National Transportation Library

Section 508 and Accessibility Compliance

The National Transportation Library (NTL) both links to and collects electronic documents in a variety of formats from a variety of sources. The NTL makes every effort to ensure that the documents it collects are accessible to all persons in accordance with Section 508 of the Rehabilitation Act Amendments of 1998 (29 USC 794d), however, the NTL, as a library and digital repository, collects documents it does not create, and is not responsible for the content or form of documents created by third parties. Since June 21, 2001, all electronic documents developed, procured, maintained or used by the federal government are required to comply with the requirements of Section 508.

If you encounter problems when accessing our collection, please let us know by writing to librarian@bts.gov or by contacting us at (800) 853-1351. Telephone assistance is available 9AM to 6:30PM Eastern Time, 5 days a week (except Federal holidays). We will attempt to provide the information you need or, if possible, to help you obtain the information in an alternate format. Additionally, the NTL staff can provide assistance by reading documents, facilitate access to specialists with further technical information, and when requested, submit the documents or parts of documents for further conversion.

Document Transcriptions

In an effort to preserve and provide access to older documents, the NTL has chosen to selectively transcribe printed documents into electronic format. This has been achieved by making an OCR (optical character recognition) scan of a printed copy. Transcriptions have been proofed and compared to the originals, but these are NOT exact copies of the official, final documents. Variations in fonts, line spacing, and other typographical elements will differ from the original. All transcribed documents are noted as "Not a True Copy."

The NTL Web site provides access to a graphical representation of certain documents. Thus, if you have any questions or comments regarding our transcription of a document's text, please contact the NTL at librarian@bts.gov. If you have any comment regarding the content of a document, please contact the author and/or the original publisher.

TRANSIT FACTS

Published by **PUBLIC ADMINISTRATION CLEARING HOUSE**
Through Cooperation of American Transit Association

- CONTENTS -

- CONTENTS -

- CONTENTS -

PART I - INDUSTRY STATISTICS

The transit industry herein represented comprises all organized local passenger transportation agencies except taxicab and suburban railroads, sightseeing buses and school buses. Included are (1) local motor bus lines, (2) electric street railways, (3) elevated and subway lines, (4) interurban electric railways, and (5) trolley coach lines.

TABLE I

TRENDS IN TRANSIT PASSENGER VOLUME, VEHICLE MILEAGE OPERATED AND PASSENGER EQUIPMENT OWNED BY MODES OF SERVICE - Years 1926, 1933, 1940, 1946 and 1954

Calendar Year	RAILWAY			Trolley Coach	Motor Bus	GRAND TOTAL	
	Surface	Subway and Elevated	Total			Number	Index (1940=100)
			REVENUE PASSENGERS (MILLIONS)				
1926	9,774.7	2,333.3	12,108.0	-	1,777.1	13,885.1	132
1933	5,107.7	2,147.2	7,254.9	35.1	1,815,6	9,105.6	87
1940	4,182.5	2,281.9	6,464.4	419.2	3,620.1	10,503.7	100
1946	6,769.0	2,685.0	9,454.0	1,050.0	8,615.0	19,119.0	182
1954*	1,071.3	1,780.0	2,851.3	1,012.0	5,990.0	9,853.3	94
			REVENUE VEHICLE MILES (MILLIONS)				
1926	1,821.9	398.1	2,220.0	-	449.7	2,669.7	103
1933	1,165.7	427.7	1,593.4	10.5	665.1	2,259.0	87
1940	844.7	470.8	1,315.5	86.0	1,194.5	2,596.0	100
1946	894.5	458.9	1,353.4	143.7	1,807.2	3,304.3	127
1954*	213.0	376.2	589.2	196.9	1,746.0	2,532.1	98
			PASSENGER EQUIPMENT				
1926	62,857	8,909	71,766	-	14,400	86,166	114
1933	47,700	10,424	58,124	310	20,200	78,634	104
1940	26,630	11,032	37,662	2,802	35,000	75,464	100
1946	24,050	9,429	33,479	3,916	52,450	89,845	119
1954*	6,600	9,160	15,760	6,650	53,590	76,000	101

*Preliminary.

SOURCE: American Transit Association.

TABLE II
TRENDS IN PASSENGER CAR REGISTRATIONS, URBAN POPULATION,
AND REVENUE PASSENGERS CARRIED ON TRANSIT LINES
1926 - 1954

Year	Passenger Car Registrations (Millions) (a)	Urban Population (Millions) (b)	Revenue Transit Passengers Carried (Millions) (c)	Revenue Transit Rides per Capita of Urban Population		Indexes (1940=100)		
				Actual	Index (1940=100)	Passenger Car Registration	Urban Population	Revenue Transit Passengers
1926	19.2	63.0	13,885	220	156	71	85	132
1933	20.6	70.6	9,106	129	91	75	95	87
1940	27.2	74.4	10,504	141	100	100	100	100
1946	27.8	82.8	19,119	231	164	102	111	182
1954	48.0	92.0	9,853	107	76	176	124	94

(a) Source: Automotive Industries, 37th Annual Statistical Issue (3/15/55 pg. 105).
(b) Data for the year 1954 estimated by A.T.A. Other years' data was supplied by the U.S. Dept. of Commerce, Bureau of the Census.
(c) American Transit Association.

TABLE III
OPERATING PAY ROLL COST IN PER CENT OF GROSS REVENUE (NET SALES)
URBAN TRANSIT IN RELATION TO OTHER PUBLIC UTILITIES
AND LEADING INDUSTRIAL CORPORATIONS IN THE UNITED STATES
CALENDAR YEAR 1953

PUBLIC UTILITY OR INDUSTRY GROUP	SALARIES & WAGES AS % OF GROSS REVENUES - 1953	PUBLIC UTILITY OR INDUSTRY GROUP	SALARIES & WAGES AS % OF GROSS REVENUES - 1953
1. Telegraph (a)	63.8	20. Tires & Rubber (d)	29.6
2. URBAN TRANSIT (b)	60.4	21. Building (d)	29.5
3. Office Equipment (d)	50.9	22. Printing and Publishing (d)	29.1
4. Telephone (c)	50.0	23. Rail Equipment (d)	27.7
5. Class I Railroads (e)	46.3	24. Metal Fabricating (d)	27.5
6. Class I Intercity Motor Buses (e)	42.6	25. Containers - Metal & Glass (d)	27.3
7. Coal (d)	41.5	26. Chemicals (d)	26.8
8. Air Transport (d)	39.8	27. Automobile and Trucks (d)	25.9
9. Shoes (d)	36.8	28. Paper (d)	25.4
10. Metals - Nonferrous (d)	36.6	29. Baking and Milling (d)	23.2
11. Electrical Products (d)	35.3	30. Brewing (d)	23.0
12. Machinery - Industrial (d)	35.1	31. Gas (Manufactured and Natural)(f)	20.4
13. Auto Parts (d)	35.1	32. Electric Power(Privately-Owned)(g)	19.0
14. Steel & Iron (d)	34.3	33. Food Products (d)	18.7
15. Aircraft (d)	33.0	34. Tobacco (d)	18.7
16. Textiles (d)	32.1	35. Drugs (d)	18.4
17. Household Furnishings (d)	32.1	36. Oil (d)	15.6
18. Machinery - Agricultural (d)	31.8	37. Retail Trade (d)	15.0
19. Water Supply Utilities (h)	(i)30.0	38. Meats and Dairy Products (d)	13.7

Source:
(a)Western Union
(b)American Transit Association.
(c)American Telephone and Telegraph Co.
(d)Standard-Poors "Outlook" July 19, 1954.
(e)Interstate Commerce Commission.
(f)American Gas Association.
(g)Edison Institute.
(h)American Water Works Association.
(i)Based upon industry survey covering 1950.

