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COMMONWEALTH OF MASSACHUSETTS
MASS TRANSPORTATION COMMISSION

**DEMONSTRATION PROJECT
PROGRESS REPORT NO. 4**

MTC

MASS TRANSPORTATION COMMISSION

DEMONSTRATION PROGRAM

In the closing months of 1962 the Mass Transportation Commission of the Commonwealth of Massachusetts launched a \$5.4 million mass transportation demonstration program designed to produce basic answers regarding the future of mass transportation within the pattern of regional development. Two-thirds of this sum consists of a \$3.6 million Mass Transportation Demonstration Grant from the Office of Transportation of the Housing and Home Finance Agency and the remaining \$1.8 million was allocated to the MTC by the Massachusetts General Court. The demonstration program consists of a series of demonstration experiments in three major elements of mass transportation: commuter railroad, private buses and the Boston area's Metropolitan Transit Authority.

The MTC \$5.4 million mass transportation program was designed to produce actual operational data, tested in the field, for evaluating the practicality of reducing the overall cost of urban and metropolitan transportation by encouraging more extensive use of public transportation facilities.

ORIGINS OF THE MTC

In 1959, the Governor and other political figures in Massachusetts, recognizing the necessity of obtaining coordination and cooperation in comprehensive planning for both public and private transportation, established a new state agency, the Mass Transportation Commission.

The Mass Transportation Commission is charged with the responsibility of investigating and studying the

. . . relationship of mass transportation facilities, land use and urban renewal and development to the economic needs and opportunities of the Commonwealth . . . with particular emphasis on the financial, legal, economic, technical and social problems. The commission shall study and plan for coordinating the highway program of the Commonwealth and the federal government with other mass transportation facilities. The Commission shall work with appropriate federal agencies and agencies of the commonwealth in connection with highway, transportation, land use and urban renewal and development studies. The commission shall from time to time make such recommendations to the governor and the general court for the coordination of highway and mass transportation programs and for the develop-

ment of integrated plans for mass transportation and land use as the commission may deem it advisable.

The MTC has 11 members. Six are *ex-officio* members from major state transportation agencies: the chairmen of the Metropolitan District Commission, the Metropolitan Transit Authority, the Massachusetts Turnpike Authority, the Massachusetts Department of Public Works, the Massachusetts Port Authority, and the Boston Traffic and Parking Commission. The other five are public members appointed for three-year terms by the Governor with the consent of the Executive Council. The statute provides that one such member must be experienced in railroad management and operation.

In addition to its statutory responsibilities, the MTC has become a *de facto* staff agency to the governor's office and the Massachusetts legislature. The MTC works closely with two joint legislative committees on Transportation and Metropolitan Affairs and a Special Legislative Recess Committee on Transportation.

In late May of 1961 the MTC and the legislative leadership agreed on a program for integrating the activities of the Commission with the studies by the two Joint Legislative Committees on Transportation and Metropolitan Affairs by means of a Special Joint Legislative Recess Committee on Transportation. The MTC staff serves as the staff of the Recess Committee. The joint efforts of the Committee and the Commission resulted in a report to the State Legislature in December of 1961 which recommended that the MTC undertake an integrated mass transportation demonstration and planning program.

With the support of the legislative and community leadership, in July 1962 the Massachusetts General Court appropriated the necessary funds for the Commission to initiate and undertake the proposed \$10.2 million integrated program. Both the demonstration and planning projects were designed with the advice of legislators. The entire program was geared to the legislative timetable to provide accurate guide lines to assist the General Court in arriving at effective solutions to urgent problems.

The MTC is endeavoring to develop a practical way of implementing basic long-range federal policy objectives contained in the President's transportation message of April 1962, in the Housing Act of 1961, and in public policy statements of the administrative and legislative leadership at the federal and state levels.



The Commonwealth of Massachusetts
Mass Transportation Commission
120 Tremont Street, Boston 8

DR. JOSEPH F. MALONEY
EXECUTIVE DIRECTOR

September 1963

Mr. John C. Kohl
Assistant Administrator
for Transportation
Housing and Home Finance Agency
1626 K Street, N. W.
Washington 25, D.C.

Dear Mr. Kohl:

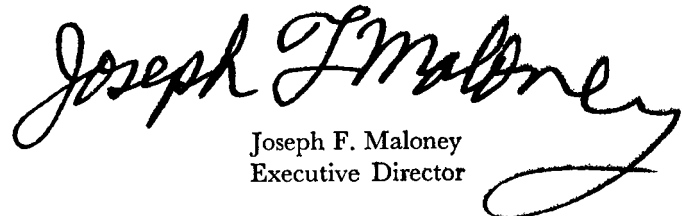
This fourth Progress Report presents the results of the first eight months of the program of demonstration experiments which the MTC is conducting in cooperation with the Office of Transportation of the Housing and Home Finance Agency.

The two months which have elapsed since the third MTC Progress Report have been devoted to a reshaping of the major rail projects, a considerable expansion of MTA experiments and to a re-evaluation of bus experiments.

By early September, major revisions had been made in the Boston and Maine and New Haven experiments. In addition, arrangements had been made to conclude four bus experiments, to initiate new bus experiments in Fall River and Lawrence, to equalize experimental fares on competing bus and rail routes to Boston between the Boston and Maine Railroad and the Eastern Massachusetts Street Railway, and to initiate new experiments on the MTA. The new MTA experiments include a pioneering venture in mass transportation, the daytime use of drive-in theatres as express bus route parking lots.

This report includes considerable material which should be of interest in transportation planning. Firm data on commuter rail transportation costs is beginning to emerge, yardsticks for assessing bus company operations have been developed and significant data on MTA bus routing and parking patterns is now available. The coming fall and winter will produce additional experimental data which will provide a sound basis for reaching a number of final conclusions regarding the future of mass transportation in Massachusetts and other parts of the nation.

Very truly yours,


Joseph F. Maloney
Executive Director

JFMd

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COMMONWEALTH OF MASSACHUSETTS

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Executive Director
DR. JOSEPH F. MALONEY

COMMONWEALTH OF MASSACHUSETTS
MASS TRANSPORTATION COMMISSION

PROGRESS REPORT NO. 4
DEMONSTRATION PROGRAM

The preparation of this report has been financed in part through a mass transportation demonstration grant from the U. S. Housing and Home Finance Agency under the provisions of Section 103 (b) of the Housing Act of 1949, as amended by Section 303 of the Housing Act of 1961.

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Chapter I.

SUMMARY OF PROGRESS
IN THE DEMONSTRATION PROGRAM

Federal funds for the Demonstration Program became available on October 5, 1962. Since October, the MTC has made rapid progress in securing contractual agreements from carriers. By mid-January 43 per cent of the \$5.4 million in Demonstration funds was under contract, largely as a result of the signing of the \$2.2 million B & M contract. By mid-January, with final approval of the New Haven contract, the proportion had risen to almost 75 per cent.

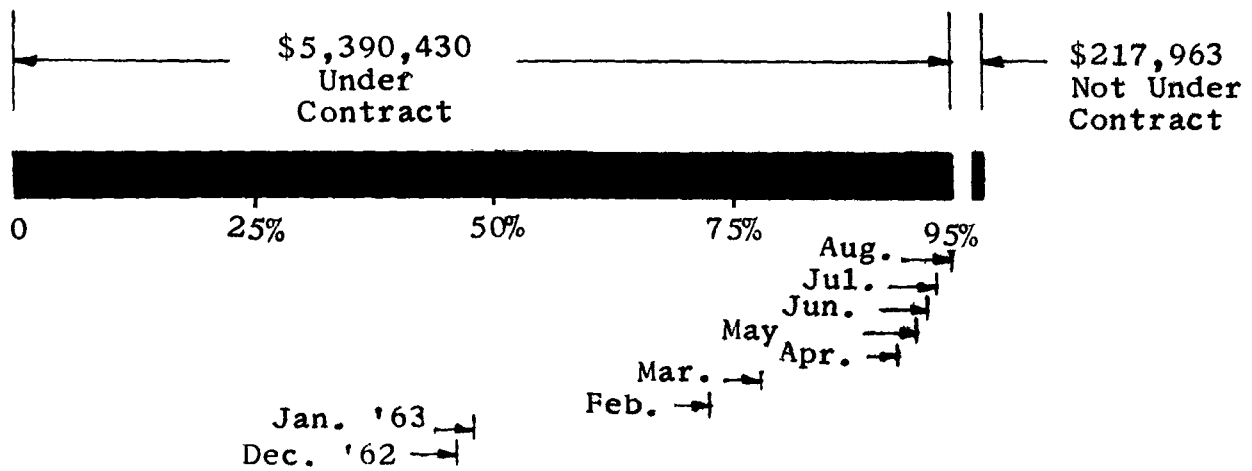
By mid-April \$3.4 million in experiments with two major railroads, an experiment with the MTA and eight bus company experiments were executed, in addition to \$225,000 in contracts with two consulting firms. In April approximately 79 per cent of the \$5.4 million program was under contract. By the end of August substantial revisions in the B & M and New Haven experiments had received final approval as the program moved into its second half. Overall, about \$5.0 million of the \$5.4 program was under contract by the end of August, representing over 95 per cent of the funds available for the demonstration program.

In addition to revisions in the rail experiments, contracts which were executed during the summer months provided for:

1. Bus experiments in the Fall River and Lawrence areas.
2. A bus experiment reducing off-peak fares on all segments of the Eastern Massachusetts Street Railway Company, North Shore Division operations that parallel B & M service to match the lower B & M off-peak fare experiments.
3. Three M.T.A. experiments testing feasibility of using Drive-In Theatres as daytime parking lots linked to downtown by frequent bus service.

The revisions of the Program included a major shift in emphasis. A revision in the New Haven Railroad experiment has reduced the funds allocated to the railroad by 25 per cent, decreasing from \$1.2 million to \$900,000. On the other hand, funds allocated to the M.T.A. for experiments were substantially increased, rising from the original \$800,000 to nearly \$1.2 million.

A summary of the financial status of the Demonstration Program as of September 1, 1963 is contained in Table 1.



MTD-1

FISCAL PROGRESS AS OF 1 SEPTEMBER 1963

COMMONWEALTH OF MASSACHUSETTS
MASS TRANSPORTATION COMMISSION

Figure 1

TABLE 1 FINANCIAL STATUS OF DEMONSTRATION PROGRAM — SEPTEMBER 1, 1963

	Proposed Contract	Under Contract	Estimated Revenue Credit Sept. 1962	Revised Estimated Credit	Estimated Net Cost Sept. 1962	Revised Net Cost	Amount Paid To Date
RAILROADS:							
B & M RR		\$2,200,000					\$1,540,250
New Haven RR		900,000					540,000
Sub Total		\$3,100,000					\$2,080,250
BUSES:							
Eastern Mass. St. Rwy.							
Lowell Project		22,044	\$ 12,000	\$ 12,294	\$ 24,000	\$ 9,750	
Topsfield Project		41,200		17,000		24,200	\$ 7,293
Fall River Project		61,400		22,400		39,000	3,931
Lawrence Project		50,400				30,000	
Off-peak fare reduction		110,000		20,400			
Johnson Bus Line (a)		66,260	20,000	20,000	45,000	46,260	21,893
Service Bus Line		17,506	12,500	12,500	6,000	5,006	4,877
Lynnfield Community		15,671	4,000	3,671	20,000	12,000	1,621
Mass. Northeastern		39,597	33,600	18,597	21,300	21,000	8,644
Fitchburg & Leominster		113,837	35,100	37,837	52,200	76,000	30,262
Yellow Coach Lines, Inc. (b)		50,028	8,600	17,028	24,000	33,000	
Brush Hill Trans. Co.		27,091	8,800	8,091	20,000	19,000	2,726
Barre Bus Company		6,723	1,423	1,423	6,000	5,300	
Saugus Transit, Inc.	\$ 13,300		13,300				
The Short Line, Inc.	—	34,800		9,800		25,000	
Other buses	130,200						
Sub Total	\$143,500	\$ 656,557					\$ 81,247
MTA							
Parking Lots		\$ 62,500	50,000	10,070	40,000	35,000	40,668
New Service		1,115,834	495,000	431,764	770,000	873,250	
Sub Total		\$1,178,334					\$ 40,668
CONSULTANTS							
Systems Analysis & Research Corp.		\$ 90,000					\$ 40,500

McKinsey & Co., Inc.		135,000	42,600
Napolitan Associates		10,000	8,972
Transportation Survey	40,000		
Sub Total	<u>\$ 40,000</u>	<u>\$ 235,000</u>	<u>\$ 92,072</u>
MTC Project Staff and Administration and Overhead	34,461	240,539	121,352
	<u>\$217,961</u>	<u>\$5,410,430</u>	<u>\$2,415,589</u>

(a) The Short Line purchased Johnson Bus Line on May 1, 1963.

(b) Formerly Berkshire Street Railway contract.

Source: Mass Transportation Commission.

Chapter II.

PLANNING ENVIRONMENTAL FACTORS

A. COMMUTING TO WORK, 1960

One of the new features of the 1960 census was the introduction of questions relating to journey-to-work trips. Census data disclose that the Boston area is one of the nation's leaders in percentage of workers using public transportation for work trips, but that in other urban areas in Massachusetts, public transportation is only a minor component of the transportation pattern. In each metropolitan area ridership in the densely settled cities is substantially higher than in the suburban areas, but in Massachusetts smaller cities, the differential between cities and suburbs is comparatively narrow.

Table 2 compares ridership patterns in the five metropolitan areas which now operate rapid transit systems, New York, Boston, Chicago, Cleveland and Philadelphia. Boston's pattern resembles Philadelphia, and to a lesser extent, Chicago.

TABLE 2. PERCENTAGE OF WORKERS USING PUBLIC TRANSPORTATION, BY RESIDENCE, 1960

Workers living In:	S.M.S.A.	City
Boston	25.1 %	43.5 %
Other major areas		
Atlanta	17.6	30.1
Cleveland	22.5	31.5
Chicago	31.9	43.1
New York	54.8	65.3
San Francisco	18.3	32.8
Los Angeles	8.0	13.1
Detroit	13.1	22.9
Philadelphia	27.5	43.8
Providence, R. I.	9.1	15.2
Washington, D. C.	23.7	41.6

Source: 1960 Census of Population, Place of Work and Means of Transportation to Work, 1960.

Table 2 includes data for most of the nation's urban areas which are planning or studying construction of rapid transit systems — San Francisco, Los Angeles, Atlanta and Washington, D. C. With the exception of Los Angeles, each displays a substantial amount of journey-to-work ridership on its existing bus lines and other modes of public transportation. However, Los Angeles, an automobile-oriented area with one of the highest ratios of cars-to-people in the nation, exhibits percentages similar to a smaller urban area, as for example the Springfield-Holyoke area of Massachusetts.

Public transportation is considered particularly vital for

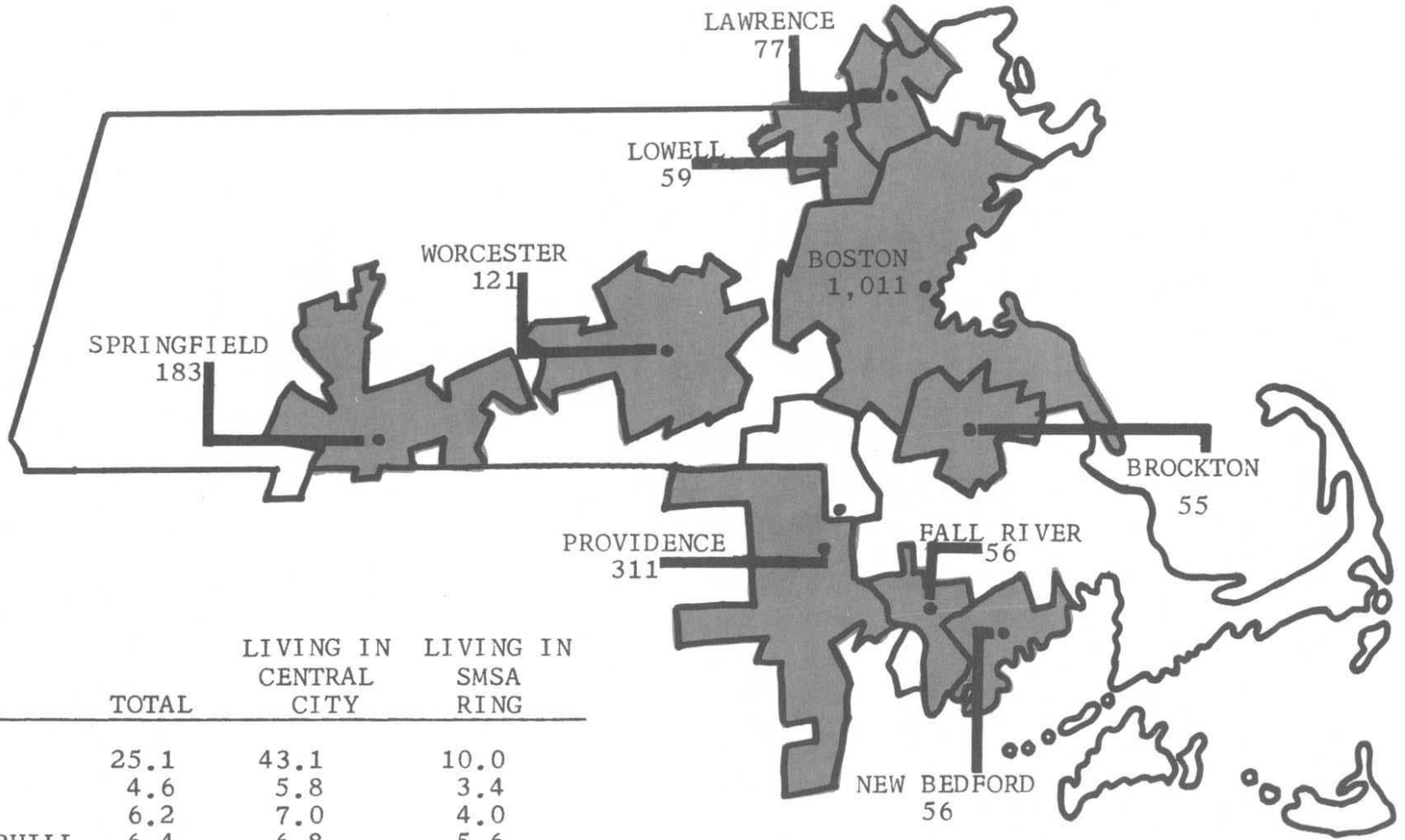
much of the urban population, particularly persons too young or too old to work and low income wage earners.

