York-oriented trips would increase by an average of 12¢ per one-way trip. The Newark-oriented line-haul fares would decrease by an average of 21¢ per one-way trip. Access costs, either by feeder bus, auto, or other mode would additionally increase the one-way travel cost. The necessity of performing a modal transfer would increase travel time and decrease travel convenience. Line-haul travel times for some trips would increase while others would decrease but the total travel time of most trips would be increased. Some of the Newark-oriented trips would require a connecting bus or subway trip within Newark, increasing travel time, expense, and inconvenience.

The present NY-K-LB buses would be generally inappropriate for local feeder use. The seating capacity of each bus is from 46 to 54 seats, more than would be required for the feeder service. Vehicles with between 30 and 40 seats would be better suited. The high-back, reclining seats of some buses would have

to be replaced and the seating patterns of most vehicles re-arranged. The present engine gear ratios would have to be changed to meet the stop-and-go travel pattern of local service better. Additional bus maintenance facilities may also become necessary.

The establishment of this feeder network would require the provision of bus shelters at bus-to-bus transfer points. Shelters should be constructed at Valley Drive and Monmouth Road in Middletown and along New Jersey Route 35 at Tindall Road (Middletown), Harmony Road (Middletown), Hazlet Avenue (Hazlet), and Cliffwood Avenue (Matawan Township). Each location would require shelters to serve both directions of travel. The initial capital costs of the feeder operation would include approximately $35,000 for bus shelters.

Summary of Recommended Changes

The estimated annual net revenue changes of the public transportation network that would result from the implementation of the recommended service changes are summarized as follows:

Service Change	Annual Increase Expenses	Revenue	Net Revenue
Re-route Boro Route 1	$ 5,000	$ 5,455	$ 455
Consolidate CCC Route 4, 20, & 2/16	1,152	2,270	1,127
Re-route CCC Route 31/Boro Route 1	697	3,694	2,997
Re-route Amboy	(225)	2,269	2,494
Coordinate Amboy/TNJ Route 12/58	0	0	0
Extended Bay view to Campbell's Junction	23,262	13,249	(10,013)
Eliminate TNJ Route 133 to Long Branch	(2,104)	(136)	1,968
All	27,782	26,810	(972)

For an insignificant amount of subsidy increase, the public transportation network of the Study Area could be expanded and improved.

CHAPTER VIII

BUS FLEET CHARACTERISTICS

Present Equipment

The buses available for use on the Study-Area routes are generally very old as shown below:

Company	Average Seats per Bus	Average Bus Age[1] (Years)	Percent of Bus Fleet Over 12 Years Old
AP-NY	48.8	15.0	57
NY-K-LB	51.4	15.9	75
CCC	37.8	22.6	96
Boro	41.4	21.8	93
Bayview	39.7	21.0	67
Amboy	46.0	18.3	75

Overall, 74.4 percent of the buses are over 12 years old. Observations made on board a sampling of the buses in operation revealed that buses on the line-haul routes are relatively newer and ride smoother and more quietly than buses on the local transit routes.

Field observations of the bus characteristics were made primarily by non-professional personnel. The observers were both residents and non-residents of the Study Area and users and non-users of the Study-Area bus services. They responded to various bus characteristics with either a positive or negative response. These responses served as an indication of the general public's

---

[1] As of 1975.

reaction to the condition of buses. The bus characteristics that evoked negative responses most frequently are listed below:

Company	Most Frequently-Cited Negative Bus Condition
Boro	Noise, followed by roughness of ride, poor condition of upholstery, and litter.
CCC	Dusty interiors, noise, lack of air conditioning, and roughness of ride.
Amboy/Bayview	Roughness of ride, followed by dusty interiors, deteriorating exteriors, and noise.

Each of the above-listed operators commented that they have been experiencing increasing vandalism.

Equipment Requirements

If all of the service modifications recommended in the preceding chapter are implemented, the route equipment requirements would be as listed in Table 26. Except for Bayview's Keansburg service, the vehicle needed are the same as at present. The extension of the Keansburg route would require the operation of one additional bus. In addition to the number of buses listed, both AP-NY and NY-K-LB should have three spare buses on hand. Amboy and Bayview should each have a spare bus and the other operators would need two spares. The total peak-period bus requirement is thus adjusted to 105 vehicles.