TABLE IV

TRENDS IN OPERATING REVENUES, EXPENSES, TAXES AND NET OPERATING RESULTS IN THE TRANSIT INDUSTRY

Years 1926, 1933, 1940, 1946 and 1954

Year	Operating Revenue	Operating Expenses (Incl. Depr.)			Net Revenue	All Taxes	Operating Income
		Wages & Salaries	Other Than Wages & Sal.	Total Expense			
	(Thousands)	(Thousands)	(Thousands)	(Thousands)	(Thousands)	(Thousands)	(Thousands)
1926	$1,058,240	$507,955	$319,265	$827,220	$231,020	$66,140	$164,880
1933	642,400	297,000	205,420	502,420	139,980	47,370	92,610
1940	737,000	360,000	238,030	598,030	138,970	62,688	76,282
1946	1,397,100	713,000	416,430	1,129,430	267,670	129,020	138,650
1954*	1,472,000	890,000	449,000	1,339,000	133,000	92,500	40,500
			INDEXES (1940=100)				
1926	144	141	134	138	166	106	216
1933	87	83	86	84	101	76	121
1940	100	100	100	100	100	100	100
1946	190	198	175	189	193	206	182
1954*	200	247	189	224	96	148	53
			PER CENT OF NET REVENUE				
1926	100.00%	48.00%	30.17%	78.17%	-	6.25%	15.58%
1933	100.00	46.23	31.98	78.21	-	7.37	14.42
1940	100.00	48.85	32.29	81.14	-	8.51	10.35
1946	100.00	51.03	29.82	80.85	-	9.23	9.92
1954	100.00	60.46	30.51	90.97	-	6.28	2.75

*Preliminary.

Source: American Transit Association.

TABLE V
Trend of Fares, Operating Costs and Operating Income
Per Revenue Passenger Carried
(Index 1940=100)

Year	Average Fare	Operating Costs		Operating Income
		Expenses Incl. Salaries & Wages	Salaries & Wages	
1940	100	100	100	100
1941	100	100	100	109
1942	101	93	93	135
1943	103	92	90	124
1944	104	95	93	118
1945	104	99	97	108
1946	104	104	109	100
1947	107	119	126	35
1948	122	136	140	35
1949	139	154	161	54
1950	150	165	176	66
1951	164	182	197	49
1952	179	200	219	34
1953	196	218	241	56
1954	214	239	263	57

Source: American Transit Association.

TABLE VI

TRENDS
CONSUMERS' PRICE INDEX - TRANSIT FARES
AUTOMOBILE REGISTRATIONS - TRANSIT REVENUE PASSENGERS
1940-1954
(Index 1940=100)

Year	Consumers' Price Index(a)	Average Fare(b)	Automobile Registration(c)	Revenue Passengers(b)
1940	100.0	100.0	100.0	100.0
1941	105.0	100.4	107.3	107.6
1942	116.4	101.0	101.6	138.1
1943	123.5	103.2	94.9	170.6
1944	125.5	103.6	92.9	178.4
1945	128.4	103.6	93.2	180.7
1946	139.2	104.2	102.2	182.0
1947	159.4	107.3	111.9	174.1
1948	171.6	122.4	121.2	164.8
1949	170.0	139.4	133.0	145.2
1950	171.6	149.9	146.7	131.8
1951	185.3	164.0	154.6	122.6
1952	189.5	179.0	159.0	114.5
1953	191.0	196.3	169.8	105.1
1954	191.7	214.5	176.3	93.8

Source: (a) Based upon data compiled U.S. Bureau of Labor Statistics.
(b) American Transit Association.
(c) Based upon data published in Automotive Industries' 37 Annual Statistical Issue (3/15/55 pg. 105).

TABLE VII

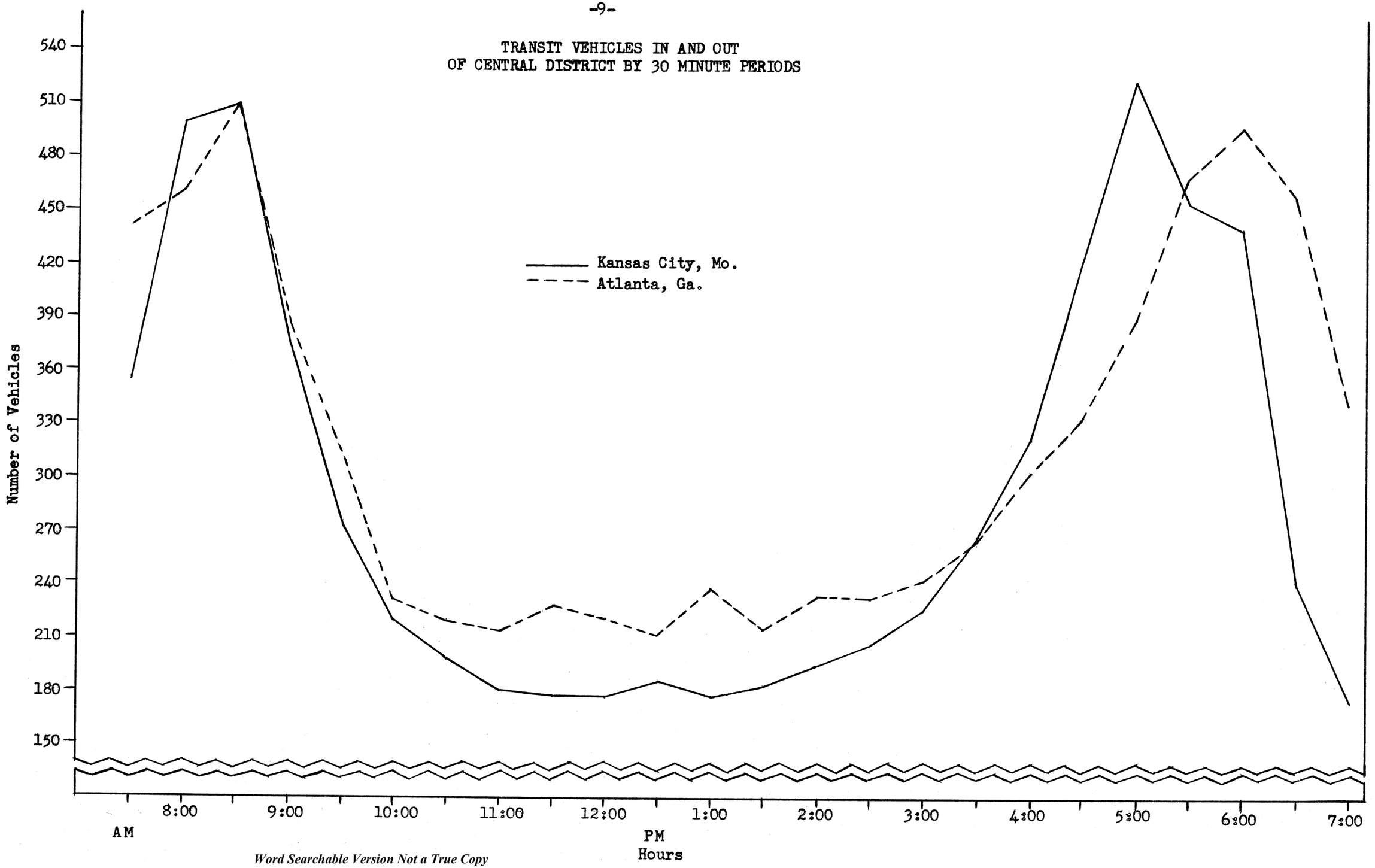
QUANTITY OF TRANSIT SERVICE RELATED TO PASSENGER DEMAND

Year	Revenue Passengers (Millions)	Vehicle Miles (Millions)	Vehicle Miles per 100 Revenue Pass.	
			Number	Index (1940=100)
1926	13,885	2,670	19.2	78
1933	9,106	2,259	24.8	100
1940	10,504	2,596	24.7	100
1946	19,119	3,304	17.3	70
1954	9,853	2,532	25.7	104