This is the group from which a hard core of public transportation riders is drawn, the people for whom public transportation is a necessity. The 1960 census data does not include the non-workers in the data for the core, but it does reflect data for the families too poor to afford automobiles for each working member. These families constitute a substantial proportion of the population of large cities, particularly in low income areas with large amounts of female employment. Considering economically depressed and low income communities, it is interesting that the proportion of public transportation trips is quite low. Even in the Commonwealth's smaller central cities, only six to ten per cent of workers use public transportation to get to work. With the disappearance of street cars and sharp reductions in bus service, car pools, car sharing and to a lesser extent, jitney service, taxis and walking comprise the elements of journey areas.

It must also be remembered that the use of public transportation has become increasingly difficult in some Massachusetts areas; the decline of concentrated manufacturing activity in the center of these cities and the decentralization of industry, shopping and population to suburban areas have stimulated automobile travel and have shrunk the market for public transportation.

To date, the MTC bus experiments in these cities have not revealed the presence of an extremely unsatisfied market for public transportation in these smaller urban areas. However, the availability of good quality public transportation does seem to be a significant factor in determining its size and share of the market. The wide disparity between public transportation use in transit-served cities like Boston where over two workers in five use public transportation to commute to work, and the smaller Massachusetts cities, appears to indicate a close link between public transportation use and availability.

At the present time, the true extent of the potential public transportation market in urban areas is as unknown as the social and economic impact of cutbacks in public transportation. A major task in regional transportation planning is to identify the extent of the potential public transportation market, and to indicate the results flowing from alternative choices, including further declines or abandonment of various forms of public transportation. This MTC demonstration project will illuminate many of these dark areas.



SMSA	TOTAL	LIVING IN CENTRAL CITY	LIVING IN SMSA RING
BOSTON	25.1	43.1	10.0
BROCKTON	4.6	5.8	3.4
FALL RIVER	6.2	7.0	4.0
LAWRENCE-HAVERHILL	6.4	6.8	5.6
LOWELL	6.9	8.7	4.2
NEW BEDFORD	8.5	10.0	4.7
PROVIDENCE	9.1	15.2	5.8
SPRINGFIELD	9.5	13.1	3.8
WORCESTER	12.1	17.4	4.6

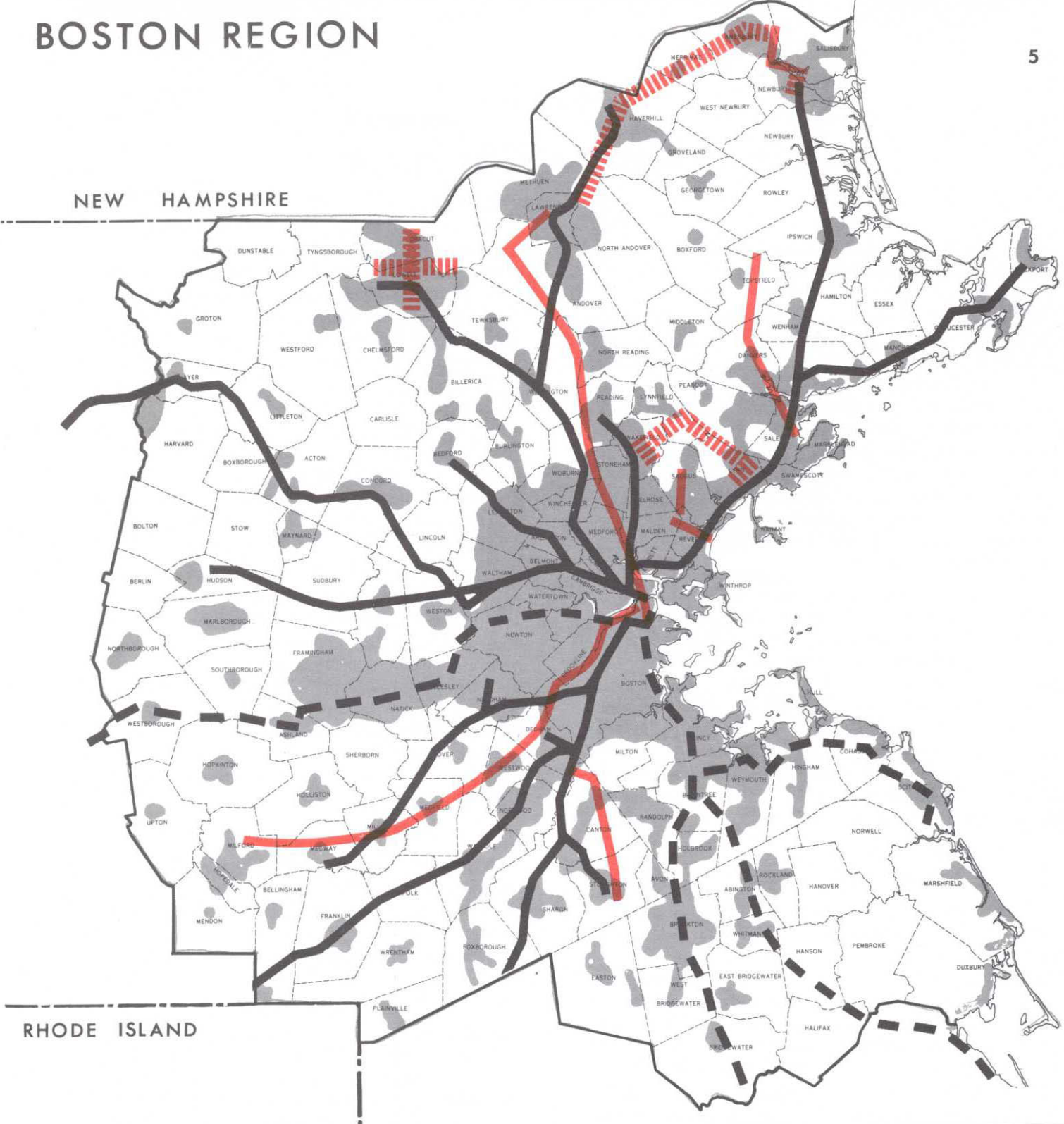
PER CENT OF WORKERS USING PUBLIC TRANSPORTATION IN SMSA.

Source: U.S. Census 1960

Number of workers in thousands.

Figure 2

BOSTON REGION









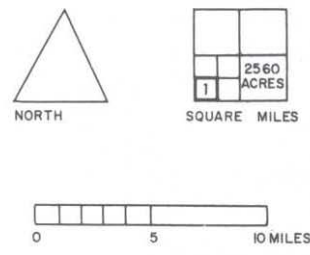
-  RAILROADS IN EXPERIMENT
-  RAILROADS NOT IN EXPERIMENT
-  BUS ROUTES IN EXPERIMENT
-  PROPOSED BUS EXPERIMENTS
-  COMPLETED BUS EXPERIMENT
-  URBAN AREAS, 1960

Figure 3



THE PREPARATION OF THIS MAP HAS BEEN FINANCED IN PART THROUGH AN URBAN PLANNING ASSISTANCE GRANT FROM THE U.S. HOUSING AND HOME FINANCE AGENCY UNDER THE PROVISIONS OF SECTION 701 OF THE HOUSING ACT OF 1954, AS AMENDED.

Chapter III.

RAILROAD EXPERIMENTS

A. BOSTON AND MAINE EXPERIMENT RESULTS — FIRST PHASE

In July, 1963, the last month under the first phase of the demonstration experiment, total passenger volume on the B & M dropped in accordance with the normal seasonal pattern which primarily reflects vacations and loss of school traffic. However, as compared to 1962, passenger volumes increased more in July than in June on a percentage basis. Passenger volumes for the month of June are relatively low since June contained five Sundays and fewer week days as compared to previous months of 1963. Because of the varying number of business days in each month, percentage comparisons with comparable periods in 1962 are increasingly important.

In July, the off-peak business was greater than 1962 by almost 60 per cent, a further rise from the year-to-year increase in June of about 56 per cent. Off-peak volumes in the five preceding months have averaged better than 50 per cent above a year ago. At the same time, peak passenger volumes in July declined slightly relative to other months of 1963. The primary reason for this decline was July's extreme heat (ten days over 90° in the month). As a consequence, many Boston business firms closed early, allowing their employees to use the railroad's off-peak service for their homeward journey.

1. Results by Line

a. Eastern Route

To the northeast, the B & M Eastern Route serves Lynn, Salem and Beverly (18) miles and then splits with a line to Rockport (35 miles from Boston) and a line to Newburyport (37.3 miles) and to Portsmouth, New Hampshire. Service on this line was approximately doubled under the experiment; a regular half-hourly pattern is maintained to Beverly, and since trains continue alternately to Rockport and Newburyport, each line has hourly service. In the rush hours, service was again doubled resulting in an approximate 15-minute headway to Beverly and half-hourly beyond.

The first station on the Eastern Route is not only relatively far out (Lynn 12 miles), but the first cities on this line are substantial urban areas in their own right generating considerable demand for commuter service to and from stations beyond. This provides an opportunity to offer intensive passenger service for travelers between stations as well as to and from the terminal in Boston, with the same crew and equipment.

A steady increase in off-peak passenger volume has occurred on the Eastern Route. Total off-peak passenger volumes are about double the 1962 figure while total rider-ber of inter-station riders (i.e Beverly to Salem, etc.). A ship increased by about 40 per cent above 1962. Data from train audits also indicates a substantial increase in the number of passengers. A comparison of the February with the July train audit shows that while the total revenue passengers on the Eastern Route has increased 2.4 per cent since February (contrary to the seasonal decline on other routes), the inter-station volume increased by 43.6 per cent over the same period. Increases in off-peak and inter-station travel are extremely significant to the railroad since they represent additional revenue from manpower and equipment which would otherwise be underutilized or idle.

The primary reason for the lack of a seasonal decline on the Eastern Route is the increased summer traffic to the resort areas on Cape Ann. There is not only an increase in commutation to summer homes in this area, but also more off-peak weekday, Saturday and Sunday traffic to Manchester, Gloucester and Rockport and to a lesser extent, Newburyport. This revenue increase which is primarily in one-way ticket sales, is particularly helpful in maintaining passenger volumes in the normally slower summer months.

b. Reading Line

To the north, the B & M Reading Line (12 miles) serves six busy suburban stations in three towns. Service on this line was substantially doubled, resulting in half-hourly service increasing to a 15-minute headway in the rush hour. Rates during the first seven months were reduced 20 per cent to 25 per cent on this route.

Passenger volumes on the heavily-traveled Reading line have been least responsive percentagewise to fare reductions and service increases. The percentage gain in ridership in July, 1963 on this line as compared to July, 1962 was about 19 per cent, the smallest increase of the five B & M routes.

Both peak hour and off-peak travel increased moderately during the first six months of the experiment. However, in July, off-peak ridership reached a new high of 43 per cent above July, 1962. Much of this July off-peak gain may be attributed to hot summer weather which had some impact on travel patterns on all routes.

c. Western Route and New Hampshire Division

Service on the Western and New Hampshire Districts connecting Boston with Winchester, Woburn, Lowell,

Lawrence and Haverhill was increased to an hourly basis in off-peak periods and approximately half-hour service in peak periods. Winchester, which is located at the junction of the Woburn branch and the New Hampshire route, receives half-hour off-peak and 15-minute peak hour service. Fares on these routes were reduced during this first seven months by approximately 30 per cent.

Data on passenger volumes for these two major B & M routes are considered as a single entity because of tradeoff of Wilmington passengers: under the experiment Wilmington, a heavily used station located at the junction of the New Hampshire and Western Routes, became a stop for New Hampshire route trains instead of Western Route trains.

Overall, increases on these B & M routes has been moderate, running slightly behind the peak and off-peak gains in passenger volume for the five lines as a whole. The Western Route reached its highest percentage gain over 1962 under the initial fare structure for the month of July.

d. Fitchburg Division

The Fitchburg Division connects Boston to the out-of-region industrial center of Fitchburg 50 miles from North Station. En route this line services a number of western and northwesterly suburbs in the Boston region. Fares were reduced from 25 per cent to 35 per cent during the first seven months of the experiment on this division and service on the line was increased from 20 trains a day to 36 trains a day. Service on the two branches of the Fitchburg Division serving Lexington and Bedford; Weston, Wayland, the Sudburys and Hudson was not increased although 21 per cent to 48 per cent fare reductions were offered through July. The lightly traveled Fitchburg Division as a whole has displayed the largest percentage increases in ridership of any of the B & M divisions; July off-peak volume was 97 per cent above the 1962 level and peak volumes were up by 31 per cent.

2. New Experimental Fare Structure

On August 1, 1963, the demonstration project on the B & M entered its second phase. The B & M initiated a new fare structure which had been developed in cooperation with the MTC. Commutation rates were raised to about the same level as prior to the experiment but off-peak one way fares were further reduced below the initial experimental level. The fare changes are intended to test the price elasticity of commuter fares and to fit fares to cost and demand factors. The increased service, however, is being maintained as a constant so that the elasticity of fares can be more accurately measured.

The program of increased service and across-the-board fare reductions on the B & M produced substantial passenger increases in the first seven months of operation. The levelling off in passenger and revenue volume as the ex-

periment progressed, however, indicates that the impact of the first phase of the program has already been fully tested.

The new fare structure will test the willingness of peak period commuters to pay fares close to their pre-demonstration levels for the improved quality of service provided in the experiment. At the same time, it will determine if lower fares in the off-peak periods, coupled with the continued improved service, will attract additional passengers at times when automobile travel is easiest.

The heaviest and most concentrated demand for commuter rail service occurs in the rush hours. The basic costs of the entire service are incurred in meeting this demand. Off-peak service constitutes a by-product which involves relatively little additional expense. Thus, these fare changes present a price structure that is calculated to reduce the cost to the railroad of commuter rail transportation.

The fare schedule revisions, developed with the assistance of Systems Analysis and Research Corporation, achieve the additional objective of restoring consistency to the patchwork pattern of fares resulting from increases in point to point fares on a piecemeal basis over many years. Differentials in the cost of 20-ride commuter tickets under the revised schedule are determined solely by the length of haul.

The rationale for determining the level of commuter fares was based upon the ownership costs of the self-propelled Budd Diesel Cars (RDC) and a mileage cost which varies with the distance between stations. The carrying charges on a typical RDC run over \$15,000 per year (1962 average was \$14,700) which includes no return on original equity and nothing for eight cars then fully paid for. One hundred cars carry approximately 10,000 passengers in the peak period. Thus, 100 passengers require one car. Each passenger's share of the annual carrying charge is \$150 or 60c per work day. Therefore, a constant of 30c per one way trip is established as a base for the regular commutation rate structure, in order that one inbound and one outbound passenger will pay 1/100th of the cost of ownership of the equipment. To this is added a rate per mile declining from 1.9c for the shorter distance to 1.7c for the greater. This recognizes the significant impact of terminal costs on short hauls and the greater demand elasticity evidenced by the greater response to the demonstration project at greater distances, and follows this formula:

Miles	Rate per Ride	Cost of 20-ride Ticket - \$6.00 plus
1-20	1.9c per mile	38c per mile
21-40	1.8c per mile	36c per mile
41 or more	1.7c per mile	34c per mile

One-way off-peak fares were set up on a zone basis and are generally below the cost per ride of a 20-ride ticket with a minimum of 50c covering up to 20 miles, 60c for 21 to 25 miles, 65c for 26 - 30 miles, 75c for 31 - 40 miles

and 85c for 41 - 50 miles. For the longest runs this means a saving of 26 per cent on the multiple ticket rate. These fares are good on any train arriving in Boston after 9:30 A.M. or any outbound train except between 4:30 and 6:30 P.M. and on all trains on Saturdays, Sundays and holidays.