Bus Purchase Program

In 1973, the New Jersey Department of Transportation purchased 35-seat Twin-Coach buses which were leased to bus operators statewide at $1.00 annually to replace aged equipment. Boro,

Table 26
Proposed Bus Requirements

Company and Route	Peak Period	Base Period
Boro	12	9
Route 1	3	2
Route 2	2	2
Route 4	2	2
Route 5	2	1
Route 8	2	1
Route 10	1	1
CCC	11	11
Route 2/16/20	4	4
Route 4	1	1
Route 7	3	3
Route 31	2	2
Route 5	1	1
Bayview	6	6
Keansburg	3	3
East Brunswick	3	3
Amboy	3	3
TNJ	10	6
Route 130/133	7	3
Route 130/133 (summer)	10	6
AP-NY	21	11
NY-K-LB	28	4
Total	91	50

CCC, and Amboy/Bayview each received one of these vehicles for use on their regular routes. This program has been continued and the State has purchased 865 new buses which will be delivered and distributed to New Jersey bus operators beginning in the spring of 1976. The vehicles are being built by Flxible and are categorized as follows:

335 40-foot commuter buses

268 40-foot transit buses

176 35-foot transit buses

87 30-foot transit buses

NJDOT has also arranged for the rehabilitation of 520 buses (515 from the TNJ fleet). This work will include the installation of air-conditioning and anti-pollution equipment. The new buses will be distributed on a basis of need, route patronage, and operational performance. New buses will be allocated to the Study-Area operators as follows:

Company	Number of Buses	Bus Type
AP-NY	6	40-foot commuter
Boro	2	30-foot transit
	9	35-foot transit
	3	40-foot transit
CCC	10	30-foot transit
Bayview/Amboy	7	35-foot transit
	1	30-foot transit
NY-K-LB	4	40-foot transit
	8	40-foot commuter

These new buses should be operated on the most productive and/or least vandalized routes of each company.

Bus Replacement Program

New Jersey Department of Transportation policy is to have no vehicles in service that are over 12 years of age. During 1976, a total of 127 vehicles available for operation on those route studied would be in that category. However, many of these are extra buses that are rarely or never used in regular route operation. Therefore, based on the daily bus needs, a modified total of 60 buses should be replaced during 1976. The portion of this total that will not be replaced as part of the current bus purchase program, along with those buses that will reach the replacement age by 1980 (those buses built in the years 1964 through 1967) are listed as follows:

Year	Number of Buses Qualifying for Replacement	
	Transit	Commuter
1976	3	7
1977	1	4
1978	-	3
1979	-	4
1980	-	6

CHAPTER IX

MISCELLANEOUS SERVICE IMPROVEMENTS

Several recommendations have been developed which deal with minor problems and deficiencies of the public transportation network. Most of the suggested changes involve relatively little or no expense. Some of the changes apply generally to all of the services while others are aimed at specific routes. This chapter describes some of the problems and their possible solutions.

Service Information and Marketing

The Consultant's field work revealed that while bus riders are familiar with the bus services that they use, the general public appears to have little knowledge of routes, fares, schedules, or bus stop locations. The initiation of service modifications, described in Chapter VII, would result in further unfamiliarity of service, even among regular users. Current bus information and marketing activites of the Study-Area bus operators consists of little more than yellow pages advertising, provision of timetables at major bus stops and terminals, and occasional advertisements on bus exteriors. The line-haul service operators appear more active in advertising than the local service operators. A continuing information and marketing campaign should be undertaken by the operators to accomplish two primary objectives: to create a public awareness of public transportation facilities and services that are available; and to fully describe service modifications as they occur. Increased knowledge of the services should encourage greater usage.

Centralized Information Centers

The Monmouth County Transportation Information Center (MCTIC), described in Chapter IV, is an important source of transit service information because it centralizes the information regarding all bus and rail services in Monmouth County. A similar service should be implemented in Middlesex County. Initially, the existence of the service should be widely advertised through newspaper advertisements. These local information centers could be supplemented by a statewide information center located in Trenton. For local service information, the county-level centers would have greater familiarity with services, geographic considerations, etc. They would also be less expensive to call.