Source: American Transit Association

TABLE VIII
TRANSIT VEHICLES AND TRANSIT PASSENGERS
IN AND OUT OF CENTRAL DISTRICT CORDON BY 30-MINUTE PERIODS

30-MIN. PERIOD ENDING	KANSAS CITY, MISSOURI						ATLANTA, GEORGIA					
	TRANSIT PASSENGERS			TRANSIT VEHICLES			TRANSIT PASSENGERS			TRANSIT VEHICLES		
	IN	OUT	TOTAL	IN	OUT	TOTAL	IN	OUT	TOTAL	IN	OUT	TOTAL
7:30 A.M.	6,273	3,285	9,558	189	167	356	9,111	5,463	14,574	211	231	442
8:00	9,109	4,063	13,172	263	237	500	11,137	6,617	17,754	233	228	461
8:30	6,814	2,003	8,817	247	262	509	12,197	5,148	17,345	298	211	509
9:00	4,375	1,363	5,738	178	197	375	8,459	4,342	12,801	232	154	386
9:30	3,846	938	4,784	138	138	276	4,535	2,635	7,170	194	118	312
10:00	2,563	737	3,300	108	111	219	3,240	2,248	5,488	124	107	231
10:30	1,995	1,000	2,995	97	102	199	4,104	1,966	6,070	118	102	220
11:00	1,847	884	2,731	89	91	180	3,240	2,221	5,461	102	112	214
11:30	1,778	984	2,762	92	85	177	3,215	2,499	5,714	117	112	229
12:00	1,655	1,120	2,775	86	90	176	3,356	2,374	5,730	115	106	221
12:30 P.M.	1,765	1,341	3,106	92	93	185	2,943	2,611	5,554	107	105	212
1:00	1,725	1,301	3,026	91	88	179	3,241	3,331	6,572	121	116	237
1:30	1,825	1,330	3,155	95	88	183	2,758	2,976	5,734	111	103	214
2:00	1,742	1,870	3,612	93	102	195	2,517	3,594	6,111	110	123	233
2:30	1,802	2,065	3,867	98	104	202	2,692	3,169	5,861	112	120	232
3:00	1,710	2,259	3,969	113	110	223	2,861	3,610	6,471	119	123	242
3:30	2,476	2,791	5,267	133	129	262	3,360	4,000	7,360	126	135	261
4:00	2,994	3,588	6,582	166	157	323	4,618	4,902	9,520	151	152	303
4:30	3,512	4,838	8,350	230	194	424	4,076	6,018	10,094	152	183	335
5:00	4,369	7,787	12,156	277	244	521	5,305	7,778	13,083	182	208	390
5:30	3,905	9,428	13,333	235	220	455	6,593	12,164	18,757	219	251	470
6:00	1,697	9,480	11,177	181	255	436	4,869	11,614	16,483	243	255	498
6:30	1,175	3,190	4,365	108	132	240	3,443	8,916	12,359	247	213	460
7:00	936	1,750	2,686	78	93	171	2,713	4,627	7,340	210	133	343
TOTAL	71,888	69,395	141,283	3,477	3,489	6,966	TOTAL 114,583	114,823	229,406	3,954	3,701	7,655



PART II - INDIVIDUAL CITY STATISTICS

Mass transit data for 17 of the 20 cities for which consumers' prices are published by the U.S. Bureau of Labor Statistics.

TABLE IX

TRAVEL HABTTS INTO CENTRAL BUSINESS DISTRICTS - TYPICAL WEEKDAY*

City	Per Cent Using Transit				Date of Survey
	Shoppers	Retail Employees	Office Workers	Others	
Atlanta, Ga.	55.2	67.6	50.0	58.0	1953
Bridgeport, Conn.	53.5	N.A.	N.A.	N.A.	N.A.
Buffalo, N.Y.	68.1	N.A.	N.A.	N.A.	1955
Charleston, W.Va.	52.2	(a) 49.9	N.A.	N.A.	1949
Cleveland, Ohio	74.9	N.A.	74.0	N.A.	8/20/54
Columbus, O.	60-65	N.A.	N.A.	N.A.	1955
Dallas, Tex.	56.0	70.0	55.0	30.0	Recent
Dayton, O.	62.0	(b) 65.0	47.0	15.0	Not Stated - City Ry. Co.
Detroit, Mich.	71.8	(a) 49.9	N.A.	24.4	1952
Kansas City, Mo.	59.4	N.A.	N.A.	N.A.	1954
Louisville, Ky.	30.7	(a) 26.1	N.A.	63.8	1953
Milwaukee, Wis.	61.0	87.0	N.A.	N.A.	Not Stated
Nashville, Tenn.	28.0	38.0	30.0	25.0	Current Estimate
Omaha, Neb.	66.0	65.0	55.0	20.0	Not Stated
Pittsburgh, Pa.	76.3	N.A.	N.A.	N.A.	1953
Providence, R.I.	70.0	65.0	50.0	N.A.	1954
Richmond, Va.	60.0	59.0	60.0	57.0	Recent
San Francisco, Cal.	45.0	(a) 55.0	N.A.	N.A.	1953
Washington, D.C.	(c) 36.0	(a) 55.0	N.A.	N.A.	1948
	(c) 25.0	(a) 37.0	N.A.	N.A.	1953
Wheeling, W.Va.	60.0	65.0	25.0	45.0	Estimate Only
Wilmington, Del.	39.0	(a) 61.0	N.A.	37.0	1947
Youngstown, O.	51.0	70.0	33.0	N.A.	1946

*Data based upon surveys at specific establishments in the central business district.
(a) Includes all types of employees.
(b) Occasional transit additional 8%.
(c) Includes all riding transit for other than travel to and from their employment.

TABLE X
CENTRAL BUSINESS DISTRICT CORDON COUNT - PASSENGER AUTOS VS MASS TRANSPORTATION
TYPICAL WEEKDAY*

City	Passenger Autos			Mass Transportation		% Mass Transportation		Date of Survey
	Persons	Vehicles	Persons Per Vehicle	Persons	Surface Vehicles	Persons	Vehicles	
Atlanta, Ga	8,762	5,310	1.65	12,904	267	59.56	4.79	5:15-5:45PM, 1953
Boston, Mass. (Surface Vehicles)	488,458	257,083	1.90	67,179	3,070	12.09	1.18	1938(17 Hrs)
	528,241	327,792	1.61	39,480	2,716	6.95	.82	1954(17 Hrs)
MTA (Off-Street)				633,539				1938
				593,416				1954
R.R. & Other				94,324				1938
				102,213				1954
Total (1938)	488,458			795,042		61.94		
Total (1954)	528,241			735,109		58.19		
Charleston, W.Va.	95,173	60,085	1.58	35,200	1,700	27.00	2.75	1949
Chicago, Ill.- CTA (Surf. Vehicles)	530,480	353,654	1.50	345,118	13,345	39.42	3.64	1954
Total(Surf.,Off-Street RR & Other)	530,480			1,066,213		66.78		1954
Cincinnati, Ohio	384,591	226,230	1.70	191,893	7,628	33.29	3.26	1951
Cleveland, Ohio	180,673	121,302	1.49	214,696	5,479	54.30	4.32	Nov.1947
Columbus, Ohio	213,000	142,000	1.50	92,636		30.31		1955
Dallas, Texas	162,624	108,416	1.50	99,555	3,940	37.97	3.51	**
Dayton, Ohio	52,000	32,000	1.63	67,000	3,000	56.30	8.57	City Ry. Co.**
Detroit, Mich.	204,071	131,572	1.55	181,737	5,509	47.11	4.02	1952
Kansas City, Mo.	197,447	125,647	1.57	76,661	4,005	27.97	3.09	1954
Los Angeles, Cal.	470,000			211,300		31.01		1953
Louisville, Ky.	165,777	98,677	1.68	59,445	2,217	26.39	2.20	1953
Milwaukee, Wis.	329,839	235,599	1.40	269,172	8,631	44.94	3.53	Recent
Minneapolis, Minn	70,100	45,931	1.53	51,251	1,308	42.23	2.77	7-9:30 A.M. - 3:30-6:30PM, 1955
Montreal, Can. (Surface Vehicles)	24,342	14,529	1.88	58,500	825	73.33	6.78	5-6 PM, 1953
(Railroad)				11,993				
Total	24,342			70,493		76.82		
New Orleans, La.	184,427	109,302	1.69	134,310	4,343	42.14	3.82	7 AM-7 PM, 1936
	250,835	156,179	1.61	218,490	6,689	46.55	4.11	7 AM-7 PM, 1953