Peak one-way fares were raised to 55c in the zone where the off-peak fare is 50c. The remainder of the peak one

way fares remained the same as the one-way fares as during the first seven months of the experiment. This fare is higher in every case than any commutation rate or the new off-peak fare.

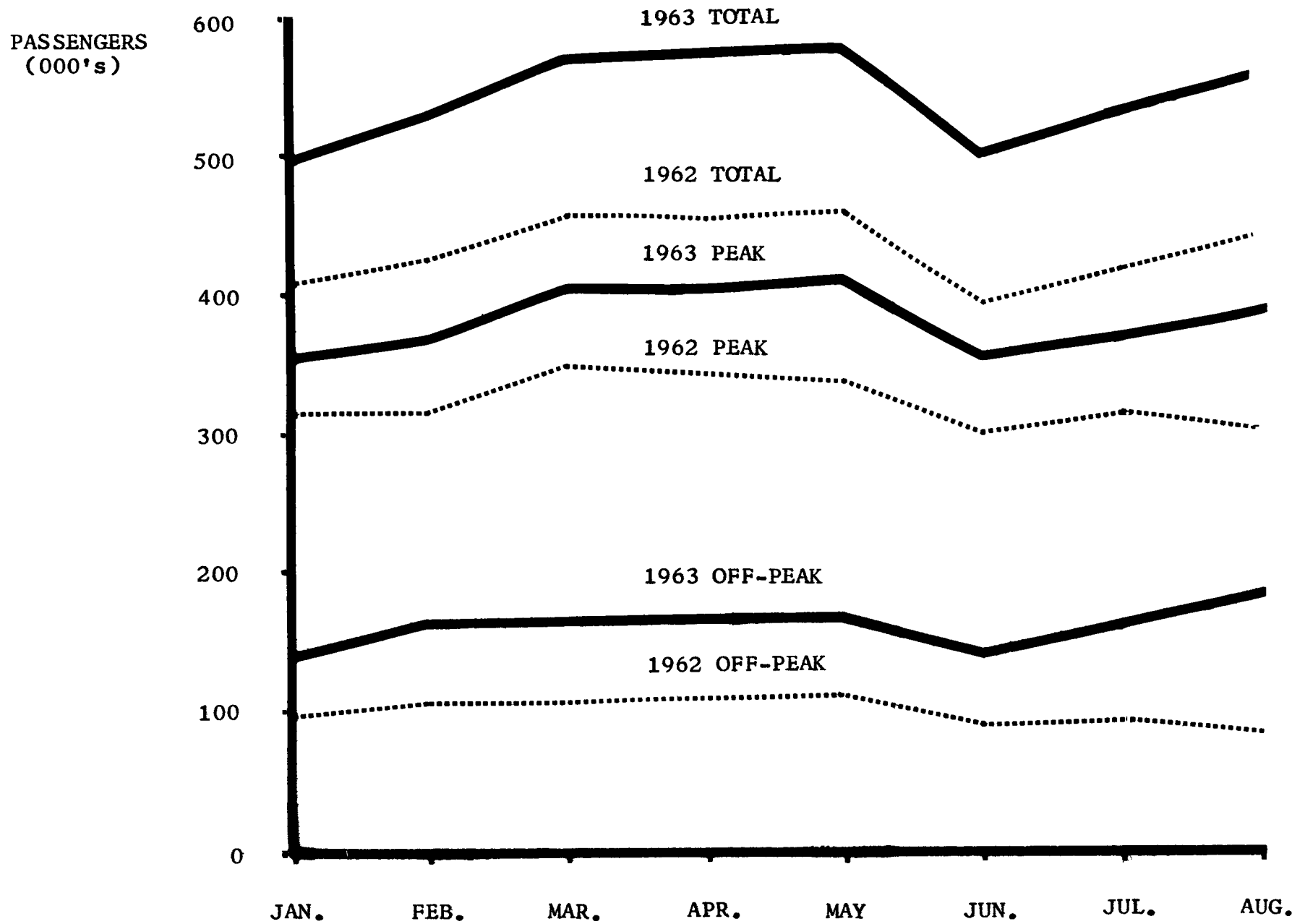
Example of the new fares are presented below. The fares in force prior to the demonstration (i.e., prior to January 6, 1963) are shown in brackets for comparison.

TABLE 3. BOSTON AND MAINE COMMUTER FARES

Between Boston and:	Miles*	Off-Peak Fare	Fares Single Fare	20-ride rate (per ride)
MELROSE	6.8	\$.50 (\$.57)	\$.55 (\$.57)	\$.435 (\$.436)
WINCHESTER	7.8	.50 (.74)	.55 (.74)	.453 (.454)
WOBURN	9.7	.50 (.74)	.60 (.74)	.490 (.492)
LYNN	11.6	.50 (.86)	.65 (.86)	.530 (.534)
READING	12.0	.50 (.86)	.65 (.86)	.530 (.534)
WILMINGTON	15.2	.50 (1.12)	.85 (1.12)	.605 (.618)
SALEM	16.3	.50 (1.12)	.85 (1.12)	.625 (.637)
CONCORD	20.1	.60 (1.40)	.85 (1.40)	.680 (.710)
ANDOVER	23.1	.60 (1.49)	.85 (1.49)	.733 (.742)
LOWELL	25.4	.65 (1.64)	1.10 (1.64)	.770 (.791)
LAWRENCE	26.4	.65 (1.64)	1.10 (1.64)	.788 (.791)
HAVERHILL	33.3	.75 (1.77)	1.10 (1.77)	.844# (.844)
NEWBURYPORT	37.3	.75 (2.06)	1.10 (2.06)	.964# (.964)
FITCHBURG	49.6	.85 (2.87)	1.65 (2.87)	1.150 (1.180)

* 20-ride: fares are computed on the basis of rounding fractional miles to the next higher whole mile.
 #20-ride fare as per formula was cut back to pre-demonstration level to avoid a fare increase.
 Source: Boston and Maine Railroad.

PASSENGERS CARRIED ON MTC-B&M RR DEMONSTRATION, 1962 and 1963



Source: Trainmen's Headcounts

Figure 4

TABLE 4. BOSTON AND MAINE RAILROAD DEMONSTRATION PROJECT

Route Figures Include Inbound and Outbound	Monthly Summary Figures 1962 - 1963											
	January			February			March			April		
	1962	1963	% Increase	1962	1963	% Increase	1962	1963	% Increase	1962	1963	% Increase
Eastern Route												
Peak	75594	86321	14.2	77139	91403	18.5	83827	99746	19.0	81837	99033	21.0
Off Peak	19757	36999	87.3	21096	42667	102.3	20623	44282	114.7	20718	43787	111.3
Total	95351	123320	29.3	98235	134070	36.5	104450	144028	37.9	102555	142820	39.3
Reading Line												
Peak	101091	112167	11.2	101364	113794	12.3	110083	125335	13.6	109024	125439	15.1
Off Peak	27572	35719	29.5	31821	39875	25.3	31993	42891	34.1	32300	42242	30.8
Total	128663	147986	15.0	133185	153669	15.4	142076	168226	18.4	141324	167681	18.7
Western Route												
Peak	34426	35110	2.0	35456	37297	5.2	39717	39862	0.7	38850	40049	3.1
Off Peak	15714	18199	15.8	15449	21037	36.2	16736	21189	26.6	16883	21491	27.3
Total	50140	53309	6.3	50905	58334	14.6	56453	61051	8.2	55733	61540	10.4
N. H. Dist.—Lowell-Woburn												
Peak	73784	87220	18.2	75156	89170	18.6	84357	98176	16.4	82866	99064	19.5
Off Peak	28039	38114	35.9	32143	43636	35.8	30389	44123	45.2	33149	46264	39.6
Total	101823	125334	23.1	107299	132806	23.9	114746	142299	24.0	116015	145328	25.3
Fitchburg Division												
Peak	26525	34972	31.8	26987	37212	37.9	30385	40290	32.6	30227	39401	30.4
Off Peak	5925	10966	85.1	6769	14270	110.8	7084	13899	96.2	7682	14242	85.4
Total	32450	45938	46.1	33756	51482	52.8	37469	54189	44.6	37909	53643	41.5
All Lines												
Peak	311420	355890	14.3	316104	368876	17.0	348369	403409	15.8	342804	402986	17.6
Off Peak	97007	139997	44.3	106568	161485	51.5	106825	166384	55.6	110732	168026	51.7
Total	408427	495887	21.4	422672	530361	25.5	455194	569793	25.2	453536	571012	25.9

Source: Trainmen's Head Counts: Boston and Maine Railroad.

BOSTON AND MAINE RAILROAD DEMONSTRATION PROJECT

	May			July			August					
Route Figures Include Inbound and Outbound	1962	1963	% Increase	1962	1963	% Increase	1962	1963	% Increase	1962	1963	% Increase
Eastern Route												
Peak	83526	101871	22.0	72427	90393	24.8	79893	97537	22.1	79327	97973	23.5
Off Peak	21148	42353	100.3	18729	37503	100.2	23483	45755	94.8	22780	48488	112.9
Total	104674	144224	37.8	91156	127896	40.3	103376	143292	38.6	102107	146461	43.4
Reading Line												
Peak	111676	128643	15.2	99829	111522	11.7	101119	114389	13.1	97539	113860	16.7
Off Peak	30985	40625	31.1	24359	33505	37.5	26202	37488	43.1	26592	38282	44.0
Total	142661	169268	18.7	124188	145027	16.8	127321	151877	19.3	124131	152142	22.6
Western Route												
Peak	37198	40915	8.1	29262	32069	9.6	30466	33290	9.3	29532	33079	12.0
Off Peak	17834	22981	28.9	14994	19905	32.8	15176	22306	47.0	15367	21985	43.1
Total	55032	63896	16.1	44256	51974	17.4	45642	55596	21.8	44899	55064	22.6
N. H. Dist.—Lowell-Woburn												
Peak	81438	97917	20.2	72354	85265	17.8	73425	86926	18.4	70456	87705	24.5
Off Peak	32032	45134	40.9	27101	39434	45.5	29850	43337	45.2	30161	44093	46.2
Total	113470	143051	26.1	99455	124699	25.4	103275	130263	26.1	100617	131798	31.0
Fitchburg Division												
Peak	30711	40752	32.7	26086	34881	33.7	27456	36018	31.2	26586	35525	33.6
Off Peak	7460	14318	91.9	6136	12310	100.6	6434	12716	97.6	5865	13497	130.1
Total	38171	55070	44.3	32222	47191	46.5	33890	48734	43.8	32451	49022	51.1
All Lines												
Peak	344549	410098	19.0	299958	354130	18.1	312359	368160	17.9	303440	368142	21.3
Off Peak	109459	165411	51.1	91319	142657	56.2	101145	161602	59.8	100765	166345	65.1
Total	454008	575509	26.8	391277	496787	27.0	413504	529762	28.1	404205	534487	32.2

Source: Trainmen's Head Counts: Boston and Maine Railroad.

3. *Impact of Fare Revision Effective August 1, 1963*

Initial figures on B & M ridership for August indicate that the fare change has had favorable results. Despite an increase in peak fares, the peak hour passenger volume continued to increase. Moreover, drastically reduced off-peak fares helped to increase off-peak ridership to a new high of 65 per cent above the same period in 1962. Overall, the month of August showed the greatest increase in patronage over 1962 of any month to date.

The return of normal commuting patterns in September and the opening of the various schools in the Boston area will provide a further test of this trend. If the trend continues, the fare revision may result in a substantial growth in passenger revenues.

All the routes except the Western route showed an increase in ridership over July and a percentage gain over 1962. During August, the Eastern Route continued to be the leader in the new ridership. Peak revenue passengers increased by 24 per cent above August, 1962, and off-peak volume was up by 113 per cent.

If it is possible to maintain peak ridership and gain more new riders in the off-peak period, the railroad can better utilize its men and equipment and thereby substantially increase its revenue.

4. *Weather and Other Factors*

The winter of 1963 was extremely mild as compared to 1962. On only a few occasions in the January-March months were B & M trains delayed because of storms. Despite the lack of snow in 1963, serious icing conditions occurred on Boston area highways on eight days, thereby increasing the number of people using train service. In general, bad weather results in a substantial increase in rail passenger volume. However, the fact that 1963 was a period of little snowfall tended to reduce B & M passenger levels as compared to 1962. On balance, therefore, differences in weather conditions between the winter of 1962 and 1963 did not significantly affect experiment results.

No significant differences in weather between 1962 and 1963 occurred in the spring months, but traffic patterns in July were somewhat different than in July, 1962, primarily because of extremely hot weather which resulted in the closing of many offices earlier in the day than usual. Early closing diverted some of the railroad's normal outbound peak riders to the off-peak period and is reflected in the July statistics shown in this report. August weather conditions were normal in comparison to past years, including 1962 and data for August are more directly comparable on a year-to-year basis.

The accompanying chart of passengers carried on the Boston and Maine Railroad shows the year-to-year pattern of seasonal changes in 1962 and 1963. While the increased service and reduced fares introduced by the MTC demon-

stration experiment have resulted in a 29 per cent increase in the number of passengers carried each month, there was practically no change in seasonal variations in 1963.

5. *Passenger Train and Engine Crew Meetings*

On August 26, 27 and 28, the MTC staff conducted a series of informal meetings with B & M passenger train and engine crews for the purpose of reviewing with them the progress of the experiment, the reasons behind the fare change, and methods of maintaining better public understanding. Such meetings have proven to be most useful in providing complete information to all participants involved in experiments and are an integral part of each demonstration experiment.

6. *Revenue Analysis*

One of the primary objectives of the railroad demonstration project is to more accurately determine the true costs of providing commuter service. The second Mass Transportation Commission progress report (April, 1963) indicated that on the Boston and Maine Railroad's increased passenger revenues, resulting from a 19 per cent gain in passenger volume over January, 1962 levels came within seven per cent of offsetting the cost of slashing rail fares. The 23 per cent increase in passenger volume in February, 1963 over February, 1962 levels was nearly sufficient to offset fare reductions: Total February commuter passenger revenue for the Boston and Maine Railroad was only 2.6 per cent below the level of February, 1962.

The further gains in passenger volumes which occurred in March, April, May and June resulted in the break-even point on the experiment fare reductions being reached. Revenues on the B & M Commuter lines in one seven-day week in June, 1963 were three percent above revenue levels the comparable week in June, 1962.

Preliminary year-to-year comparisons indicate that total July, 1963 commuter passenger revenues on the experiment lines on Boston and Maine were 6.1 per cent above the comparable 1962 period. Weekday revenues were up by 10.5 per cent, compensating for the July year-to-year 21.4 percent decrease in weekend revenue.

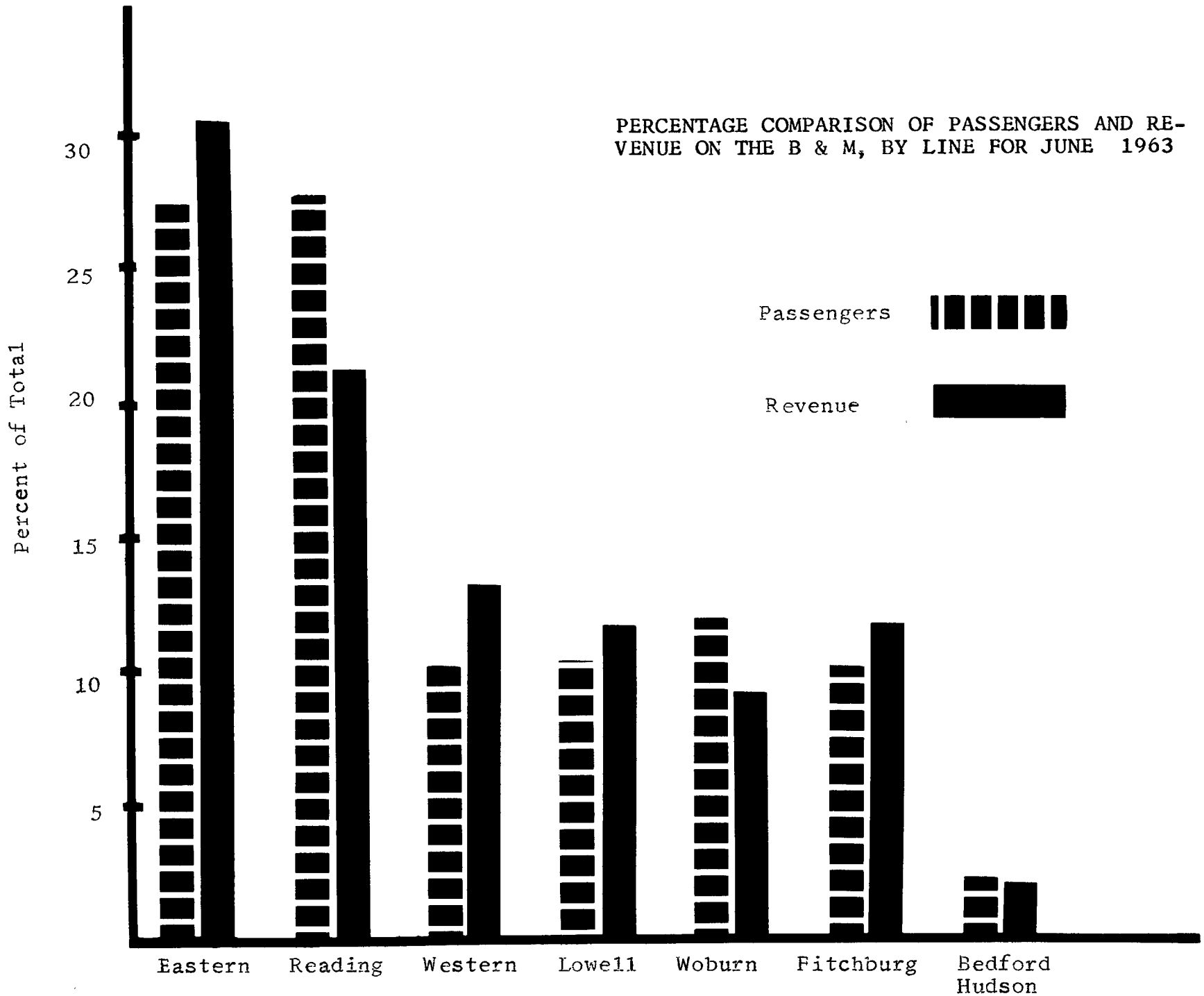
Overall, revenue earned in the first seven months of the experiment was slightly higher — one per cent or \$20,000 above the totals for the seven comparable months of 1962. The Eastern line, with a \$38,000 increase over 1962, was the outstanding performer in generating increased revenues.