Timetable Improvements

All of the public timetables should include a table of fares, a schematic map indicating the streets over which the route operates, and a phone number for information. It is also advisable that each timetable include the MCTIC (or corresponding local information center) phone number as well. If composite route maps are shown, as on the Amboy/Bayview and Boro timetables, the terminal points of each route should be indicated. Major generators served should be indicated as should major transfer points to other services. The timetables of local routes that feed line-haul services should include the joint schedules of the feeder service and the connecting mode(s) at the transfer point(s). Each bus driver should carry a supply of timetables for distribution on request. Or a supply of timetables could be displayed in a dispenser at the front of each bus.

Area Maps

The MCTIC has prepared a composite map of bus and railroad transportation services in Monmouth County. Local transit routes are shown on one side while line-haul services appear on the opposite side. Both maps should be posted at major boarding points and other selected locations in Monmouth County and nearby areas, including all railroad stations, bus shelters, and downtown shopping areas. The map at each location should include an indication of the reader's location within the system (e.g., a "You Are Here" symbol). Portions of these maps (or reduced versions of the entire maps) should be reproduced and displayed on board the buses operating within Monmouth County.

A similar map of public transit services in Middlesex County recently has been prepared and distributed and should be displayed within that county.

One method of producing a wide distribution of these maps at a relatively low cost is to have it printed in local newspapers for people to clip and save. The maps will thus reach many people who would probably not try to obtain one on their own.

News Media and Advertising

The bus operators should make increased use of the media as advertising vehicles. Primary advertising efforts should consist of ads in local newspapers and posters at bus shelters and major travel generators and on bus exteriors. Television ads would reach the greatest number of people but would be very expensive, especially in view of the resultant revenue increase that could be expected. The Study Area is served by a wide variety of radio

stations, thus making it expensive to reach many listeners. Radio advertising which might be contemplated should be limited to local stations that broadcast from the Study Area.

AP-NY, NY-K-LB, and TNJ should launch advertising campaigns aimed at current auto users. Such advertising should emphasize the shorter travel times and lower total cost of the bus trip from selected Study-Area points, the service frequencies at various points, and the convenience and cost savings involved in not requiring auto parking in Newark or New York. Auto users unfamiliar with these advantages may favor bus travel once informed.

The local transit services should make an effort each year to tap the summer visitor market. Advertising should be aimed at those temporary Study-Area residents who stay for a weekend, a few weeks, or the season, informing them of the available services and suggesting possible use of the bus system for shopping and recreation.

Advertising should be carried out on a continuing basis. Special events, such as the one-day fare reductions, should be carried out on occasion. Subsequent advertising could focus on the successful results of such endeavors, possibly by using reprints of newspaper articles.

An effort should begin to sell more interior and exterior advertising space on the buses to bring in additional revenue. Businesses that are directly served by a bus route are prime candidates for advertising on that bus route. The advantages of such advertising could be advanced by discussing the ability of a sign to move throughout the local area or by publishing the

daily ridership of each route or bus.

Route Supervision

In view of the fact that each of the bus operators and routes within the Study Area is being subsidized with State and local funds and has or will receive new buses from the State, a program of field inspections and observations in the Study Area should be initiated by NJDOT. An inspector could be assigned to the Monmouth County portion of the Study Area to monitor the performances of those services which the State is financially supporting. A second inspector could be assigned to the Middlesex County portion of the Study Area as well as other areas of Middlesex County. In this way, the daily operating requirements of each route or company could be evaluated continuously. Among the primary items to be monitored are ridership levels, schedule adherence, travel patterns, effectiveness of marketing efforts, and improper operations. Monitoring should be performed by means of on-board observations and passenger counts, passenger surveys and interviews, inspection of operator, passenger and revenue statistics, and roadside counts and observations. Continued analysis of the results of this program would help to determine the effectiveness of the system and aid in developing subsequent service modifications. Especially important would be the monitoring of the performance and effectiveness of the experimental route changes.

Transit Management and Administration

Route supervision is not the only aspect of the transit operations in the Study Area that requires attention by local people as well as the staff of the NJDOT. While under the bus

subsidy program, carriers are regulated by the Commuter Operating Agency (COA). There appears to be limited local input into the deliberations of the COA and the follow-through on their directives by the staff of the Division of Commuter Services (DCS).

With the subsidized operators relinquishing their responsibility for improvements in their operations, and with the public removed from the COA by the distance to Trenton, local control of the bus operations is effectively lost. If NJDOT is to regulate the private carriers operating under subsidy, it needs locally-based monitors to watch, advise, and make recommendations on day-to-day activities, including the entertainment of local ideas, suggestions, questions, and complaints on current services. The monitor function falls under the Bureau of Bus Operations in the DSC.