TABLE X (Cont'd)

City	Passenger Autos			Mass Transportation		% Mass Transportation		Date of Survey
	Persons	Vehicles	Persons Per Vehicle	Persons	Surface Vehicles	Persons	Vehicles	
Omaha, Neb.	121,000	100,925	1.20	32,000	800	20.92	.79	6 AM-6 PM**
Philadelphia, Pa. (P.T.C.).	9,501	6,548	1.45	17,199	420	64.42	6.03	Chestnut & Broad Sts. 10-hour check, 1953
Pittsburgh, Pa.	126,598	76,859	1.65	134,641	5,273	51.54	6.42	1953 10-hour check
Providence, R.I.	196,000	131,000	1.50	116,127	5,002	37.21	3.68	1954
Richmond, Va.			1.79			62.00		Recent
St. Louis, Mo.	142,800	89,200	1.60	142,900	4,760	50.02	5.07	Typical Wk. Da.
San Antonio, Tex.	2,189	1,378	1.59	2,839	63	56.46	4.37	7:30-8 AM - Recent Check
San Francisco, Cal.	318,000	210,000	1.51	150,000	6,175	32.05	2.86	7 AM-7 PM, 1953
Seattle, Wash.	120,800	76,900	1.57	64,250	3,000	34.72	3.75	1954
Springfield, Ill.	59,000	43,219	1.37	17,200	938	22.57	2.12	1948
Toronto, Canada	161,009	105,591	1.52	219,017	6,953	57.63	6.18	6:30AM-11:30PM, 1955
Vancouver, Canada	107,150	75,458	1.42	95,854	3,055	46.99	3.89	6 AM-6 PM**
Washington, D.C.	212,000	148,000	1.43	178,000	8,324	45.64	5.32	1948
	291,000	197,000	1.48	137,000	6,789	32.01	3.33	1953
Wilmington, Del.	72,200	42,604	1.69	40,249	1,680	35.79	3.79	1947
Youngstown, Ohio.	80,000	27,600	2.90	95,000	2,020	54.29	6.82	1950

**Date of survey not stated.

TABLE XI
TREND IN TRANSIT PASSENGER VOLUME, VEHICULAR MILEAGE OPERATED
AND PASSENGER EQUIPMENT
INDIVIDUAL CITIES - YEARS 1926, 1933, 1940, 1946 AND 1954

Calendar Year	RAILWAY			Trolley Coach	Motor Bus	GRAND TOTAL	
	Surface	Subway & Elevated	Total			Number	Index (1940=100)
REVENUE PASSENGERS - (Thousands)			BALTIMORE, MD.				
1926	225,256	-	225,256	-0-	7,058	232,314	162.6
1933	107,332	-	107,332	-0-	7,408	114,740	80.3
1940	121,691	-	121,691	Included	21,201	142,892	100.0
1946	224,174	-	224,174	with	38,082	262,256	183.5
1954	68,481	-	68,481	Railway	71,998	140,479	98.3
REVENUE VEHICLE MILES - (Thousands)							
1926	35,826	-	35,826	-0-	1,973	37,799	115.0
1933	30,265	-	30,265	-0-	2,909	33,174	100.9
1940	23,652	-	23,652	2,651	6,570	32,873	100.0
1946	27,605	-	27,605	3,902	7,969	39,476	120.1
1954	7,666	-	7,666	3,828	17,046	28,540	86.8
PASSENGER EQUIPMENT							
1926	1,561	-	1,561	-	80	1,641	135.2
1933	1,038	-	1,038	-	111	1,149	94.6
1940	903	-	903	92	219	1,214	100.0
1946	1,022	-	1,022	128	275	1,425	117.4
1954	308	-	308	166	611	1,085	89.4
REVENUE PASSENGERS - (Thousands)			BOSTON, MASS.				
1926						371,218	126.1
1933						267,845	91.0
1940	- - - - - - - - - - - - - - - -Data not available - - - - - - - - - - - - - - -					294,451	100.0
1946						433,095	147.1
1954						244,112	82.9
REVENUE VEHICLE MILES - (Thousands)							
1926	38,073	15,105	53,178	-0-	4,718	57,896	127.4
1933	24,641	12,364	37,005	-0-	9,136	46,141	101.6
1940	20,542	11,061	31,603	2,203	11,627	45,433	100.0
1946	25,124	14,421	39,545	3,645	12,210	55,400	121.9
1954	10,414	11,534	21,948	9,440	10,891	42,279	93.1
PASSENGER EQUIPMENT							
1926	473	496	969	-0-	888	1,857	87.1
1933	768	436	1,204	-0-	644	1,848	86.6
1940	1,034	481	1,515	97	521	2,133	100.0
1946	1,114	482	1,596	162	607	2,365	110.9
1954	431	478	909	414	524	1,847	86.6

TABLE XI (Cont'd)
TREND IN TRANSIT PASSENGER VOLUME, VEHICULAR MILEAGE OPERATED
AND PASSENGER EQUIPMENT (Cont'd)
INDIVIDUAL CITIES - YEARS 1926, 1933, 1940, 1946 AND 1954

Calendar Year	RAILWAY			Trolley Coach	Motor Bus	GRAND TOTAL	
	Surface	Subway & Elevated	Total			Number	Index (1940=100)
REVENUE PASSENGERS - (Thousands)			CINCINNATI, OHIO				
1926	89,493	-	89,493	-0-	4,105	93,598	138.2
1933	56,177	-	56,177	-0-	6,355	62,532	92.3
1940	52,654	-	52,654	4,341	10,749	67,744	100.0
1946	88,773	-	88,773	8,474	35,487	132,734	195.9
1954	-0-	-	-0-	33,921	38,136	72,057	106.4
REVENUE VEHICLE MILES - (Thousands)							
1926	17,818	-	17,818	-0-	2,059	19,877	101.3
1933	15,247	-	15,247	-0-	3,051	18,298	93.2
1940	13,830	-	13,830	979	4,815	19,624	100.0
1946	14,835	-	14,835	1,194	10,803	26,832	136.7
1954	-0-	-	-0-	8,274	13,556	21,830	111.2
PASSENGER EQUIPMENT							
1926	674	-	674	-	80	754	116.5
1933	674	-	674	-	82	756	116.8
1940	500	-	500	28	119	647	100.0
1946	456	-	456	34	290	780	120.5
1954	-	-	-	246	363	609	94.1
REVENUE PASSENGERS - (Thousands)			CLEVELAND, OHIO				
1926	267,195	-	267,195	-0-	9,228	276,423	92.3
1933	217,623	-	217,623	-0-	19,662	237,285	79.2
1940	239,590	-	239,590	8,436	51,567	299,593	100.0
1946	312,264	-	312,264	27,676	106,454	446,394	149.0
1954	N.A.	-	N.A.	N.A.	N.A.	N.A.	N.A.
REVENUE VEHICLE MILES - (Thousands)							
1926	36,011	-	36,011	-0-	3,140	39,151	114.2
1933	27,382	-	27,382	-0-	4,665	32,047	93.5
1940	24,821	-	24,821	756	8,702	34,279	100.0
1946	28,173	-	28,173	2,276	14,525	44,974	131.2
1954	36	-	36	12,800	28,967	41,803	121.9
PASSENGER EQUIPMENT							
1926	1,456	-0-	1,456	-0-	123	1,579	119.2
1933	1,358	-0-	1,358	-0-	200	1,558	117.6
1940	977	-0-	977	28	320	1,325	100.0
1946	1,048	-0-	1,048	79	505	1,632	123.2
1954	-0-	-0-	-0-	458	939	1,441	108.8

N.A.-Not Available.