B. *New Haven Railroad Experiment Results*

1. *Experiment Results*

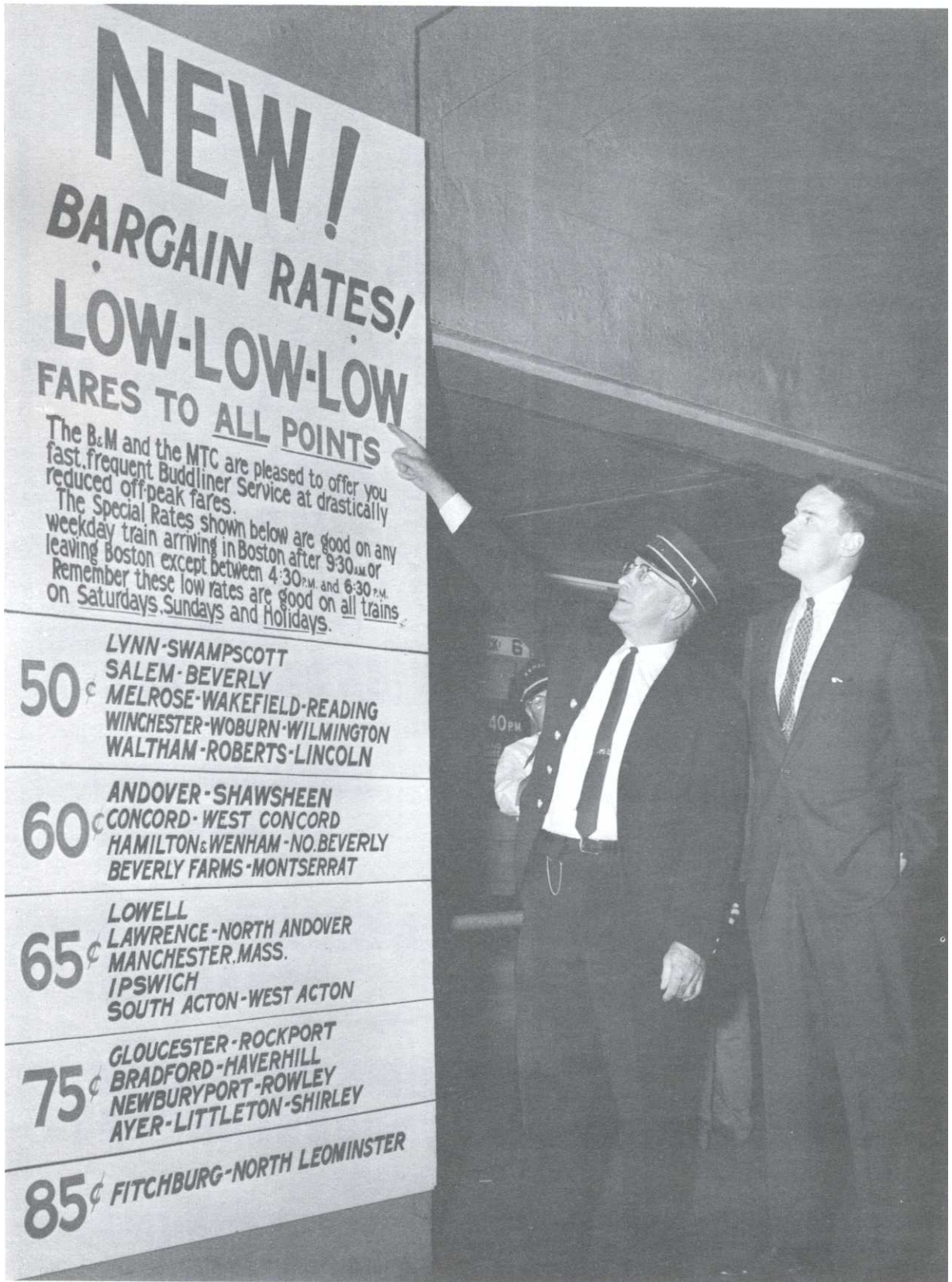
On March 11, 1963, a reduced-fare, increased-service Demonstration Project went into effect on the East End Commuter territory, which is made up of the main line from Boston to Providence, over which the through New York trains operate, and five suburban lines which branch

PERCENTAGE COMPARISON OF PASSENGERS AND REVENUE ON THE B & M, BY LINE FOR JUNE 1963



Source: B & M Train Audit

Figure 5



At North Station . . . B & M conductor shows new station placard to MTC staff supervisor

Figure 6

**BOSTON AND MAINE EXPERIMENT
REVENUE EARNED, JULY 1963**

Table 5 (Thousands)

Line	1963	1962	1963 over/ (under) 1962
Weekdays			
Eastern	\$ 82.3	\$ 70.8	16.2%
Reading	57.0	52.2	9.2
Western	32.6	35.3	(7.6)
Lowell	27.4	24.6	11.4
Woburn	23.5	20.1	16.9
Fitchburg	29.2	25.1	16.3
	—	—	—
Sub-total	\$ 252.0	\$ 228.1	10.5 %
Bedford and Hudson	5.0	6.8	(26.5)
	—	—	—
Total*	\$ 257.0	\$ 234.9	9.4 %
	—	—	—
Weekends			
Eastern	\$ 8.9	\$ 10.0	(11.0) %
Reading	2.3	2.4	(4.2)
Western	3.0	7.5	(60.0)
Lowell	3.1	3.9	(20.5)
Woburn	1.5	1.4	7.1
Fitchburg	3.2	2.8	14.3
	—	—	—
Sub-total	\$ 22.0	\$ 28.0	(21.4) %
Bedford and Hudson	***	***	***
	—	—	—
Total* *	\$ 22.0	\$ 28.0	(21.4) %
	—	—	—
Grand Total	\$ 279.0	\$ 262.9	6.1 %

*—Based on 23 days in 1963 and 22 days in 1962.

**—Based on 8 days in 1963 and 9 days in 1962.

***— No scheduled service.

Source: Boston & Maine Railroad Company, McKinsey & Company, Inc.

Eight new round trips were added between Boston and Providence, all during the off-peak hours. On the line to Needham, service was improved with the addition of four off-peak round trips. Service on the remaining New Haven lines was not increased, but fare reductions were offered.

The fare reduction on all of the East End lines was about ten per cent. Special reduced rate round trip tickets were offered from all stations in addition to reduced fares on all commutation books. The reduced fares did not apply to any stop south of Attleboro on the Providence route as the Demonstration Program is formally applicable only within Massachusetts. (All of the new trains as well as those trains operated previously run through to Providence, Rhode Island for operating convenience.)

The New Haven experiment offers interesting comparisons with the demonstration, experiment on the Boston and Maine Railroad. Total monthly commuter passenger vol-

off from the main line at various points. These branches consist of (1) a line to Needham Heights (13.6 miles from Boston), (2) an extension of the Needham Branch from Needham Junction to West Medway (26.0 miles from Boston), (3) a line to Blackstone (36.6 miles from Boston), (4) a short branch to Stoughton (18.9 miles from Boston) and (5) a short branch line to Dedham (20.0 miles from Boston).

**BOSTON AND MAINE EXPERIMENT
REVENUE EARNED — FIRST SEVEN MONTHS**

Table 6 (Thousands)

Line	1963	1962	1963 over/ (under) 1962
Weekdays			
Eastern	\$ 522.4	\$ 492.3	6.1%
Reading	401.8	403.0	(0.3)
Western	234.4	285.5	(17.9)
Lowell	205.7	186.4	10.4
Woburn	161.1	157.3	2.4
Fitchburg	212.2	191.8	10.6
	-----	-----	-----
Sub-total	\$1,737.6	\$1,716.3	1.2%
Bedford and Hudson	39.3	49.3	(20.3)
	-----	-----	-----
Total*	\$1,776.9	\$1,765.6	0.6%
	-----	-----	-----
Weekends			
Eastern	\$ 68.8	\$ 60.8	13.2%
Reading	26.1	24.9	4.8
Western	43.2	54.3	(20.4)
Lowell	32.2	29.6	8.8
Woburn	15.0	14.3	4.9
Fitchburg	31.1	23.9	30.1
	-----	-----	-----
Sub-total	\$ 216.4	\$ 207.8	4.1%
Bedford and Hudson	* * *	* * *	* * *
	-----	-----	-----
Total**	\$ 216.4	\$ 207.8	4.1%
	-----	-----	-----
Grand Total	\$1,993.3	\$1,973.4	1.0%

* —Based on 148 days in 1963 and 147 days in 1962.

** —Based on 59 days in 1963 and 60 days in 1962.

*** —No scheduled service.

Source: Boston and Maine Railroad and McKinsey Company, Inc.

ume on the New Haven is running about half the volume on the B & M. In the first five months of the experiment the overall increase in New Haven commuter patronage was comparatively small, although a moderate gain in off-peak passenger volume has occurred. In no month of the new experiment did any of the six New Haven routes equal the peak hour gains registered by any of the five Boston and Maine Routes in any month of the B & M experiment. However, the two New Haven lines, which

offered increased off-peak hour service along with fare reduction, both experienced significant gains in off-peak volume.

As with the B & M, the New Haven results for the month of August were a significant further improvement over the results of the previous months of the New Haven demonstration experiment. Both peak and off-peak ridership increased to the highest level over 1962. The largest gain were on the Providence route, with a 35 per cent increase in the off-peak period and a 9 per cent increase in the peak, for an overall gain of 16 per cent. The other routes showed smaller but encouraging increases.

In gauging this relatively limited response, three factors should be borne in mind: (1) the New Haven Railroad's lesser fare reductions and service increases as compared to the B & M experiment; New Haven fares are substantially higher than fares for comparable distances on the B & M;

(2) the comparatively limited amount of publicity for the New Haven experiment as compared to the greater interest generated by its predecessor, the larger and more dramatic B & M experiment; (3) the less attractive older equipment on the New Haven as compared to the B & M's modern Budd cars.

2. *Experiment Revisions*

Effective September 8, 1963, the MTC revised its experiment with the New Haven Railroad to reflect the experience in the first six months. In general, fares were raised to their pre-experiment level and a new reduced off-peak fare on the same basis as is now in effect on the B & M was initiated on the main line between Boston and Attleboro. Increased service on the Needham line was eliminated, but increased service on the Attleboro line was retained. This new combination of service and fares on the route that has the greatest traffic potential is being tested to determine if it will result in substantial gains in off-peak traffic, thereby better utilizing the present equipment and manpower.

3. *New Haven Cost Studies*

McKinsey and Company is in the process of making detailed cost studies for the MTC which should be available for preliminary presentation in the next progress report.

C. *New York Central, Boston and Albany Division*

The Boston and Albany line to the west of Boston has maintained substantially the same service and fare structure over the past year. Data comparing the first week of each month with a similar period of a year ago indicates that without the impetus of a demonstration experiment involving service and/or fare changes, patronage has continued downward. A similar trend had been evident on the two other Boston railroads prior to the initiation of the MTC demonstration experiments.

Table 7. Changes in Passenger Volume on the Boston and Albany Division, 1962 vs. 1963

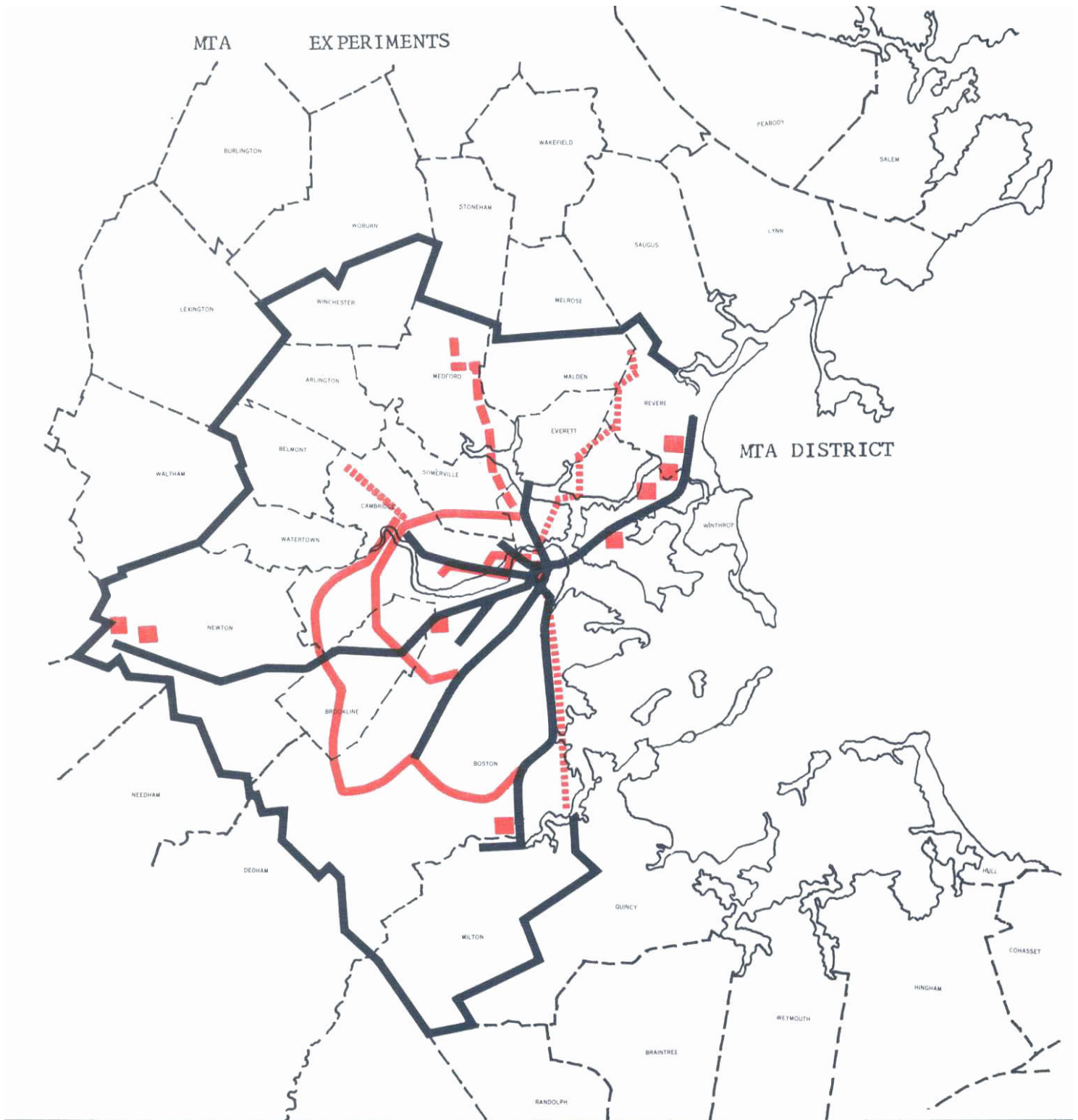
<i>First Week of</i>	<i>N.Y.C. Boston Commuter Trains</i>
January	— 4.3%
February	— 5.5
March	— 8.1
April	— 6.0
May	— 5.7