Formalization of a coordinating group is suggested, with membership to include:

Chief, Bureau of Bus Operations, DCS, NJDOT.

Chief, Bureau of Analysis and Marketing, DCS, NJDOT.

Inspectors, Eastern Monmouth-Ocean-Middlesex Corridor Services, DCS, NJDOT.

Operations Managers, Study-Area Bus Companies

Directors of Planning, Monmouth, Ocean and Middlesex Counties

Six public representatives, two from each of the three counties, to be selected by the respective Boards of Chosen Freeholders

This group could be reduced in number to be more effective, but in some measure, the representation outlined herein is

required to establish a responsive coordinating agency and reflect local needs and desires in public transportation.

Operational Improvements

Performance and Control

Passenger confidence in a bus service is directly affected by schedule adherence. Efforts should be made to improve the performances of the routes that showed the poorest on-time results (see Chapter VI). Much of the trip starting delays were caused by late arrivals on the previous trips. If a service cannot be operated within the scheduled travel time during part or all of a day, then the timetable should be changed to reflect the actual operation, even if a convenient 30 or 60 minute headway must be disrupted to do so. Similarly, if increased traffic congestion during summer months causes consistent increases of bus travel time, then summer timetables should be prepared.

Legislative Changes

If commuter bus routes are changed to feeder services, efforts should be made to establish a through-fare, interline ticket system. Enabling legislative changes should be made, if necessary.

All of the route modification and service changes discussed in this report, and many other changes that may made to improve the financial condition of the various operators or increase ridership should be able to be made on an experimental basis. If, at the end of a predetermined trial period, the service is unproductive or in bad financial condition, the operator should be free to discontinue the service without the responsibility of

continuing service while abandonment proceedings take place. Upon service implementation, the potential temporary nature of the service should be stressed to the public. Legislation should be passed which would allow this type of experimentation.

Curbside Passenger Amenities

Bus Stop Markings

All bus stops in the Study Area should be marked. Each stop should have either a sign, painted markings, or a bench with the words "Bus Stop" printed on it. Bus stops in urban areas should have a sign and painted curb and street markings. Bus stops in Spring Lake are particularly lacking in bus stop markings. Parking restrictions at bus stops should be strictly enforced. Bus stops in Belmar should be lengthened to provide buses with enough room to pull over without disrupting traffic flow. Signs should indicate which bus routes serve each bus stop. Municipalities within the Study Area should coordinate their bus-stop-sign-provision efforts both to share expenses and to ensure uniformity of signs.

Shelters and Benches

The Consultant has identified several locations where the addition of bus stop shelters and/or benches is recommended, due to heavy or other special passenger loading conditions. One of these locations is the bus stop area along Front Street at Broad Street in Red Bank where approximately 200 daily passengers board buses. Three of the Boro routes utilize this bus stop. The sidewalk is very narrow and, during the afternoon, is often lined with students and shoppers waiting for the buses. These people tend to

block the doorways of some of the stores on Front Street. Two long-vacant storefronts face the bus stop area. One of these stores could be acquired for use as a waiting room, providing ample shelter and seating for bus passengers. Arrangements would have to be made to provide whatever police surveillance is necessary. As an alternative, the area taken up by the first parking space next to the sidewalk in the municipal parking lot located adjacent to the bus stop area could be used for the construction of a bus shelter. From this location, waiting passengers would be able to see buses approaching and would be within one to two bus lengths of the boarding point.

A bus turn-in and shelter area should be incorporated into the construction or rehabilitation plans of the Study-Area railroad stations, as appropriate. For example, the Boro routes serving the Red Bank railroad station pick up 95 daily passengers at that location, and the AP-NY and TNJ routes pick up approximately 300 additional daily passengers at the station.

The CCC routes pick up 278 daily passengers at the intersection of Cookman Avenue and Emory Street in Asbury Park in the westbound direction. Boro Route 2 picks up approximately 100 daily passengers at this stop. Although being one of the heaviest load points in the Study Area, a bus shelter is not recommended because it is anticipated that most waiting passengers who now stand inside the front doors of Steinbach's Department Store would continue to do so. This area is heated in winter and air-conditioned in summer and is thus preferable to an open bus shelter.