TABLE XI (Cont'd)
TREND IN TRANSIT PASSENGER VOLUME, VEHICULAR MILEAGE OPERATED
AND PASSENGER EQUIPMENT (Cont'd)
INDIVIDUAL CITIES - YEARS 1926, 1933, 1940, 1946 AND 1954

Calendar Year	RAILWAY			Trolley Coach	Motor Bus	GRAND TOTAL	
	Surface	Subway & Elevated	Total			Number	Index (1940=100)
REVENUE PASSENGERS - (Thousands)			DETROIT, MICH				
1926	359,475	-	359,475	-0-	25,315	384,790	146.4
1933	161,433	-	161,433	Incl. in Bus	24,060	185,493	70.6
1940	135,379	-	135,379	-0-	127,542	262,921	100.0
1946	215,307	-	215,307	-0-	213,940	429,247	163.3
1954	34,377	-	34,377	19,798	157,665	211,840	80.6
REVENUE VEHICLE MILES - (Thousands)							
1926	53,110	-	53,110	-0-	8,977	62,087	81.6
1933	26,296	-	26,296	Incl. in Bus	13,176	39,472	51.9
1940	19,099	-	19,099	-0-	56,944	76,043	100.0
1946	27,673	-	27,673	-0-	71,848	99,521	130.9
1954	5,188	-	5,188	4,417	52,202	61,807	81.3
PASSENGER EQUIPMENT							
1926	1,581	-	1,581	-	282	1,863	72.0
1933	1,560	-	1,560	6	537	2,103	81.3
1940	911	-	911	-	1,675	2,586	100.0
1946	907	-	907	-	2,082	2,989	115.6
1954	186	-	186	140	1,760	2,086	80.7
REVENUE PASSENGERS - (Thousands)			HOUSTON, TEX.				
1926	38,881	-	38,881	-	3,291	42,172	105.5
1933	14,779	-	14,779	-	9,589	24,368	60.9
1940	1,897	-	1,897	-	38,089	39,986	100.0
1946	-0-	-	-0-	-	104,726	104,726	261.9
1954	-0-	-	-0-	-	N.A.	N.A.	N.A.
REVENUE VEHICLE MILES - (Thousands)							
1926	7,649	-	7,649	-	955	8,604	63.2
1933	4,475	-	4,475	-	4,342	8,817	64.8
1940	623	-	623	-	12,989	13,612	100.0
1946	-0-	-	-0-	-	22,785	22,785	167.4
1954	-0-	-	-0-	-	N.A.	N.A.	N.A.
PASSENGER EQUIPMENT							
1926	233	-	233	-	37	270	70.5
1933	154	-	154	-	101	255	66.6
1940	56	-	56	-	327	383	100.0
1946	-	-	-	-	498	498	130.0
1954	-	-	-	-	N.A.	N.A.	N.A.

N.A.-Not Available.

TABLE XI (Cont'd)
TREND IN TRANSIT PASSENGER VOLUME, VEHICULAR MILEAGE OPERATED
AND PASSENGER EQUIPMENT (Cont'd)
INDIVIDUAL CITIES - YEARS 1926, 1933, 1940, 1946 AND 1954

Calendar Year	RAILWAY			Trolley Coach	Motor Bus	GRAND TOTAL	
	Surface	Subway & Elevated	Total			Number	Index (1940=100)
REVENUE PASSENGERS - (Thousands)			KANSAS CITY, MO				
1926	118,754	-	118,754	-0-	5,571	124,325	186.4
1933	64,562	-	64,562	-0-	3,629	68,191	102.2
1940	40,378	-	40,378	9,724	16,600	66,702	100.0
1946	75,210	-	75,210	22,968	37,649	135,827	203.6
1954	21,945	-	21,945	14,928	28,878	65,751	98.6
REVENUE VEHICLE MILES - (Thousands)							
1926	24,800	-	24,800	-0-	2,724	27,524	106.2
1933	21,023	-	21,023	-0-	2,520	23,543	90.9
1940	14,405	-	14,405	2,777	8,727	25,909	100.0
1946	13,172	-	13,172	4,098	10,520	27,790	107.3
1954	4,332	-	4,332	4,039	10,385	18,756	72.4
PASSENGER EQUIPMENT							
1926	769	-	769	-	69	838	116.4
1933	616	-	616	-	77	693	96.3
1940	414	-	414	78	228	720	100.0
1946	377	-	377	116	324	817	113.5
1954	144	-	144	154	348	646	89.7
REVENUE PASSENGERS - (Thousands)			LOS ANGELES, CAL.				
1926	238,055	-	238,055	-0-	12,726	250,781	144.1
1933	125,168	-	125,168	-0-	15,371	140,539	80.7
1940	152,265	-	152,265	-0-	21,802	174,067	100.0
1946	215,701	-	215,701	-0-	86,337	302,038	173.5
1954	68,926	-	68,926	15,446	67,575	151,947	87.3
REVENUE VEHICLE MILES - (Thousands)							
1926	32,477	-	32,477	-0-	4,185	36,662	99.6
1933	26,406	-	26,406	-0-	5,651	32,057	87.0
1940	28,091	-	28,091	-0-	8,735	36,826	100.0
1946	24,229	-	24,229	-0-	15,363	39,592	107.5
1954	12,442	-	12,442	2,627	18,543	33,612	91.3
PASSENGER EQUIPMENT							
1926	1,368	-	1,368	-	139	1,507	122.9
1933	1,376	-	1,376	-	182	1,558	127.1
1940	996	-	996	-	230	1,226	100.0
1946	749	-	749	-	563	1,312	107.0
1954	396	-	396	110	728	1,234	100.7

TABLE XI (Cont'd)
TREND IN TRANSIT PASSENGER VOLUME, VEHICULAR MILEAGE OPERATED
AND PASSENGER EQUIPMENT (Cont'd)
INDIVIDUAL CITIES - YEARS 1926, 1933, 1940, 1946 AND 1954