Source New York Central System

MONTHLY SUMMARY FIGURES — 1962 - 1963

Route Figures Include Inbound and Outbound	April			May			June			July			August		
	1962	1963	% Change	1963	% Change	1962	1963	% Change	1962	1963	% Change	1962	1963	% Change	
Providence															
Peak	58,687	58,360	-0.6	58,533	60,218	+3.0	48,721	49,808	+2.2	50,322	51,238	+1.8	47,846	51,893	+8.5
Off-Peak	27,171	30,987	+14.0	26,220	31,067	+18.0	21,466	24,640	+14.8	21,482	26,020	+21.1	20,485	27,584	+34.7
Total	85,858	89,347	+4.0	84,753	91,285	+8.0	70,187	74,448	+6.1	71,804	77,258	+7.6	68,331	79,477	+16.3
Needham															
Peak	73,635	72,572	-1.0	76,373	75,335	-1.4	66,225	63,349	-4.3	67,068	63,830	-4.8	63,303	64,422	+1.8
Off Peak	12,651	15,049	+2.4	12,718	15,400	+21.0	10,012	12,307	+32.9	10,220	12,863	+35.6	10,279	13,392	+30.7
Total	86,286	88,221	+2.2	89,091	90,735	+2.0	76,237	76,656	+0.5	77,288	77,693	+0.5	73,552	77,814	+5.8
West Medway															
Peak	1,204	1,051	-13.0	1,281	1,146	-10.5	1,105	941	-14.8	1,277	976	-23.6	1,113	964	-13.4
Off Peak	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	1,204	1,051	-13.0	1,281	1,146	-10.5	1,105	941	-14.8	1,277	976	-23.6	1,113	964	-13.4
Blackstone															
Peak	29,510	29,864	+1.0	29,808	29,604	-0.7	24,053	25,094	+4.7	22,936	24,849	+8.3	23,145	26,103	+12.8
Off Peak	9,994	9,463	-5.3	13,172	12,954	-1.7	6,016	5,913	-1.7	6,823	6,918	+1.4	6,282	6,557	+4.4
Total	39,504	39,327	-0.4	42,980	42,558	-1.0	30,069	31,007	+3.1	29,759	31,757	+6.8	29,427	32,660	+11.0
Dedham															
Peak	9,083	9,065	-0.2	9,086	9,640	+6.0	8,517	8,131	-4.5	7,841	7,868	+0.3	7,484	7,587	+1.4
Off Peak	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	9,083	9,065	-0.2	9,086	9,640	+6.0	8,517	8,131	-4.5	7,841	7,868	+0.3	7,484	7,587	+1.4
Stoughton															
Peak	28,426	29,674	+4.4	28,312	30,383	+7.0	24,006	24,983	+4.1	24,154	26,609	+10.2	24,590	27,624	+12.3
Off Peak	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	28,426	29,674	+4.4	28,312	30,383	+7.0	24,006	24,983	+4.1	24,154	26,609	+10.2	24,590	27,624	+12.3
TOTAL															
Peak	200,545	200,586	+0.2	203,393	206,326	+1.4	172,627	172,306	-0.2	173,598	175,370	+1.0	167,481	178,593	+6.6
Off Peak	49,816	56,099	+13.0	52,110	59,421	+14.0	37,494	43,860	+17.0	38,525	46,801	+21.5	37,016	47,533	+28.4
Total	250,361	256,685	+2.5	255,503	265,747	+4.0	210,121	216,166	+2.9	212,123	222,161	+4.7	204,497	226,126	+10.6

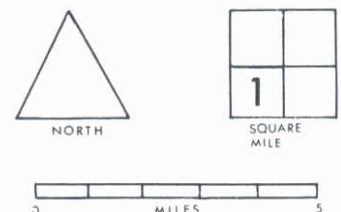
Source: New Haven Railroad, Trainmen's Head Counts



-  Rapid Transit Lines
-  Park And Ride Routes
-  New Bus Service
-  Increased Bus Service
-  Reduced Fee Parking Lots

PARK AND RIDE DRIVE-IN THEATER EXPERIMENTS

Figure 7



Chapter IV.

MTA DEMONSTRATION EXPERIMENTS

The MTC in conjunction with the Metropolitan Transit Authority has designed a series of ten experiments involving MTA bus lines and parking lots. Five experimental bus lines have been in operation since June 24, 1963 and four additional bus experiments began operation on September 3rd.

A. Experiments In Progress

1. Experimental Bus Routes

For convenience numbers have been assigned to the experimental bus routes as follows:

E-2 A new bus route from North Station to the Massachusetts Institute of Technology serving, in addition to MIT, a number of electronics plants and the Massachusetts General Hospital. This route was designed to provide a convenient connecting service for commuters using trains in and out of the North Station. The service operates every 10 minutes in rush hours and every 15 minutes during the day.

E-3 A new bus route from Dudley Station to Sullivan Square operates over a circumferential route at a radius of three miles from downtown Boston. This route, and its companion E-5, cross eight rapid transit radials in each direction. In addition to this connecting service, they provide a substantial crosstown ride at a 10c fare. Previously trips between many locations were only possible by traveling downtown and out again via a different rapid transit radial route. The circumferential bus routes provide more direct crosstown service with no change of vehicle. The service operates every 10 minutes in rush hours and every 15 minutes during the day.

E-4 Experimentally increased frequency of service on an already established suburban feeder route from Elm Street in Medford to Sullivan Square rapid transit station. Where previously this route operated on a five-minute frequency in rush hours and on a ten-minute frequency in midday, service was added to provide a five-minute headway throughout the day.

E-5 A new bus route from Ashmont Station to Harvard Square operates over a circumferential route at a radius of five miles from downtown Boston. The service operates every 10 minutes in rush hours and every 15 minutes during the day.

E-7 Experimentally increased frequency on the already established downtown route between North and South Station in Boston. Where previously this route operated on a five-minute frequency in rush hours and a 25-minute midday frequency, it now operates every five minutes all day.

TABLE 9
MTA-MTC BUS DEMONSTRATION PROJECT
PASSENGERS CARRIED PER WEEK

Week Ending	E-2	E-3	E-4	E-5	E-7	Total
6-28-63	685	18,903	7,015	17,727	4,424	48,753
7-5-63a	773	16,952	4,710	15,816	3,704	41,594
7-12-63	1,552	21,245	4,957	21,426	4,410	53,589
7-19-63	1,586	22,550	5,220	23,717	4,764	57,838
7-26-63	1,787	23,904	5,485	25,215	5,803	62,914
8-2-63b	1,907	24,245	4,941	24,617	5,971	61,680
8-9-63	1,934	24,921	5,095	25,927	5,989	63,864
Average Weekday (Final week)	387	4,984	1,019	5,185	1,200	12,773

a — Week includes a holiday
 b — Week includes a three-day heat wave
 E-2 Route from North Station to M.I.T. and return
 E-3 "Inner-circumferential" Route from Sullivan Square to Dudley Station
 E-4 Route from Sullivan Square to Elm Street, Medford
 E-5 "Outer-circumferential" route from Harvard Square to Ashmont Station
 E-7 Route from North Station to South Station

Source: MTA — Based on unaudited daily receipts

E-9 Experimental rush hour bus service between Boston College and Kenmore Square paralleling the existing streetcar service on Commonwealth Avenue began on September 3rd. In an attempt to alleviate rush hour delays caused by the present zoned fare collection system, this rush hour bus service permits segregation of local and downtown bound riders, with an anticipated time savings for both groups. During the hours when this rush hour bus service operates, only 30c fares (the through fare) are accepted on the streetcar. Local 10c riders use the bus.

For all of these routes, a ten cent fare is in effect.

In evaluating MTA experiment results, a 3.4 per cent systemwide decline in MTA passenger revenues between the first half of 1962 and 1963 must be considered. Unfortunately, this overall system decline cannot be precisely isolated for individual bus lines or corridor groupings of bus routes. Past records indicate however that declines on the bus components of the system were usually greater than decreases in rail transit ridership.

Passenger counts for each route for the first seven weeks of the experiment are shown in Table 9. All routes, with the exception of E-4 (Elm Street-Sullivan Sq.) have shown a steady growth in the absolute number of passengers carried each week. It is also clear that a substantial number of persons are taking advantage of these new and increased bus services. However, before drawing even tentative conclusions as to the continued viability of any of these routes, it is necessary to compare the actual increase in passengers with the cost of providing the new or additional service. This comparison is presented in Table 10.

TABLE 10
MTA-MTC BUS DEMONSTRATION PROJECT
July 1962 vs July 1963

Route	Revenue (a) July 1962	Revenue July 1963	Per cent of Total Passengers in corridor Carried on New Bus Service	Per cent Revenue Increase	Revenue Incr. as a % of cost of New Service
E-2	Did not Operate	\$ 694	—	—	12%
E-3	\$61,920	63,023	15%	1.8%	4
E-4	11,156	11,500	20	3	4
E-5	18,842	25,188	40	35	17
E-7	3,804	6,706	33	78	57

a) Revenue from bus line(s) operating over the routes to which experimental service has been added.

E-2 Route from North Station to MIT and return

E-3 "Inner-circumferential" Route from Sullivan Square to Dudley Station.

E-4 Route from Sullivan Square to Elm Street, Medford.

E-5 "Outer-circumferential" route from Harvard Square to Ashmont Station.

E-7 Route from North Station to South Station.

Source: MTA—Based on unaudited daily receipts.

Route E-2 (North Station-MIT) was established as the result of numerous suggestions from persons in the area serviced, but has so far been utilized by only a small number of regular daily riders. The average number of riders during the summer months, per round-trip, was less than seven and most of the riders were concentrated in a few trips in the morning and evening rush hours. On one typical day (July 26), twenty-five midday, round-trips on this route carried a total of only thirty-one passengers. As shown in Table 10, the revenue from this new bus route was 12 per cent of the cost of operating the route. The beginning of the school year in September may result in a substantial increase in the number of riders using the newly established North Station-MIT route.

Route E-3 (Inner Circumferential) and E-5 (Outer Circumferential) test the demand for through circumferential bus service. Route E-3 carried 15 per cent of all riders on MTA lines between Sullivan Square and Dudley Station. However, traffic along this corridor increased by 1.8 per cent, which means that as much as 90 per cent of those riding on Route E-3 buses may have been diverted from other parallel MTA routes. From the data, it is not possible to determine the proportion of the 100,000 monthly riders on Route E-3 who previously used one or more MTA bus routes, or the proportion of who are new riders

attracted by the through service. To develop firm data on the characteristics of E-3 riders, MTC field staff is conducting interviews with bus riders during the month of September.

Route E-5 carried approximately 5,000 riders daily and 40 per cent of the persons traveling by MTA along its route. At the same time, the revenue on E-5 and related corridor lines increased 35 per cent. The average number of riders per round-trip was 62, but due to the great length of Route E-5 (a round-trip takes two hours and twenty minutes) the 35 per cent increase in revenue represented only 17 per cent of the cost of the new service.

If the increase in patronage thus far generated by Route E-5 continues, a restructuring of MTA bus services along the E-5 Route may be indicated with a view toward merging some of the local bus lines into one of several possible circumferential routes.

In the case of Route E-3 (the Inner-Circumferential) the increase in revenue was comparatively small.

On Route E-4 (Elm Street, Medford — Sullivan Square) off-peak headways were experimentally increased to 5 minutes from the 10-minute frequency previously in effect. This doubling of mid-day service produced a three per cent increase in riding and earned four per cent of the cost of the added service.

This result can be compared with the result on Route E-7 (North Station—South Station) where the frequency on this short downtown route was also increased to provide service every five minutes in mid-day. The result was a 78 per cent increase in total daily patronage on the North Station — South Station route. This revenue increase represented 57 per cent of the cost of the additional service.

One tentative conclusion as to why a five-minute headway produced comparatively little improvement in patronage on one line and a substantial improvement on another becomes apparent upon consideration of the different characteristics of the two lines. Route E-4 (Elm Street, Medford) is a radial bus feeder four miles in length serving a suburban residential neighborhood north of Boston. Prior to the experiment the off-peak headway was 10 minutes. The lack of improvement in patronage when the frequency was doubled suggests that persons anticipating up to a thirty-minute trip to Boston were relatively indifferent to a five-minute wait at the bus stop when this wait formed part of a much longer trip to the center city. Further, the number of persons traveling from the suburbs to downtown in mid-day is relatively small. A ten-minute headway on this route may be sufficient to attract a near maximum number of passengers.

Route E-7 (North Station — South Station) is a bus route one mile in length connecting Boston's two railroad

terminals via the downtown business district. From the downtown business district to either railroad terminal is a ten-minute walk, and during rush hours large numbers of hardy Bostonians walk to and from each terminal. Moreover, a large number of persons circulate in this area throughout the entire day. The previous North Station headway of 25 minutes may have attracted little or no patronage because one could frequently walk to either train station before a bus was available. In contrast, with a five-minute headway, buses are visible nearly continuously and apparently attract many "impulse" riders.

2. MTA Parking Lot Experiment

The MTA and the MTC have been engaged since April 1, 1963 in a reduced fee parking lot experiment designed to improve the utilization of existing parking spaces along rapid transit lines. At eight selected MTA parking lots where there were a large percentage of vacant spaces, parking fees were experimentally reduced to 10c. At the remaining lots the fee remained 35c.

Table 11 presents the results of the parking lot experiment for the month of July and shows a 35 per cent overall increase in the number of cars parked at MTA lots. This is the greatest percentage increase for any month in the experiment to date. Moreover further increases can probably be anticipated since MTA parking volume has continued to rise month by month.

Table 12 shows the percentage change in parking lot volume for each experiment month. This table reveals a fairly steady trend of reduced parking volume at 35c lots which is more than offset by increases in parking at the 10c lots. These reduced fee lots are, on the average, much larger than the 35c lots, with the result that the total number of cars parked at MTA lots has risen considerably.

This relationship is explored further in Table 13 which presents the gross income from MTA parking lots included in this experiment. From Table 13 it can be seen that, when both income from fares and from parking fees are considered, the MTA actually grossed nearly ten per cent more from park-and-ride patrons in July, 1963 than was earned in July, 1962 before including MTC payments to the MTA in the computation.

In this demonstration experiment, the parking lot operator in return for charging the lower parking fee, is reimbursed for the difference between the amount collected this year and the amount collected last year. The cost to the MTC of this contract was about \$6,000 for the month of July, and as Table 13 shows, the MTA earned \$3,700 more this year from park-and-ride patrons than was earned from such patrons in July of last year. If the increase in September is even larger, the added income to the MTA resulting from lower parking fees may exceed the cost of the experiment. The MTC staff is currently working

with the MTA in developing a modified scale of parking fees to maximize both parking lot utilization and parking fee income.

TABLE 11
VOLUME IN MTA PARKING LOTS
July 1962 vs July 1963

Riverside Line	Cars July 1962	Cars July 1963	Increase (Decrease)	% Change	July 1963 % Utilization ^a
* Riverside	5,460	8,176	2,716	+50 %	20%
* Woodland	6,469	7,240	771	+12	82
Waban	724	389	(335)	-46	82
Elliot	989	628	(361)	-37	44
Chestnut Hill	633	562	(71)	-11	40
* Brookline Village	1,764	3,420	1,656	+94	100
	16,039	20,415	4,376	+27 %	
Revere Line					
Wonderland	8,602	6,206	(2,396)	-28	52%
Ocean Avenue	3,216	1,866	(1,350)	-42	42
* Beachmont	1,142	4,279	3,137	+274	114
* Suffolk Downs	856	1,815	959	+112	40
* Orient Heights	2,581	4,317	1,736	+68	83
* Wood Island Pk.	3,628	7,565	3,937	+108	89
	20,025	26,048	6,023	+30 %	
Ashmont-Mattapan Line					
* Butler Street	2,219	6,221	4,002	+180	87%
Milton	638	495	(143)	-22	64
Mattapan	2,759	3,023	264	+9	42
	5,616	9,739	4,123	+72 %	
Total Net Change Project Related Lines	41,680	56,202	14,522	+35 %	

a) Theoretical capacity rated at 300 occupancies per space, per year, or 25 occupancies per month.
*) MTC reduced fee lots.
Source: MTA - MTC