Between 290 and 300 daily passengers wait at the Asbury Park bus stop at Cookman Avenue and Main Street for CCC routes and Boro Route 2 in the westbound direction. Although qualifying for a bus stop on the basis of heavy passenger activity, there is insufficient space for a bus shelter, since the sidewalk is very narrow. The shelter would have to be located at the above intersection. The shelter cannot be moved further west because the bus routes travel in different directions from this intersection. At the bus stop one block east, the same crowded sidewalk situation exists and therefore special arrangements should be made.

At present, only 50 to 60 daily passengers board Boro Route 4 at Campbell's Junction in both directions. A shelter is recommended at the westbound bus stop because of the transferring that would be required there after the extension of Bayview's Keansburg route. This shelter is given a primary priority. A shelter should be constructed at Leonardville Road (westbound) at Hosford Avenue in Middletown to serve the 40 to 50 students of Bayshore Junior High School who ride Boro Route 4 each day.

There were no other boarding points identified in the Study Area, without an existing shelter facility, that handle close to 300 daily passengers.

Locations with over 100 daily passenger boardings are recommended as sites for bus shelter installation but are given a secondary priority unless otherwise noted. One of these locations is the bus stop at Smith and Maple Streets in Perth Amboy in the westbound direction. All of the Amboy/Bayview routes and

several local transit and line-haul routes of TNJ serve this stop and pick up nearly 200 daily passengers.

The westbound bus stop on Broadway at Norwood Avenue in Long Branch serves approximately 240 daily passengers waiting for CCC Route 7, Boro Routes 1 and 8, and the AP-NY service. Passengers sometimes wait inside a luncheonette located here. The luncheonette also has a wide awning in front which affords overhead shelter. A formal bus shelter is nevertheless recommended, although space along the sidewalk may present a problem.

The bus stop at the Ground Round Restaurant in the Monmouth Shopping Center serves 90 to 100 daily passengers while the bus stop at Alexanders Department Store in the same Center is used by about half that number. The expansion of the Shopping Center probably would increased these figures. Since many of the passengers would be holding packages, shelters are recommended at both of these locations to protect both passengers and their purchases during inclement weather.

The bus stop at the southwest corner of Monmouth and Broad Streets in Red Bank is the loading point for 220 daily passengers of Boro Routes 1, 2, and 8. Shelter is already provided in front of and inside a mini-mall. This shelter is adequate and no formal bus shelter is recommended, however seating for waiting passengers should be provided at this location. A bench could not be placed along Broad Street without interfering with store activities or pedestrian movements. Benches should be placed at the corner up against the stone wall of the mini-mall building.

Waiting passengers would be able to see buses approaching along Monmouth Street and be within a few steps of the boarding point on Broad Street.

Three other locations which do not qualify for a bus shelter (on the basis of daily passenger boardings) are recommended as sites of bench installations based on a high level of usage by elderly passengers and/or shoppers. Each location has ample room for a bench without disruption of pedestrian flow. Each location is served by at least two bus routes. The locations are as follows:

1. On the east side of Liberty Avenue immediately north of Broadway in Long Branch.
2. On the north side of Broadway immediately west of Liberty Avenue in Long Branch.
3. On the north side of Monmouth Street immediately west of Broad Street in Red Bank.

Parking Facilities

Operators feel that both the bus and the railroad services could increase ridership by the expansion of convenient parking facilities at boarding locations. However, care must be taken to balance parking supply and parking demand properly. Expanded parking at line-haul-service boarding locations would reduce feeder bus utilization. Railroad station construction plans for Red Bank, Middletown, and Matawan/Hazlet include parking facilities equal to or exceeding those presently provided. In Red Bank, the parking improvements would benefit both railroad and bus services. Efforts should be made to increase the availability of parking at the Rollo terminal in Keyport. Additional parking

facilities in the Keyport/Hazlet area might be considered if bus feeder routes are not implemented.

Bus Signs

In the course of field survey work, buses were occasionally observed operating with incorrect destination signs in the front and side roll sign panels. Each bus should be equipped with signs that indicate the route number and destination of each one-way route variation that the bus is utilized on, and the correct sign should be displayed on each trip. Damaged signs should be repaired as soon as possible. Wording should be held to a minimum so that the size of printing can be as large as possible. These sign improvements would primarily benefit new and occasional bus riders. It is also recommended that number or letter designations be assigned to the Amboy and Bayview routes and that these designations be used on the bus signs, timetables, etc.