Calendar Year	RAILWAY			Trolley Coach	Motor Bus	GRAND TOTAL	
	Surface	Subway & Elevated	Total			Number	Index (1940=100)
REVENUE PASSENGERS - (Thousands)			MINNEAPOLIS-ST. PAUL, MINN.				
1926	185,712	-	185,712	-	5,115	190,827	182.9
1933	95,724	-	95,724	-	4,663	100,387	96.2
1940	95,254	-	95,254	-	9,060	104,314	100.0
1946	177,271	-	177,271	-	24,256	201,527	193.2
1954	4,879	-	4,879	-	81,714	86,593	83.0
REVENUE VEHICLE MILES - (Thousands)							
1926	29,308	-	29,308	-	4,979	34,287	133.7
1933	22,718	-	22,718	-	4,020	26,738	104.3
1940	20,773	-	20,773	-	4,864	25,637	100.0
1946	26,753	-	26,753	-	6,318	33,071	129.0
1954	1,120	-	1,120	-	23,787	24,907	97.2
PASSENGER EQUIPMENT							
1926	1,050	-	1,050	-	102	1,152	134.9
1933	1,135	-	1,135	-	93	1,228	143.8
1940	713	-	713	-	141	854	100.0
1946	743	-	743	-	203	946	110.8
1954	-0-	-	-0-	-	884	884	103.5
REVENUE PASSENGERS - (Thousands)			PHILADELPHIA, PA.				
1926	564,670	87,590	652,260	936	28,615	681,811	161.1
1933	305,960	80,510	386,470	679	23,047	410,196	96.9
1940	291,569	94,345	385,914	713	36,688	423,315	100.0
1946	466,673	146,082	612,755	12,882	89,819	715,456	169.0
1954	222,984	89,772	312,756	17,115	81,956	411,827	97.3
REVENUE VEHICLE MILES - (Thousands)							
1926	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
1933	N.A.	N.A.	63,791	231	9,166	73,188	92.7
1940	47,508	16,912	64,420	237	14,288	78,945	100.0
1946	58,762	22,687	81,449	2,461	23,708	107,618	136.3
1954	39,346	18,100	57,446	3,484	27,128	88,058	111.5
PASSENGER EQUIPMENT							
1926	N.A.	N.A.	3,059	10	362	3,431	119.0
1933	2,449	465	2,914	11	305	3,230	112.1
1940	1,801	541	2,342	8	532	2,882	100.0
1946	1,849	541	2,390	74	743	3,207	111.3
1954	1,487	541	2,028	159	928	3,115	108.1

N.A.-Not Available.

TABLE XI (Cont'd)
TREND IN TRANSIT PASSENGER VOLUME, VEHICULAR MILEAGE OPERATED
AND PASSENGER EQUIPMENT (Cont'd)
INDIVIDUAL CITIES - YEARS 1926, 1933, 1940, 1946 AND 1954

Calendar Year	RAILWAY			Trolley Coach	Motor Bus	GRAND TOTAL	
	Surface	Subway & Elevated	Total			Number	Index (1940=100)
REVENUE PASSENGERS - (Thousands)			PITTSBURGH, PA.				
1926	267,722	-	267,722	-	1,149	268,871	169.0
1933	138,613	-	138,613	-	1,112	139,725	87.8
1940	150,729	-	150,729	-	8,397	159,126	100.0
1946	250,934	-	250,934	-	24,592	275,526	173.1
1954	92,158	-	92,158	-	15,852	108,010	67.9
REVENUE VEHICLE MILES - (Thousands)							
1926	41,357	-	41,357	-	780	42,137	117.6
1933	28,769	-	28,769	-	1,622	30,391	84.8
1940	31,713	-	31,713	-	4,126	35,839	100.0
1946	36,462	-	36,462	-	6,015	42,477	118.5
1954	19,743	-	19,743	-	6,298	26,041	72.7
PASSENGER EQUIPMENT							
1926	1,547	-0-	1,547	-0-	34	1,581	133.4
1933	1,124	-0-	1,124	-0-	88	1,212	102.3
1940	1,066	-0-	1,066	-0-	119	1,185	100.0
1946	1,182	-0-	1,182	-0-	165	1,347	113.7
1954	675	-0-	675	-0-	257	932	78.6
REVENUE PASSENGERS - (Thousands)			PORTLAND, ORE.				
1926	58,874	-	58,874	-0-	1,938	60,812	124.3
1933	36,728	-	36,728	-0-	5,064	41,792	85.5
1940	17,216	-	17,216	20,406	11,286	48,908	100.0
1946	26,424	-	26,424	40,297	35,535	102,256	209.1
1954	-0-	-	-0-	9,992	30,001	39,993	81.8
REVENUE VEHICLE MILES - (Thousands)							
1926	13,960	-	13,960	-0-	1,051	15,011	112.7
1933	11,894	-	11,894	-0-	2,741	14,635	109.9
1940	3,792	-	3,792	4,998	4,530	13,320	100.0
1946	3,179	-	3,179	6,392	8,626	18,197	136.6
1954	-0-	-	-0-	2,405	8,243	10,648	79.9
PASSENGER EQUIPMENT							
1926	(a)590	-0-	(a)590	-0-	24	(a)614	134.9
1933	412	-0-	412	-0-	54	466	102.4
1940	173	-0-	173	141	141	455	100.0
1946	124	-0-	124	141	265	530	116.5
1954	-0-	-0-	-0-	99	207	306	67.3

(a) Includes Interurban Cars.

TABLE XI (Cont'd)
TREND IN TRANSIT PASSENGER VOLUME, VEHICULAR MILEAGE OPERATED
AND PASSENGER EQUIPMENT (Cont'd)
INDIVIDUAL CITIES - YEARS 1926, 1933, 1940, 1946 AND 1954

Calendar Year	RAILWAY			Trolley Coach	Motor Bus	GRAND TOTAL	
	Surface	Subway & Elevated	Total			Number	Index (1940=100)
REVENUE PASSENGERS - (Thousands)			ST. LOUIS, MO.				
1926	270,652	-	270,652	-	26,076	296,728	N.A.
1933	118,466	-	118,466	-	25,785	144,251	N.A.
1940	N.A.	-	N.A.	-	N.A.	N.A.	N.A.
1946	228,939	-	228,939	-	171,385	400,324	N.A.
1954	40,105	-	40,105	-	108,984	149,089	N.A.
REVENUE VEHICLE MILES - (Thousands)							
1926	N.A.	-	N.A.	-	N.A.	N.A.	N.A.
1933	30,748	-	30,748	-	10,338	41,086	89.3
1940	26,169	-	26,169	-	19,831	46,000	100.0
1946	27,194	-	27,194	-	28,815	56,009	121.8
1954	6,946	-	6,946	-	28,580	35,526	77.2
PASSENGER EQUIPMENT							
1926	1,587	-0-	1,587	-0-	N.A.	N.A.	N.A.
1933	1,506	-0-	1,506	-0-	290	1,796	133.5
1940	700	-0-	700	-0-	645	1,345	100.0
1946	691	-0-	691	-0-	977	1,668	124.0
1954	300	-0-	300	-0-	1,110	1,410	104.8
REVENUE PASSENGERS - (Thousands)			SAN FRANCISCO, CAL.				
1926	265,395	-	265,395	-0-	1,113	266,508	153.5
1933	204,428	-	204,428	-0-	2,980	207,408	119.4
1940	157,676	-	157,676	Incl. in Railway	15,989	173,665	100.0
1946	187,436	-	187,436	4,996	40,076	232,508	133.9
1954	34,462	-	34,462	59,013	56,537	150,012	86.4
REVENUE VEHICLE MILES - (Thousands)							
1926	36,050	-	36,050	-0-	450	36,500	134.1
1933	31,201	-	31,201	-0-	1,007	32,208	118.3
1940	22,499	-	22,499	Incl. in Railway	4,728	27,227	100.0
1946	19,514	-	19,514	838	9,274	29,626	108.8
1954	4,651	-	4,651	9,945	14,354	28,950	106.3
PASSENGER EQUIPMENT							
1926	982	-	982	-	11	993	102.7
1933	990	-	990	-	27	1,017	105.2
1940	849	-	849	9	109	967	100.0
1946	642	-	642	18	262	922	95.3
1954	252	-	252	398	468	1,118	115.6

N.A.-Not Available.