TABLE 12
PERCENTAGE CHANGE IN MTA PARKING LOT VOLUME (a)
April 1963 to July 1963

	Volume		Percent Change			Volume July 1963
	April 1962	April 1963	April 1963	May 1963	June 1963	
Riverside Line (b)						
* Riverside	9,972	+ 2 %	+ 34 %	+ 32 %	+ 50 %	8,176
* Woodland	5,819	+ 41 %	+ 10 %	+ 12 %	+ 12 %	7,240
Waban	666	- 14 %	- 25 %	- 48 %	- 46 %	389
Elliot	938	- 16 %	- 27 %	- 39 %	- 37 %	628
Chestnut Hill	688	- 17 %	- 10 %	- 12 %	- 11 %	562
* Brookline Village	2,129	+ 61 %	+ 85 %	+100 %	+ 94 %	3,420
	20,285	+ 17 %	+ 22 %	+ 22 %	+ 27 %	20,415
Revere Line						
Wonderland	9,046	- 21 %	- 32 %	- 31 %	- 28 %	6,206
Ocean Avenue	3,664	- 49 %	- 55 %	- 52 %	- 42 %	1,866
* Beachmont	1,535	+146 %	+162 %	+152 %	+274 %	4,279
* Suffolk Downs	995	+ 86 %	+104 %	+ 99 %	+112 %	1,815
* Orient Heights	2,591	+ 64 %	+ 59 %	+ 50 %	+ 68 %	4,317
* Wood Island Park	3,574	+118 %	+117 %	+100 %	+108 %	7,565
	21,405	+ 24 %	+ 22 %	+ 19 %	+ 30 %	26,048
Ashmont-Mattapan Line (c)						
Butler Street	2,126	+125 %	+150 %	+158 %	+180 %	6,221
Milton	635	- 13 %	- 25 %	- 30 %	- 22 %	495
Mattapan	3,120	+ 18 %	+ 15 %	+ 7 %	+ 9 %	3,023
	5,881	+ 53 %	+ 61 %	+ 62 %	+ 72 %	9,739
Totals	47,498	+ 24 %	+ 27 %	+ 24 %	+ 35 %	56,202

a) Expressed as Percentage change from the same month of the previous year.
b) Lots at Brookline Hills, Beaconfield and Longwood not included due to unreliable data submitted by operator.
c) Lots at Cedar Grove and Central Avenue not included due to unreliable data submitted by operator.
* M.T.C. reduced fee lots.
Source: MTA - MTC

TABLE 13
ESTIMATED CHANGE IN MTA GROSS INCOME
FROM PARKING LOTS
July 1962 vs July 1963

	No. of Cars July 1962	Park & Ride Rate 1962	Gross Income July 1962 (a)	No. of Cars July 1963	Park & Ride Rate 1963	Gross Income July 1963 (a)
Riverside Line						
* Riverside	5,460	\$1.15	\$ 7,589	8,176	\$.90	\$ 9,321
* Woodland	6,469	1.15	8,992	7,240	.90	8,254
Waban	724	1.15	1,006	389	1.15	541
Eliot	989	1.15	1,375	628	1.15	873
Chestnut Hill	633	1.15	879	562	1.15	781
* Brookline Village	1,764	.95	1,993	3,420	.70	3,010
	16,039		\$21,834	20,415		\$22,780
Revere Line						
Wonderline	8,602	.75	7,484	6,206	.75	5,399
Ocean Ave.	3,216	.75	2,798	1,866	.75	1,623
* Beachmont	1,142	.75	944	4,279	.50	2,653
* Suffolk Downs	856	.75	745	1,815	.50	1,125
* Orient Heights	2,581	.75	2,245	4,317	.50	2,677
* Wood Island Pk.	3,628	.75	3,156	7,565	.50	4,690
	20,025		\$17,422	26,048		\$18,167
Ashmont-Mattapan Line						
* Butler Street	2,219	.75	1,931	6,221	.50	3,857
Milton	638	.75	555	495	.75	431
Mattapan	2,759	.75	2,400	3,023	.75	2,630
	5,616		\$ 4,886	9,739		\$ 6,918
MTC Parking Project Lines — Experiment						
Total	41,680		\$44,142	56,202		\$47,865

a) Calculated at the rate of 1.3 passengers per car
*) MTC Reduced fee lots

Source: MTA-MTC

3. Drive-In Theatre Experiments

A series of three experiments tests the feasibility of using Drive-In Theatres as daytime parking lots linked to downtown by frequent bus service. Drive-In Theatres have been selected at major highway intersections, north, west, and south of Boston and the MTA has contracted with the theatre operators to permit use of the theatre for daytime parking.

E-8 Route E-8 links the Fresh Pond Drive-In Theatre in West Cambridge with the rapid transit terminal at Harvard Square. Express buses operate every five minutes in rush hours. The park-and-ride round trip fee to Harvard Square is 55c.

E-10 Using the Neponset Drive-In Theatre as a parking terminal, express buses carry passengers between this point and South Station via the Southeast Expressway. The total park-and-ride fee to South Station is \$1.00. Buses operate at five-minute headways during rush hours.

E-11 From the Revere Drive-In Theatre on the Northeast Expressway, buses operate non-stop to a terminal at Haymarket Square. On E-11 the park-and-ride round trip fare is \$1.00 and buses operate every five minutes during rush hours.

The use of these three Drive-In Theatres as commuter parking lots adds 4,500 parking spaces to the 5,800 existing MTA parking spaces, an instant increase of 75 per cent in the number of available MTA parking spaces, without any incremental MTA capital expenditures.

The drive-in theatres are located on major arteries. Inbound traffic moves quite freely beyond the theatres but between the three theatres and downtown Boston traffic congestion is extremely heavy during peak hours and heavy in other daylight hours. The total driving and downtown parking time required from the theatres to downtown Boston is much greater than the automobile-bus combination of the Neponset and Revere Theatres or even than the car-bus-transit combination offered by the Fresh Pond experiment.

For example, the minimum of four and one-half miles of driving through the normally heavily congested traffic from the Fresh Pond Theatre in Cambridge to the downtown area requires 35 to 40 minutes during the peak hours. The bus-rapid transit combination requires only 20 minutes travel time.

Moreover, the drive-in parking lot experiment permits a considerable reduction in commuting cost. In the case of Fresh Pond, for example, the total ninety-five cents park-bus-rapid transit round-trip fare is much lower than the average downtown Boston all-day parking fee of \$1.75. The combination of the savings in both travel time and out-of-pocket expenses should theoretically offer a strong inducement for many present motorists to use the new public transportation combination and thereby help reduce traffic pressures on major arteries leading to downtown Boston and within the downtown area itself.

Chapter V.

BUS EXPERIMENTS

Since the first bus demonstration experiment began on December 10, 1962, a total of 24 bus experiments have been initiated under the MTC Demonstration Program. Seven experiments have already been concluded because the limited public response indicated that their continuation would not yield any additional significant results.

The accompanying map shows bus experiments presently in operation and the text describes the experiments and results to date.

A. Eastern Massachusetts Street Railway Company

1. Fall River Local Service Experiment

This experiment involving increased service on certain routes in the City of Fall River began on Sunday, August 11, 1963.

For the past year the City of Fall River has experienced substantial disruption in traffic flow due to the construction through the city of Interstate 195. The construction of I-195 severed existing bus routes, necessitating frequent detours and causing considerable confusion. Partly as a consequence, there has been a steady decline in passengers during the past year in Eastern Massachusetts' Fall River operation.

This experiment will help to determine if a greater number of riders to the existing bus service can be attracted by substantially increasing the number of trips in and out of the downtown business district. The experiment may also help to remove a number of automobiles from congested downtown streets. As part of the experiment a common loading point in downtown Fall River has been established along with a special Sunday bus service.

Increased weekday service has been established on five bus routes and a one hour service from 10:00 a.m. to 6:00 p.m. on Sunday has been reinstated on four bus routes.

2. Off-Peak Fare Reduction Experiment

In cooperation with the Eastern Massachusetts Street Railway the MTC devised a reduced fare program to place the bus company on equal rate basis with the B & M railroad line with which it competes.

On July 30, 1963, the Massachusetts Department of Public Utilities authorized the company to reduce the off-peak fares on all segments of its North Shore Division operations that parallel B & M service to match the lower

B & M off-peak fares which went into effect on August 1, 1963.

3. Lawrence-Boston Express Service Experiment

An express bus service experiment from Lawrence to Boston via Interstate 93 began on August 19, 1963.

This project has three significant aspects: first, it will provide an opportunity to test the market response of the express bus service from one major city within the Greater Boston sphere, Lawrence (1960 population 70,900), to Boston; secondly, it will test the attraction of high-speed bus service over an interstate highway to a central city; and, third since it will provide an alternate means of transportation from Lawrence, the new service will offer the opportunity of measuring the comparative acceptability of express bus service as compared to rail service included in the Boston and Maine Demonstration Project. In addition to attracting people from the City of Lawrence, part of the route traverses the industrialized Shawsheen section of Andover, which may increase the possibility of attracting riders.

The terminal point in Boston for this route is Park Square, a central point for both shopping and employment.

This Park Square terminal point gives the bus route a distinct advantage over the rail service which terminates about a mile and one-half from central Boston at North Station. However, the fact that the bus trip requires over an hour while the train trip is only half an hour may reduce the relative advantage of center-to-center service.

Hourly service is offered from Lawrence, leaving Lawrence at 7:10 a.m. to 5:10 p.m. daily except Sunday. Hourly service is also offered from Boston, leaving Boston at 8:30 a.m. to 6:30 p.m. daily, except Sunday.

4. Topsfield-Salem Experiment

This experiment, involving a feeder service weekdays only, between Topsfield and the B & M Eastern Line in Salem began operation on June 24th.

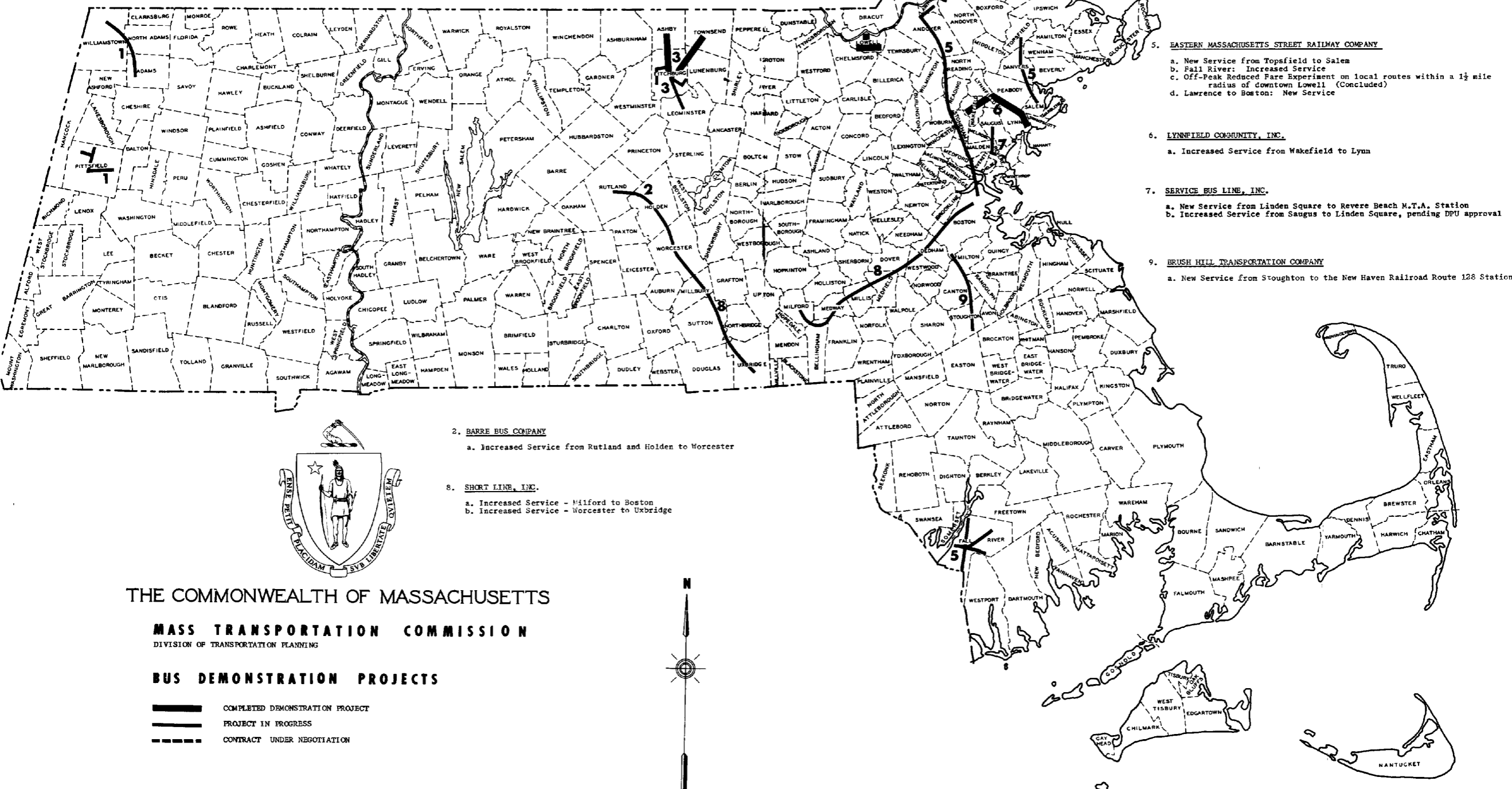
The experiment was designed to determine whether an express bus extension of a reduced fare expanded train service could be made attractive to residents of a new suburban community consisting largely of high income, two-car families.

Prior to this experiment, there was virtually no direct public transportation from Topsfield to Boston. Most commuters use a multiple lane, divided road, Route 1, for the 20 mile ride to Boston.

- a. New Service to Francis Plaza Housing for the Elderly, Pittsfield
- b. Increased Service to Wahconah and Wilson Park Housing Developments, Pittsfield
- c. Increased Service to Green Ridge Park Housing Development, Pittsfield
- d. Increased Service between Adams, North Adams and Williamstown

- a. New Service from downtown Fitchburg to the Fitchgate Shopping Center
- b. New Service from the Fitchburg Railroad Station to Lunenburg and Townsend (Concluded)
- c. New Service from the Fitchburg Railroad Station to Ashby Center (Concluded)
- d. New Service to Industrial plants
- e. Increased Service between Fitchburg and Leominster
- f. Extension of Fitchburg and Leominster route in Fitchburg

- a. New Service from Haverhill to the Western Electric Plant in North Andover (Concluded)
- b. New Service from Amesbury to the Western Electric Plant in North Andover (Concluded)
- c. Route extension to a new housing project in Newburyport
- d. New Service on State Street, Newburyport (Concluded)
- e. Increased Service from Amesbury to Newburyport



5. EASTERN MASSACHUSETTS STREET RAILWAY COMPANY

- a. New Service from Topsfield to Salem
- b. Fall River: Increased Service
- c. Off-Peak Reduced Fare Experiment on local routes within a 1 1/2 mile radius of downtown Lowell (Concluded)
- d. Lawrence to Boston: New Service

6. LYNNFIELD COMMUNITY, INC.

- a. Increased Service from Wakefield to Lynn

7. SERVICE BUS LINE, INC.

- a. New Service from Linden Square to Revere Beach M.T.A. Station
- b. Increased Service from Saugus to Linden Square, pending DPU approval

9. BRUSH HILL TRANSPORTATION COMPANY

- a. New Service from Stoughton to the New Haven Railroad Route 128 Station

2. BARRE BUS COMPANY

- a. Increased Service from Rutland and Holden to Worcester

8. SHORT LINE, INC.

- a. Increased Service - Milford to Boston
- b. Increased Service - Worcester to Uxbridge



THE COMMONWEALTH OF MASSACHUSETTS

MASS TRANSPORTATION COMMISSION

DIVISION OF TRANSPORTATION PLANNING

BUS DEMONSTRATION PROJECTS

- COMPLETED DEMONSTRATION PROJECT
- PROJECT IN PROGRESS
- CONTRACT UNDER NEGOTIATION



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The results of the first seven weeks of the experiment indicate an extremely limited response.

TABLE 14
Passenger Trends
EASTERN MASSACHUSETTS STREET RAILWAY COMPANY
TOPSFIELD — SALEM EXPERIMENT

Period	Revenue	Passengers
6 / 24-6 / 28	\$ 16.00	33
7 / 1-7 / 15*	14.75	30
7 / 8-7 / 12	16.75	34
7 / 15-7 / 19	18.50	37
7 / 22-7 / 26	28.75	58
7 / 29-8 / 2	15.00	30
8 / 5-8 / 9	17.25	35
	-----	-----
	\$ 127.00	257

*Excluding July 4th — holiday
Source: Eastern Mass. St. Railway Company

The objective of both experimental routes was to test the advisability of operating service between small suburban residential areas and a small metropolitan area. The results through July definitely indicate that in areas such as these regularly scheduled service is not practical from a financial standpoint. The revenue on Project 2 covered only about 10 per cent of the cost and on Project 3 it covered only about 15 per cent of the cost.

B. Fitchburg and Leominster Street Railway Company

A series of six bus experiments in the Fitchburg and Leominster area were initiated on March 11, 1963. The experiments and their most recent results are as follows:

1. *Project 1* — A new service from Upper Common in Fitchburg to the Fitchgate Shopping Center operating daily, except Sunday. This service provides a significant mass transportation experiment to an outlying, automobile-oriented shopping center.

Patronage on this route showed a slow but steady growth until the unusually hot July weather. The revenue is meeting a little less than half the operating cost. We anticipate that the advent of Fall shopping patterns may substantially increase ridership on this new service.

PROJECT 1

	Total Revenue per month	Total Operating Cost per month	Average No. of Passengers per day
March (11-31)	234.28	\$ 797.24	88
April	480.01	1,149.05	131
May	521.89	1,156.29	131
June	536.33	1,117.20	136
July	491.51	1,161.59	93

2. *Projects 2 and 3* — Both of these projects involved new service from Fitchburg to the residential suburbs of Ashby (2) and Lunenburg - Townsend (3). These experimental routes were concluded, effective September 1, 1963, as it was evident that little additional information could be gained from their continued operation.