CHAPTER X

IMPLEMENTATION PLAN

This report has described recommendations pertaining to bus route and service modifications, equipment modernization, bus shelter needs, and marketing and monitoring programs. Table 27 details the recommended implementation plan of these proposed changes on a year-by-year basis through 1980.

All of the recommendations should be initiated during the first year of the transit improvement program, 1976. Most of the route changes could be easily accomplished within the current equipment and labor requirements. The monitoring program should be started concurrently to evaluate the success of the route changes. Advertising campaigns should begin prior to the changes to alert and educate the public of those changes.

The total capital funding requirements for the 1976-1980 period is estimated to be $1,956,500. All but $42,500 of this amount would be applied toward the purchase of new buses. The cost of bus purchases under the current program is not included in this figure as the funds for this program element remain from a 1968 transportation bond issue. The capital budget for each year is shown in Table 28.

It is expected that the bulk of the capital needs (80 percent) would be obtained through Urban Mass Transportation Administration grants while the State would supply the local (20 percent) funding.

Table 27
1976-1980 Transit Development Program

Year	Item	Description
1976	1	Institute the following route changes: a. Re-route Boro Route 1 to the Camp Charles Wood area. b. Consolidate the services of CCC Routes 4, 20, and 2/16. Extend CCC Route 4 service to areas of Neptune Township. c. Re-route CCC Route 31 and Boro Route 1 within Long Branch and West Long Branch. d. Eliminate the Amboy service to Woodbridge. Re-route the Amboy service to Perth Amboy General Hospital. e. Coordinate the peak period schedules of TNJ Route 12/58 and the Amboy route in Sayreville. f. Extend Bayview's Keansburg route to Campbell's Junction in Middletown. g. Re-route CCC Routes 2, 7 and 20 to directly serve various Study Area railroad stations.
	2	Initiate a continuing major marketing program designed to inform the public of upcoming service modifications and to encourage increased use of public transportation.
	3	Plan and initiate a continuing program to monitor the performance of bus services and marketing efforts to evaluate that performance.
	4	Install bus stop signs at new bus stops along modified routes and at various existing bus stops.

Table 27
1976-1980 Transit Development Program

Year	Item	Description
	5	Put new buses into regular route operation. Begin funding application procedures for future bus purchase requirements as outlined in this report.
	6	Install seven bus shelters and six bus stop benches at various Study Area locations.
1977	1	Acquire 15 new buses to be put into regular route operation in the Study Area, including ten buses to replace those buses that became eligible for replacement in 1976 but were not covered by the current bus purchase program.
	2	Continue marketing campaigns designed to attract new passengers and advertisers.
	3	Evaluate the success or failure of experimental route modifications and develop further modifications if necessary. Continue performance monitoring program.
1978	1	Acquire three new commuter buses for regular route service in the Study Area.
	2	Evaluate the effects of past marketing efforts and develop improvements in the marketing program. Continue marketing endeavors in response to the evaluation.
	3	Continue monitoring of service performance.
1979	1	Acquire four new commuter buses for use in regular route operations in the Study Area.
	2	Continue monitoring of service performance with emphasis on load-point counts to identify sites requiring bus shelters. Develop service modifications, if found necessary.
	3	Continue marketing programs. Solicit responses from major employers in or near the Study Area regarding service effectiveness.

Table 27
1976-1980 Transit Development Program

Year	Item	Description
1980	1	Acquire six new commuter buses to replace aged buses in regular route operation in the Study Area.
	2	Continue monitoring of bus service performance.
	3	Continue marketing programs.
	4	Complete construction of bus shelters at new railroad station facilities in the Study Area. Begin installation of shelters at sites identified during previous year, if any.
	5	Prepare a transit development program for 1980-1985.

Table 28
Capital Budget 1976-1980

Item	Capital Costs in Thousand of Dollars					
	1976	1977	1978	1979	1980	Total
New Buses(1)	-	990.0	198.0	290.4	435.6	1914.0
Bus Shelters(2)	24.5	-	-	-	10.5	35.0
Bus Stop Signs and Benches(3)	7.5	-	-	-	-	7.5
Total	32.0	990.0	198.0	290.4	446.1	1956.5

(1) Based on $66,000 for suburban buses bid in 1975, with 10 percent escalation in 1979.

(2) At $3,500 each.

(3) Based on $15 per sign and $500 per bench.