TABLE XI (Cont'd)
TREND IN TRANSIT PASSENGER VOLUME, VEHICULAR MILEAGE OPERATED
AND PASSENGER EQUIPMENT (Cont'd)
INDIVIDUAL CITIES - YEARS 1926, 1933, 1940, 1946 AND 1954

Calendar Year	RAILWAY			Trolley Coach	Motor Bus	GRAND TOTAL	
	Surface	Subway & Elevated	Total			Number	Index (1940=100)
REVENUE PASSENGERS - (Thousands)			SCRANTON, PA.				
1926	28,390	-	28,390	-	361	28,751	181.9
1933	13,816	-	13,816	-	3,759	17,575	111.2
1940	7,016	-	7,016	-	8,791	15,807	100.0
1946	8,763	-	8,763	-	23,185	31,948	202.1
1954	N.A.	-	N.A.	-	N.A.	N.A.	N.A.
REVENUE VEHICLE MILES - (Thousands)							
1926	3,690	-	3,690	-	128	3,818	95.5
1933	2,609	-	2,609	-	1,181	3,790	94.8
1940	1,584	-	1,584	-	2,416	4,000	100.0
1946	1,343	-	1,343	-	3,531	4,874	121.9
1954	N.A.	-	N.A.	-	N.A.	N.A.	N.A.
PASSENGER EQUIPMENT							
1926	157	-0-	157	-0-	11	168	135.5
1933	100	-0-	100	-0-	33	133	107.3
1940	64	-0-	64	-0-	60	124	100.0
1946	48	-0-	48	-0-	101	149	120.2
1954	N.A.	-0-	N.A.	-0-	N.A.	N.A.	N.A.
REVENUE PASSENGERS - (Thousands)			SEATTLE, WASH.				
1926	67,712	-	67,712	-0-	1,410	69,122	122.6
1933	40,599	-	40,599	-0-	3,127	43,726	77.5
1940	21,138	-	21,138	12,990	22,257	56,385	100.0
1946	-0-	-	-0-	82,200	35,530	117,730	208.8
1954	-0-	-	-0-	39,079	20,446	59,525	105.6
REVENUE VEHICLE MILES - (Thousands)							
1926	15,412	-	15,412	-0-	1,088	16,500	94.5
1933	11,874	-	11,874	-0-	2,282	14,156	81.0
1940	5,723	-	5,723	3,110	8,636	17,469	100.0
1946	-0-	-	-0-	13,804	10,144	23,948	137.1
1954	-0-	-	-0-	11,242	9,157	20,399	116.8
PASSENGER EQUIPMENT							
1926	507	-0-	507	-0-	31	538	86.2
1933	507	-0-	507	-0-	63	570	91.3
1940	154	-0-	154	235	235	624	100.0
1946	-0-	-0-	-0-	307	260	567	90.9
1954	-0-	-0-	-0-	307	266	573	91.8

N.A.-Not Available.

TABLE XI (Cont'd)
TREND IN TRANSIT PASSENGER VOLUME, VEHICULAR MILEAGE OPERATED
AND PASSENGER EQUIPMENT (Cont'd)
INDIVIDUAL CITIES - YEARS 1926, 1933, 1940, 1946 AND 1954

Calendar Year	RAILWAY			Trolley Coach	Motor Bus	GRAND TOTAL	
	Surface	Subway & Elevated	Total			Number	Index (1940=100)
REVENUE PASSENGERS - (Thousands)			WASHINGTON, D.C.				
1926	134,891	-	134,891	-	10,678	145,569	78.1
1933	78,954	-	78,954	-	12,400	91,354	49.0
1940	120,333	-	120,333	-	65,980	186,313	100.0
1946	257,745	-	257,745	-	152,381	410,126	220.1
(a) 1954	83,467	-	83,467	-	82,276	165,743	89.0
REVENUE VEHICLE MILES - (Thousands)							
1926	20,442	-	20,442	-	4,455	24,897	72.9
1933	16,529	-	16,529	-	6,466	22,995	67.3
1940	16,821	-	16,821	-	17,352	34,173	100.0
1946	24,646	-	24,646	-	23,621	48,267	141.2
1954	12,255	-	12,555	-	21,646	33,901	99.2
PASSENGER EQUIPMENT							
1926	906	-0-	906	-0-	132	1,038	72.8
1933	759	-0-	759	-0-	245	1,004	70.4
1940	699	-0-	699	-0-	727	1,426	100.0
1946	824	-0-	824	-0-	1,015	1,839	129.0
1954	508	-0-	508	-0-	889	1,397	98.0

(a)Revenue passenger count revised in 1954.

TABLE XII
TREND OF POPULATION SERVED, REVENUE PASSENGERS,
RIDES PER CAPITA AND MOTOR VEHICLE REGISTRATION
(1926, 1933, 1940, 1946 and 1954)

Year	Population Served (Thousands)	Revenue Transit Passengers Carried (Thousands)	Revenue Transit Rides Per Capita of Population Served	*Motor Vehicle Registration Per Each 100 Population (City Only)	Indexes (1940=100)			
					Population Served	Revenue Transit Passengers	Rides per Capita	Motor Vehicle Registration
				BALTIMORE, MD.				
1926	800	232,314	290	(Not)	87.0	162.6	187.1	(Not
1933	876	114,740	131	(Available)	95.2	80.3	84.5	(Available
1940	920	142,892	155	17.1	100.0	100.0	100.0	100.0
1946	1,110	262,256	236	19.7	120.7	183.5	152.3	115.2
1954	1,175	140,479	120	29.3	127.7	98.3	77.4	171.3
				BOSTON, MASS.				
1926	1,305	371,218	284	(Not)	93.1	126.1	135.2	(Not
1933	1,348	267,845	199	(Available)	96.2	91.0	94.8	(Available
1940	1,401	294,451	210	14.0	100.0	100.0	100.0	100.0
1946	1,414	433,095	306	12.3	100.9	147.1	145.7	87.9
1954	1,489	244,112	164	20.6	106.3	82.9	78.1	147.1
				CINCINNATI, OHIO				
1926	530	93,598	177	(Not)	90.6	138.2	152.6	(Not
1933	557	62,532	112	(Available)	95.2	92.3	96.6	(Available
1940	585	67,744	116	23.1	100.0	100.0	100.0	100.0
1946	565	132,734	235	22.3	96.6	195.9	202.6	96.5
1954	631	72,057	114	32.7	107.9	106.4	98.3	141.6
				CLEVELAND, OHIO				
1926	1,150	276,423	240	(Not)	94.5	92.3	97.6	(Not
1933	1,200	237,285	198	(Available)	98.6	79.2	80.5	(Available
1940	1,217	299,593	246	26.4	100.0	100.0	100.0	100.0
1946	1,262	446,394	354	23.6	103.7	149.0	143.9	89.4
1954	1,400	(- - - - Not Available - - - -)		32.3	115.0	(- - - -Not Available- - - -)		122.3
				DETROIT, MICH.				
1926	1,400	384,790	275	(Not)	81.4	146.4	179.7	(Not
1933	1,486	185,493	125	(Available)	86.4	70.6	81.7	(Available
1940	1,719	262,921	153	29.3	100.0	100.0	100.0	100.0
1946	2,100	429,247	204	24.8	122.1	163.3	133.3	84.6
1954	2,085	211,840	102	35.3	121.3	80.6	66.7	120.5

*Source: National Safety Council.