Surveys conducted on these routes indicate that most people drive their own car or ride in car pools from the towns served to various destinations in the metropolitan Fitchburg area. In addition, very few people used the service as a connecting line in journeys to points on the Boston and Maine Railroad.

Project 2

	Total Revenue per month	Total Operating Cost per month	Average No. of Passengers per day
March (11-31)	\$ 209.30	\$ 1,711.26	40
April	300.13	2,471.83	34
May	286.81	2,471.83	36
June	235.99	2,376.76	31
July	258.11	2,471.83	33

Project 3

March (11-31)	\$ 101.30	\$ 729.68	23
April	192.77	1,053.98	28
May	169.06	1,053.98	25
June	130.25	1,013.44	21
July	153.58	1,053.98	24

3. *Project 4* — is new service to and from various industrial plants in the Greater Fitchburg area. Approximately 3,000 people are employed in these plants (Crocker Burbank Company, Asher Pants Company, Hedstrom Union Company and Alcon Plastics). The revenues in this experiment are meeting about one-half the operating costs.

Project 4

	Total Revenue per month	Total Operating Cost per month	Average No. of Passengers per day
March (11-31)	\$ 55.77	\$141.88	23
April	122.26	209.15	30
May	101.07	209.15	22
June	98.42	190.14	28
July	99.99	209.15	25

4. *Project 5* — This is increased service from Fitchburg to Leominster and return. This test involves a virtual doubling of the frequency between 1:00 p.m. and 6:00 p.m. on the busiest route of Fitchburg and Leominster operation.

5. *Project 6* — This is an extension of the above route. There is no additional charge for travel on the extension for passengers traveling from downtown Fitchburg and Leominster.

TABLE 15.
FITCHBURG AND LEOMINSTER STREET RAILWAY COMPANY
COMPARISON OF 1962 AND 1963 REVENUE
ON PROJECTS 5 AND 6

	1962	1963	% Change
March (11-31)	\$ 8,536	\$ 8,847	+3.6
April	11,435	12,522	+9.5
May	11,159	12,188	+9.2
June	10,942	10,913	-0.3 *
July	8,755	9,479	+8.3

* Revenue decline in 1963 primarily due to the fact that schools closed earlier in June 1963 than in June 1962; in addition there were fewer weekdays in June, 1963 than in June 1962.

Source: Fitchburg and Leominster Street Railway Company.

C. Berkshire Street Railway Company (Yellow Coach Lines)

This bus demonstration experiment has been transferred from the Berkshire Street Railway Company to Yellow Coach Lines. Figures which have been received for the operation of the Berkshire Company between March 11 (when the experiment began) and May 31 (after which the transfer to Yellow Coach Lines was made) indicate the unique result that the 80 per cent revenue credit customarily retained by the MTC was sufficient to defray the entire cost of many of the experiments, with the result that only very small payments will be made.

The next Progress Report will include the results of the subsequent Yellow Coach Lines operation of these experiments. This next report will also probably include an analysis-in-depth of the history of bus operations in this area.

TABLE 16.
BERKSHIRE STREET RAILWAY COMPANY EXPERIMENTS

Project 1

New	Service—Park Square — Francis Plaza Housing Development (6 trips per day — Less than 2 miles per trip)	March (11-31)		
		April	May	
Bus miles		180.0	233.33	141.67
Cost		\$88.57	\$114.81	\$ 69.71
Revenue		\$46.57	\$135.11	\$ 77.42
% of Cost Recovered		53%	118%	111%
Number of Days		18	24	16
Approx. Passengers per day		13	28	24

Project 2

Increased	Service—Park Sq. — Wahconah Hts. & Wilson Park Housing Development (5 new trips per day added to 12 existing, 6 miles per trip. Also extension of existing trips).	March (11-31)		
		April	May	
Bus miles		540	522	252
Increased Cost		\$265.72	\$256.86	\$124.00
Increased Revenue		\$835.17	\$784.55	\$345.92
% of Increased Cost Recovered		312%	306%	280%
Number of Days		18	24	17
Approx. Add'l Pass. Per day		200	140	90

NOTE: Irregularity of service led to reduction in both cost and patronage.

Project 3

Increased	Service—Park Sq. — Green Ridge Housing Development (5 new trips per day added to existing 3.6.5 miles per trip)	March (11-31)		
		April	May	
Bus miles		585	767	487.5
Increased Cost		\$287.86	\$377.42	\$239.88
Increased Revenue		\$503.37	\$597.72	\$364.18
% of Increased Cost Recovered		175%	158%	152%
Number of Days		18	24	17
Approx. Add'l Pass. Per day		120	110	90

NOTE: Irregularity of service led to reduction in both cost and patronage.

Project 4

Increased	Service—North Adams — Adams and North Adams — Williamstown (10 new trips per day. 26.4 miles per trip)	March (11-31)		
		April	May	
Bus miles		4752	5775	1601
Increased Cost		\$2338.32	\$2841.70	\$ 787.80
Increased Revenue		\$1850.85	\$2241.30	\$1157.62
% of Increased Cost Recovered		79%	79%	147%
Number of Days		18	24	9

Source: MTC staff based on company invoices

D. Johnson Bus Lines (The Short Line, Inc.)

The Johnson Bus Lines experiment connecting suburbs southwest of Boston to the central city began on January 2, 1963. The counts on trips inbound to Boston from Milford have shown relatively little seasonal decline right through the month of July, although there is much week-to-week fluctuation in the patronage coming from the communities nearer to Boston.

Results of the experiment have been moderately encouraging. The West Medway passenger counts which measure passenger volumes from the Milford-Medway area show a small but steady growth continuing into the summer. As of July, 1963, the increase in passenger revenues over July, 1962 covered about 25 per cent of the fully allocated cost of the experimental increased service.

TABLE 17.
JOHNSON BUS LINES
JULY REVENUE 1962 vs. 1963

Period	1962	1963	Increase	% Increase
January	\$8,485.	\$ 9,851	\$1,366	+16%
February	7,269	8,999	1,730	+24
March	8,736	10,130	1,394	+16
April	8,742	10,250	1,507	+17
May	8,532	10,096	1,564	+18.3
June	8,094	9,415	1,321	+16.3

Source: Johnson Bus Lines

E. Massachusetts Northeastern Transportation Company

The Massachusetts Northeastern Transportation Company experiment commenced on March 11, 1963. Under this experiment, the Company operates five bus routes, two from the large Western Electric Plant in North Andover, one to downtown Haverhill, one to Amesbury; two local routes in Newburyport (pop. 14,000) and one between Amesbury and Newburyport.

The routes are as follows:

1. PROJECTS 1 AND 2 — New service from Haverhill to the Western Electric Plant in North Andover and new service from Amesbury to the Western Electric Plant in North Andover, both ran Monday through Friday only. Response

on these routes was limited: additional revenues received in July covered only 9.2 per cent of the costs of the added service. Consequently, with the approval of the HHFA Office of Transportation both routes were concluded on September 1.

MTC staff conducted passenger interviews and discussions with supervisory and union personnel at the Western Electric Plant to determine the reasons for the negligible results. Invariably, the answer received was that car pools were far cheaper and more convenient than the experimental bus service.

It seems probable, therefore, that a large suburban industrial plant with excellent parking facilities and easy access does not provide the market to support this type of public transportation service.

2. PROJECT 3 — This project involved extension of an existing route in Newburyport to a new housing area composed of both single family moderate income dwellings and apartment units for the elderly. In addition two daily round-trips were added to the schedule to provide hourly frequency on the route.

Month to month results of this experiment have varied greatly, primarily because of fluctuations in ridership by school children. The level of business on the entire route has increased, however, and some new traffic generated on the route extension. The advent of fall travel patterns will greatly aid in the overall evaluation of this route.

In July the increased revenue covered 70 per cent of the cost of the service improvements.

3. PROJECTS 4 AND 5 — Project 4 was a new local service in Newburyport and Project 5 was an increased service between Amesbury and Newburyport. These two projects are reported as a unit because for a time the two routes were covered by the same bus preventing a detailed breakdown of passengers and revenue. The results are combined in this report for consistency.

Because the response to the new local service on State Street, Newburyport (Project 4) was limited, with the approval of the HHFA Office of Transportation, the experiment was concluded on September 1, 1963. The results probably indicate that new bus routes in older residential areas in a small city (1960 pop. 14,000) find it difficult to attract substantial numbers of new riders. Residents who have adopted auto transportation for their everyday needs are apparently reluctant to utilize a new bus service.

The service added to the Amesbury-Newburyport line (Project 5) was designed to provide convenient connections with Boston and Maine trains to and from Boston, and to provide a more attractive frequency between the terminal points. Results to date indicate that the increased frequency has resulted in a modest increase in patronage but few passengers have taken advantage of the rail connections. The increased revenue covered on the Amesbury-Newburyport route covered 21 per cent of the cost of the increased service.

Project 5, as well as the other Massachusetts Northeastern experiments, started in the middle of March, the month when local transit lines start to experience their normal seasonal decline in traffic. The MTC staff recommended that Projects 3 and 5 should be continued into the fall since they have displayed growth in passenger volume, contrary to the usual year-to-year trend.

TABLE 18.

**PASSENGER TRENDS
MASSACHUSETTS NORTHEASTERN TRANSPORTATION COMPANY
BY PROJECT**

March 11, 1963 through July 31, 1963

Projects 1 and 2

Period	1962	1963	% Change
3/ 11-3/31	\$341.	\$349.	+ 2.3
4/ 1-4/30	503.	502.	N.C.
5/ 1-5/31	490.	431.	-12.0
6/ 1-6/30	465.	386.	-17.0
7/ 1-7/31*	193.	246.	+27.5

*Service did not operate weeks of July 15 and July 22, 1963 — Plant on vacation.

Project 3

Period	1962	1963	% Change
3/ 11-3/31	\$247.	\$271.	+ 9.7
4/ 1-4/30	285.	401.	+40.7
5/ 1-5/31	345.	373.	+ 8.1
6/ 1-6/30	266.	289.	+ 8.6
7/ 1-7/31	148.	274.	+85.1

Projects 4 and 5

Period	1962	1963	% Change
3/ 11-3/31	\$ 793.	\$ 888.	+12.0
4/ 1-4/30	1,319	1,584.	+21.0
5/ 1-5/31	1,282.	1,601.	+24.9
6/ 1-6/30	1,271.	1,504.	+18.3
7/ 1-7/31	1,110	1,304.	+17.5

Source: Mass. Northeastern Transportation Company

F. Barre Bus Company

The Barre Bus Company experiment (the smallest in the entire project) which began on July 1, 1963, consists of an improved service by adding one bus to (1) link suburban Rutland and Holden with downtown Worcester; (2) improve service to the Veterans Hospital and the Massachusetts State Sanitarium in Rutland. Results for the first four weeks of the experiment, compared with the same period in 1962 were minimal. A fare increase effective in April, 1963 undoubtedly off-set some of the effect of this increased service. The MTC field staff has scheduled interviews to provide the material necessary for an in-depth analysis of this experiment.

TABLE 19.

**PASSENGER TRENDS
BARRE BUS COMPANY, JULY 1962 AND JULY 1963**

Period	1962		1963		1962-1963 % Change	
	Revenue	Passenger	Revenue	Passenger	Rev. Pass.	
7/ 1-7/6	\$276.	837	\$195.	705	-29.3 %	-15.8 %
7/ 7-7/13	274.	919	336.	896	+22.6	- 2.5
7/14-7/20	255.	963	270.	968	+ 5.9	+ 0.5
7/21-7/28	242.	960	225.	768	-20.0	- 7.0
	\$1,047	3,679	\$1,026.	3,337		

Note:

Revenue has no direct relationship to passengers as ticket book sales are recorded as revenue on the day sold, not the day used.

Source: Barre Bus Company.

G. Brush Hill Transportation Company

The Brush Hill Transportation Company experiment began on April 22, 1963, providing a feeder service between

LAND USES IN MERRIMAC VALLEY

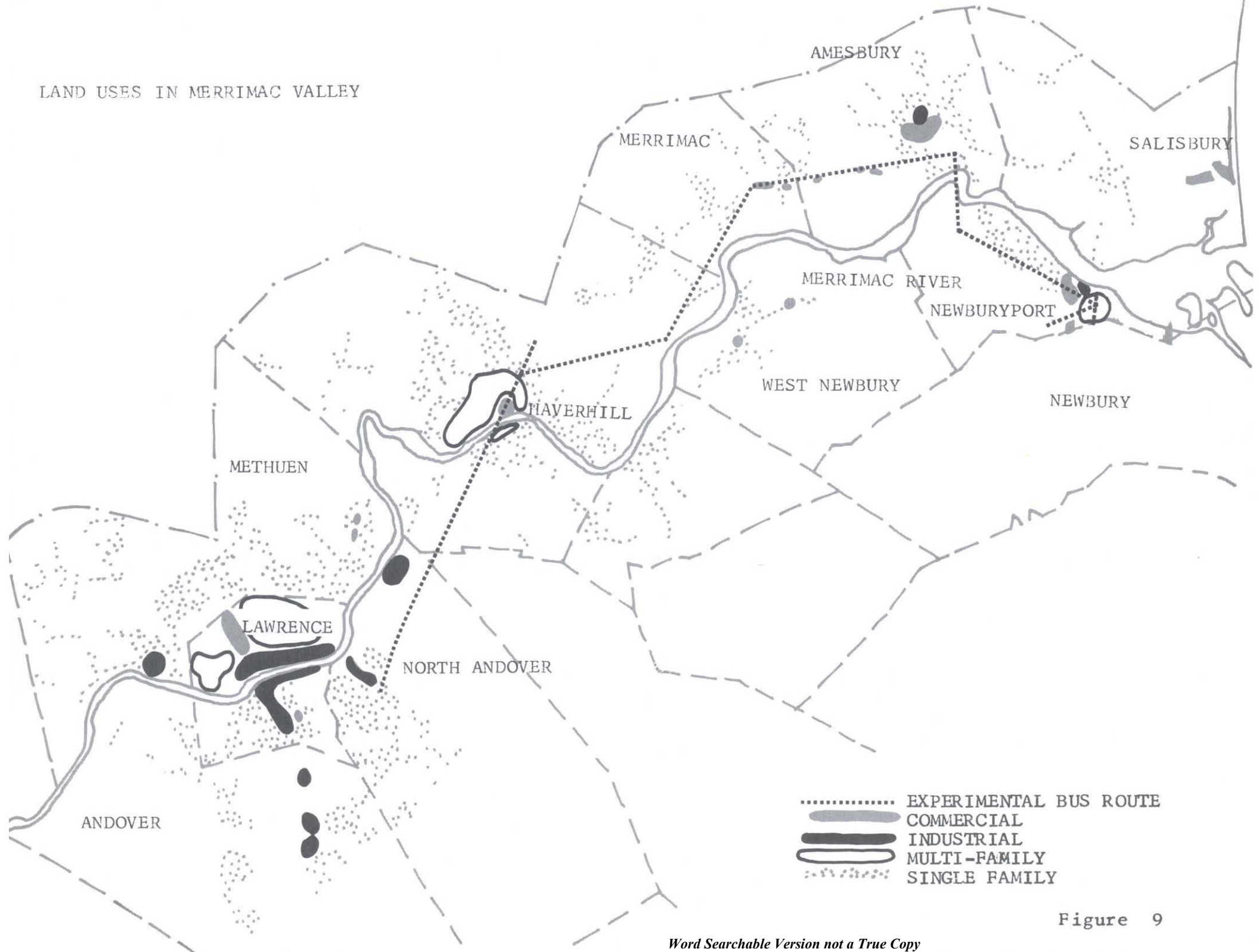


Figure 9

Stoughton and the Route 128 Station of the New Haven Railroad in Canton.

Under this demonstration experiment, residents use either the Route 128 New Haven Railroad Station in Canton or a bus service to the MTA terminal in Mattapan; formerly only the latter service existed. Results to date indicate only a limited response to the new Route 128 connector service, although an upward trend in passenger volumes has been evident.

The market is still clearly dominated by the bus-transit alternative: During the month of May, the rail feeder bus service yielded only \$60 in fares, while the Stoughton-Mattapan bus line returned \$2,874 (as against \$2,830 in 1962).

Results for the first sixteen weeks of operation shown in four-week intervals are as follows

TABLE 20
PASSENGER TRENDS ON ROUTE 128 BUS
CONNECTOR SERVICE, BRUSH HILL TRANSPORTATION COMPANY

April 22, 1963 through August 10, 1963

4/22-5/18	155
5/20-6/15	254
6/17-7/13	339
7/15-8/10	379

Source: Brush Hill Transportation Company.

H. Service Bus Line, Inc.

The Service Bus Line experiment began on December 17, 1962. This experiment, a new 1.5 mile service, extends public transportation to a section of the metropolitan area formerly served by a slow bus service involving two changes and extra fares.

After an encouraging start, passenger volumes declined substantially and then recovered some of their lost ground. Since mid-March, monthly passenger revenues have remained at about 60 per cent of the fully allocated cost of operating the new service.

TABLE 21.
PASSENGER TRENDS
SERVICE BUS LINE, INC.
FOUR-WEEK INTERVALS

December 17, 1962 through July 20, 1963

12 / 17-1 / 5 ¹ *	3689
1 / 7-2 / 7	7680
2 / 4-3 / 2 *	7245
3 / 4-3 / 30	8549
4 / 1-4 / 27	8973
4 / 29-5 / 25	8964
5 / 27-6 / 22 *	8580 ½
6 / 24-7 / 20 *	8015

Weekly count of passengers carried between Revere Beach Station and Linden Square both directions (new service).

*Excluding holidays — December 25, January 1, February 22, May 30 and July 4th.

1—Three weeks only.

Source: Service Bus Company — daily counts taken from drivers' daily reports.

I. The Short Line, Inc. (Uxbridge-Worcester)

A demonstration project involving increased service on a portion of the Short Line route between Uxbridge and Worcester began on July 15th. Six new round-trips on week days and five new round-trips on Saturdays were added to provide hourly service between the two points.

Worcester (1960 population, 187,000) is the major location of employment, shopping and schools for the communities being served by this bus route. These communities include Millbury, Soudersville, Farnumsville, Northbridge, Whitinsville, Uxbridge and Worcester.

This experiment proposes to test the acceptability of improved public transportation from satellite communities to a large industrialized city.

J. Saugus Transit Company

HHFA Office of Transportation has approved a demonstration project to be conducted by the Saugus Transit Company involving a linkage to the Service Bus Line's Revere experiment. The latter connects local dormitory suburbs to an MTA station. Service under this experiment will begin when approval for this new route is granted by the Massachusetts Department of Public Utilities.

K. Worcester Bus Company

Having waited several months for the company to put its internal affairs in order to proceed with its approved demonstration project — and with no resolution in sight — the MTC, with the consent of the Office of Transportation of the HHFA, cancelled out its plans for this experiment and substituted a similar one to be operated by The Short Line. The Uxbridge-Worcester demonstration with the latter company provides a service between city and suburbs in the Worcester area and is accordingly of the same type as the demonstration experiment originally proposed with Worcester Bus Company.

L. Cost Study of Massachusetts Bus Companies

As part of the MTC analysis of the operations, management and problems of the bus companies in Massachusetts, a comparative cost study of twelve carriers has been made by MTC and its consultants.

The analysis pointed out several significant fiscal and management characteristics which provide guidelines to assist in understanding some of the key problems confronting the bus companies. Among the salient findings were the following.

1. Drivers' wages are the largest expense for all 12 bus companies; but wages per hour vary widely from a low of \$1.02 in one company to \$2.32.

2. Bus companies have failed to sell their product to the public, in a market-oriented economy. It is noteworthy that in 1962 the largest Massachusetts bus company allocated no funds for advertising, and most companies are spending less than one-half per cent of their gross revenues for advertising. In contrast, many of the nation's thriving manufacturing and service corporations spend as much as five per cent of their gross revenues for advertising purposes.
3. Bus companies enjoy few economies of scale. They have relatively small fixed capital assets. The diversification possible to other types of business operations is not open to them; their only major source of increased profits is larger passenger volume reflected at the fare box.

Variations in the amount of bus miles operated do not adequately explain the wide differences in operating expenses of the twelve companies. In fact, there is considerable variation in the per mile cost of operation from company to company. To determine the sources of these variations, analyses of the following accounts were made: drivers' wages; maintenance; transportation; depreciation; general and administrative; advertising; commissions; road and station; insurance (other than liability) and property damage; taxes and rents.

The first five accounts are those directly related to providing transportation services: vehicles, fuel, drivers and management-control. Generally, they comprise 85 per cent or more of total expenses. It is within these accounts that the major variations of costs are found.

Generally the larger companies offer high hourly rates, and drivers' wages constitute a larger proportion of total expenses. The smaller companies have a higher productivity; they get more mileage per driver hour. This gives the smaller companies a considerable cost advantage over the larger companies. This item is the largest single factor in cost differentials per mile for the companies.

1. *Maintenance, Transportation and Depreciation*

These accounts are grouped together in order to counterbalance or eliminate any possible "trade-offs" among them.

2. *General and Administrative Expenses*

This cost is generally a control cost for all other costs and in this case there are definite economies of scale. In theory, larger companies are not required to spend as high a proportion of revenues for administration and general expenses for additional services as a smaller company.

3. *Public Liability and Property Damage Insurance Expenses*

This account is subject to some discretion if a company wishes to go beyond minimum insurance requirements. Larger companies, however, may post bond for their insurance, up to a point, and thus get larger amounts of insurance at relatively low cost. There is also some amount of trade-off possible with the General Administrative and Legal category. The cost of this latter may be reduced if insurance coverage is sufficiently high.

Though basically service organizations, the bus companies are classified as a public utility and are regulated by state and federal agencies. However, in comparison with other public utilities, bus companies have several significant differences, particularly related to their fiscal structure and operations. Bus companies have a much larger ratio of capital assets to revenue as compared to revenue of other utility firms. They are "small businesses" compared to other public utilities and, unlike other utilities, they are not monopolies. Electric, gas and water users in any one locale have no alternative in purchasing service from the local public utility firm, but bus companies face stiff competition from other forms of transportation, including the private automobile.

Travelers in any area can choose between several alternate modes of transportation. This competition, especially from automobiles, has adversely affected bus companies, particularly in suburban areas. It is likely that even with excellent management, strong financing and favorable government regulatory policies, bus companies could probably not have captured much of the suburban market. However, the lack of effective merchandising of their product undoubtedly contributed to their loss of passenger volume. Certainly, bus companies are now operating at only a fraction of their capacity and considerably more passengers could be accommodated without adding vehicles.

TABLE 22. SUMMARY OF AVERAGE 1960-1961 COSTS OF SELECTED MASSACHUSETTS BUS COMPANIES

All costs in thousands unless noted otherwise.

BUS COMPANY	Annual Expense	Bus Miles	Cost Per Mile	Driver's Wage/Hr.	Total Driver's Wages	Maintenance	General and Administrative Costs	Advertising Only	Commissions and Advertising
Eastern Mass. St. Rwy.	\$6,912	11,211	61.65¢	\$2.17	\$2,868	\$1,079	\$1,264	\$4.0	\$ 38
Per cent of total expenses					41.5	15.6	18.3		0.5
Cost per mile (cents)					25.6	9.6	11.3		0.3
Worcester	2,559	4,137	61.86	2.15	1,076	385	377	n.a.	16
Per cent of total expenses					42.0	15.0	14.7		0.6
Cost per mile (cents)					26.0	9.3	9.1		0.4
Springfield	2,540	3,900*	65.00	2.26	1,115	395	407	n.a.	16
Per cent of total expenses					44.0	15.6	16.0		0.6
Cost per mile (cents)					28.6	10.1	10.4		0.4
Middlesex	1,695	3,300*	51.50	2.12	782	228	225	n.a.	10
Per cent of total expenses					46.1	13.4	13.3		0.6
Cost per mile (cents)					23.7	6.9	6.8		0.3
Boston-Worcester	955	2,030*	47.00	2.32	297	207	211	n.a.	4
Per cent of total expenses					31.07	21.7	22.1		0.4
Cost per mile (cents)					14.6	10.2	10.4		0.2
Fitchburg-Leominster	554	916	60.48	1.75	191	121	119	2.0	16
Per cent of total expenses					34.4	21.8	21.5		2.9
Cost per mile (cents)					20.8	13.2	13.0		1.7
Johnson Bus Line	403	907	44.43	1.88	121	62	62	5.0	12
Per cent of total expenses					30.0	15.4	15.4		3.0
Cost per mile (cents)					13.3	6.8	6.8		1.3

Mass. Northeastern	372	909	40.92	1.02	123	85	49	n.a.	3
Per cent of total expenses					33.1	22.0	13.2		0.8
Cost per mile (cents)					13.5	9.3	5.4		0.3
Berkshire St. Rwy. Co.	354	700	50.57	2.03	130	53	89	5.0	2
Per cent of total expenses					36.7	15.0	25.1		0.6
Cost per mile (cents)					18.6	7.6	12.7		0.3
Plymouth-Brockton	324	820	39.51	1.73	90	74	43	5.0	16
Per cent of total expenses					27.7	22.8	13.3		4.9
Cost per mile (cents)					11.0	9.0	5.2		1.9
Brush Hill Trans. Co.	273	605	45.12	1.39	77	58	28	1.5	2
Per cent of total expenses					28.2	21.2	10.2		0.7
Cost per mile (cents)					12.7	9.6	4.6		0.3
Service Bus Lines	195	507	38.46	n / a	71	43	23	n.a.	2
Per cent of total expenses					36.4	22.0	11.8		1.0
Cost per mile (cents)					14.0	8.5	4.5		0.4
Lynnfield	164	355	46.19	1.37	62	26	19	0.0	1
Per cent of total expenses					37.8	15.8	11.6		0.6
Cost per mile (cents)					17.5	7.3	5.3		0.3
Range of Percentages					46-28	13.4-22.8	10.2-25.1		0.4-4.9
Ranges of Cost per mile				1.02-2.32	11.0-26.0	13.2- 6.8	4.6-13.0		0.3-1.9

*Estimate by interpolation

Source: Systems Analysis and Research Corporation

Chapter VI.

COMMUNITY RELATIONS

In addition to maintaining close cooperating relationships with the carriers and, through them, with the public and communities they serve, the MTC has continued to pursue an extensive community relations and informational program.

By September, 1963, over 80 press releases had been issued by the Commission. In the period between the third and fourth progress reports the MTC staff conducted several meetings with various town officials and the local press in over a dozen communities.

Two thirds of these meetings were held in communities to the north of Boston in territory served by the Boston and Maine Railroad and private bus companies. Some of these meetings pointed to the emergence of a North Shore transportation problem focused on highway access to Interstate 95.

Other sessions were held in New Haven rail territory to the south of Boston and in the city of Fall River where a new bus experiment with the Eastern Massachusetts Street Railway Company was initiated in July.

Chapter VII.

MTC TECHNICAL CONFERENCE

On July 17, 1963 the MTC conducted a technical conference with HHFA officials, representatives of carriers participating in the experiments, planning project staff and others. Materials on the progress and problems of the demonstration program were presented by MTC staff and consultants.

The effects of the conference will be manifest in subsequent progress reports.

A list of those in attendance follows:

Commissioners, MTC

Thomas F. Carty, Commissioner, Traffic and Parking Commission of the City of Boston, Ex Officio Member.
 Robert G. Davidson, Public Member
 Joseph R. Dragone, Public Member
 Michael J. Gormley, Public Member
 Robert G. Henderson, Chairman
 Patrick Gilbert Sullivan, representing Commissioner Robert F. Murphy, Metropolitan District Commission, Ex Officio Member

Staff, MTC

Dr. Joseph F. Maloney, Executive Director
 Ernest K. Bloss
 Stephen R. Brockman
 John J. Coffey
 Edward Dana, Special Consultant (former General Manager, MTA)
 Gordon H. Fay
 William E. Griswold
 Edward L. Hefron
 Lloyd R. Higgs
 Philip D. Jonas, Special Consultant
 Thomas E. Kristopeit
 Dr. Melvin R. Levin
 Ann Wood

Representatives of Housing and Home Finance Agency

John Nolen, Jr.
 Terry J. Owens
 Merlin Smelker

Representatives of Public Agencies

David M. Brackman, Department of Public Utilities
 William R. McGrath, Boston Redevelopment Authority

Representatives of Consultants to MTC

Guy Chamberlin, McKinsey & Company, Inc.
 R. S. Hall, McKinsey & Company, Inc.
 J. Richard Tomlinson, McKinsey & Company, Inc.
 Herbert E. Bixler, Systems Analysis & Research Corp.
 John Moore, Systems Analysis & Research Corp.
 William R. Pokross, Systems Analysis & Research Corp.

Representatives of Railroads

Herbert H. Harwood, New York Central
 C. H. Goodwin, New York, New Haven and Hartford Railroad
 S. B. Hitchings, Boston & Maine Railroad
 F. R. Spofford, Boston & Maine Railroad

Representatives of Bus Companies

George Anzuoni, Plymouth & Brockton St. Railway Co.
 John Anzuoni, Service Bus Line
 Henry Bowen, Fitchburg & Leominster St. Railway Co.
 Charles K. Gibson, Eastern Mass. Street Railway Co.
 E. M. Kahoe, Eastern Mass. Street Railway Co.
 James McCusker, Service Bus Line
 J. Arthur Ollis, Mass. Northeastern Transportation Co.
 Peter C. Snell, The Short Line

Representatives of Metropolitan Transit Authority

J. Wiliard Burditt	Joseph F. McDonald
William J. Collins	Michael J. Powell
Joseph J. Cass	Joseph W. Shone
J. A. Emerson	C. A. Waelde
William J. Fitzsimons	

Staff, Boston Regional Planning Project

Richard S. Bolan
 Donald M. Graham
 Robert Keith

EXPERIMENTAL ROUTE No. 8

**FRESH POND DRIVE-IN
TO
HARVARD SQUARE**

<p><u>LEAVE</u> Fresh Pond Drive-in</p> <p>6:30 AM 6:40 6:50 7:00 Every 5 min. to 8:50 AM Every 10 min. to 4:10 PM Every 5 min. to 5:40 5:50 6:00 PM</p>	<p>NON-STOP EXPRESS</p> <p>(Fare Fifteen Cents)</p> <p>Does Not Operate Saturday, Sunday, or Holidays.</p>	<p><u>LEAVE</u> Harvard Square</p> <p>6:39 AM 6:49 6:59 7:09 Every 5 min. to 8:39 8:54 8:59 9:08 AM Every 10 min. to 3:28 PM 3:40 3:50 Every 5 min. to 5:50 6:00 6:10 PM</p>
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SCHEDULE EFFECTIVE SEPT. 3, 1963

The new bus service shown herein is made possible through the cooperation of the U. S. Housing and Home Finance Agency and the Commonwealth of Massachusetts in a mass transportation demonstration experiment.

PARK AND RIDE INFORMATION

- PARKING HOURS:** 6:20 AM to 6:30 PM — Express bus service to Harvard Square. Schedule on reverse side.
- COST:** Driver's Daytime Parking and Round Trip Bus Fare.
Combination Ticket 55¢
Additional Passengers - one way 15¢
- AFTER HOURS:** Take any bus marked "Belmont" or "Park Circle" and get off at Fresh Pond Rotary.
- LATE PARKING FEE:** Those claiming their cars after 6:30 PM will be charged the regular theater admission price for that night's performance, for each person entering the theater, and accordingly, they will be free to remain during the movie.
- UNCLAIMED CARS:** The Fresh Pond Drive-in Theater reserves the right to remove, at owner's expense, cars left parked at the theater for an unreasonable length of time.

MTA - MTC

EXPERIMENTAL ROUTE 9 LOCAL FARE BUS

BOSTON COLLEGE — KENMORE SQ.

During the hours shown below, ten cent local fares will not be accepted on the Commonwealth Avenue streetcars.

<p><u>LEAVE</u> BOSTON COLLEGE</p> <p>7:20 AM Every 5 min. to 9:30 AM</p>	<p><u>SCHEDULE</u> (Running time 20 min.) Does Not Operate Saturday, Sunday, or Holidays.</p>	<p><u>LEAVE</u> KENMORE</p> <p>7:00 AM Every 5 min. to 9:10 AM</p>
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Outside of rush hours, when this local fare bus does not operate, local fares will be accepted on the Boston College-Commonwealth streetcar line.

<p>1:52 PM Every 5 min. to 6:17 PM</p>	<p>Does Not Operate Saturday, Sunday, or Holidays.</p>	<p>1:30 PM Every 5 min. to 5:55 PM</p>
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SCHEDULE EFFECTIVE SEPT. 3, 1963

Route from Boston College Campus via Commonwealth Avenue to Kenmore Square.

The new bus service shown herein is made possible through the cooperation of the U. S. Housing and Home Finance Agency and the Commonwealth of Massachusetts in a mass transportation demonstration experiment.

MTA - MTC

EXPERIMENTAL ROUTE No. 11

**REVERE DRIVE-IN THEATER
TO HAYMARKET
EXPRESS BUS
via NORTHEAST EXPRESSWAY**

<p><u>LEAVE</u> Revere Drive-In</p> <p>6:30 AM 6:40 6:50 7:00 7:10 Every 5 min. to 8:40 AM Every 20 min. to 4:00 PM 4:10 4:20 Every 5 min. to 6:30 PM</p>	<p>Schedule Effective Sept. 3 1963</p> <p>Does Not Operate Saturday, Sunday, or Holidays.</p>	<p><u>LEAVE</u> Haymarket Square</p> <p>6:45 AM 6:55 7:05 7:15 7:25 Every 5 min. to 8:15 8:25 8:35 8:45 8:55 AM Every 20 min. to 3:35 PM 3:45 3:55 Every 5 min. to 6:45 PM</p>
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