TABLE XII (Cont'd)
TREND OF POPULATION SERVED, REVENUE PASSENGERS,
RIDES PER CAPITA AND MOTOR VEHICLE REGISTRATION (Cont'd)
(1926, 1933, 1940, 1946 and 1954)

Year	Population Served (Thousands)	Revenue Transit Passengers Carried (Thousands)	Revenue Transit Rides Per Capita of Population Served	*Motor Vehicle Registration Per Each 100 Population (City Only)	Indexes (1940=100)			
					Population Served	Revenue Transit Passengers	Rides Per Capita	Motor Vehicle Registration
				HOUSTON, TEX.				
1926	305	42,172	138	(Not)	71.8	105.5	146.8	(Not
1933	330	24,368	74	(Available)	77.6	60.9	78.7	(Available
1940	425	39,986	94	31.7	100.0	100.0	100.0	100.0
1946	596	104,726	176	33.6	140.2	261.9	187.2	106.0
1954	(- - - - - - - -Not Available - - - - - - - - -)			48.5	(- - - - - - -Not Available - - - - - - -)			153.0
				KANSAS CITY, MO.				
1926	550	124,325	226	(Not)	100.0	186.4	186.8	(Not
1933	550	68,191	124	(Available)	100.0	102.2	102.5	(Available
1940	550	66,702	121	25.1	100.0	100.0	100.0	100.0
1946	625	135,827	217	23.8	113.6	203.6	179.3	94.8
1954	625	65,751	105	39.2	113.6	98.6	86.8	156.2
				LOS ANGELES, CAL.				
1926	1,200	250,781	209	(Not)	85.7	144.1	168.5	(Not
1933	1,281	140,540	110	(Available)	91.5	80.8	88.7	(Available
1940	1,400	174,067	124	36.2	100.0	100.0	100.0	100.0
1946	Not Available	302,038	Not Available	34.8	Not Available	173.5	Not Available	96.1
1954	1,670	151,947	91	47.2	119.3	87.3	73.4	130.4
				MINNEAPOLIS-ST. PAUL, MINN.				
1926	750	190,827	254	(Not)	88.8	182.9	206.5	(Not
1933	800	100,387	125	(Available)	94.7	96.2	101.6	(Available
1940	845	104,314	123	30.0	100.0	100.0	100.0	100.0
1946	860	201,527	234	27.0	101.8	193.2	190.2	90.0
1954	1,000	86,593	87	39.7	118.3	83.0	70.7	132.3
				PHILADELPHIA, PA.				
1926	2,071	681,811	329	(Not)	86.3	161.1	186.9	(Not
1933	2,190	410,196	187	(Available)	91.2	96.9	106.2	(Available
1940	2,401	423,315	176	15.1	100.0	100.0	100.0	100.0
1946	2,500	715,456	286	13.0	104.1	169.0	162.5	86.1
1954	2,779	411,827	148	22.7	115.7	97.3	84.1	150.3

*Source: National Safety Council.

TABLE XII (Cont'd)
TREND OF POPULATION SERVED, REVENUE PASSENGERS,
RIDES PER CAPITA AND MOTOR VEHICLE REGISTRATION (Cont'd)
(1926, 1933, 1940, 1946 and 1954)

Year	Population Served (Thousands)	Revenue Transit Passengers Carried (Thousands)	Revenue Transit Rides Per Capita of Population Served	*Motor Vehicle Registration Per Each 100 Population (City Only)	Indexes (1940=100)			
					Population Served	Revenue Transit Passengers	Rides Per Capita	Motor Vehicle Registration
				PITTSBURGH, PA.				
1926	1,300	268,871	207	(Not	95.1	169.0	178.4	(Not
1933	1,373	139,725	102	(Available	100.4	87.8	87.9	(Available
1940	1,367	159,126	116	19.2	100.0	100.0	100.0	100.0
1946	1,173	275,526	235	19.3	85.8	173.1	202.6	100.5
1954	1,269	108,010	85	26.4	92.8	67.9	73.3	137.5
				PORTLAND, ORE.				
1926	300	60,812	203	(Not	98.4	124.3	126.9	(Not
1933	347	41,792	120	(Available	113.8	85.5	75.0	(Available
1940	305	48,908	160	35.7	100.0	100.0	100.0	100.0
1946	400	102,256	256	35.2	131.1	209.1	160.0	98.6
1954	454	39,993	88	52.7	148.9	81.8	55.0	147.6
				ST. LOUIS, MO.				
1926	- Not Available -							
1933	- Not Available -							
1940	1,000	- - - Not Available - - -		24.3	100.0	(Not		100.0
1946	1,100	400,324	364	21.6	110.0	(		88.9
1954	1,100	149,089	136	37.2	110.0	(Available		153.1
				SAN FRANCISCO, CAL.				
1926	583	266,508	457	(Not	91.8	153.5	167.4	(Not
1933	634	207,407	327	(Available	99.8	119.4	119.8	(Available
1940	635	173,666	273	28.6	100.0	100.0	100.0	100.0
1946	719	232,508	323	21.4	113.2	133.9	118.3	74.8
1954	831	150,012	181	33.7	130.9	86.4	66.3	117.8
				SCRANTON, PA.				
1926	)	28,750	(	)		181.9	(	
1933	Not)	17,575	(	Not)		111.2	(	Not
1940	Available)	15,808	(	Available)		100.0	(	Available
1946	)	31,948	(	)		202.1	(	
1954	)	Not Avail.	(	)		Not Avail.	(	

*Source: National Safety Council.

TABLE XII (Cont'd)
TREND OF POPULATION SERVED, REVENUE PASSENGERS,
RIDES PER CAPITA AND MOTOR VEHICLE REGISTRATION (Cont'd)
(1926, 1933, 1940, 1946 and 1954)

Year	Population Served	Revenue Transit Passengers Carried (Thousands)	Revenue Transit Rides Per Capita of Population Served	*Motor Vehicle Registration Per Each 100 Population (City Only)	Indexes (1940=100)			
					Population Served	Revenue Transit Passengers	Rides Per Capita	Motor Vehicle Registration
				SEATTLE, WASH.				
1926	350	69,122	197	(Not	82.7	122.6	148.1	(Not
1933	373	43,726	117	(Available	88.2	77.5	88.0	(Available
1940	423	56,385	133	33.9	100.0	100.0	100.0	100.0
1946	506	117,730	233	34.0	119.6	208.8	175.2	100.3
1954	543	59,525	110	46.6	128.4	105.6	82.7	137.5
				WASHINGTON, D.C.				
1926	450	145,569	323	(Not	60.0	78.1	130.2	(Not
1933	586	91,354	156	(Available	78.1	49.0	62.9	(Available
1940	750	186,313	248	24.9	100.0	100.0	100.0	100.0
1946	1,125	410,126	365	14.6	150.0	220.1	147.2	58.6
1954	1,225	165,743	135	26.3	163.3	89.0	54.4	105.6

*Source: National Safety Council.

TABLE XIII
TRENDS IN OPERATING REVENUES, EXPENSES, TAXES AND NET OPERATING RESULTS FOR INDIVIDUAL CITIES
Years 1926, 1933, 1940, 1946 and 1954

Year	Operating Revenue	Operating Expenses (Incl. Depr.)			Net Revenue	All Taxes	Operating Income
		Wages & Salaries	Other Than Wages & Sal.	Total Expense			
	(Thousands)	(Thousands)	(Thousands)	(Thousands)	(Thousands)	(Thousands)	(Thousands)
RESULTS OF OPERATION			BALTIMORE, MD.				
1926	$17,424	N.A.	N.A.	$11,438	$5,986	$1,741	$4,245
1933	10,584	$5,293	$4,326	9,619	965	1,193	(d)228
1940	12,703	6,022	4,371	10,393	2,310	1,303	1,007
1946	24,193	10,987	7,283	18,270	5,923	2,972	2,951
1954	22,466	11,977	7,024	19,001	3,465	2,358	1,107
INDEXES (1940=100)							
1926	137.2	N.A.	N.A.	110.1	259.1	133.6	421.5
1933	83.3	87.9	99.0	92.6	41.8	91.6	(d)
1940	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1946	190.5	182.4	166.6	175.8	256.4	228.1	293.0
1954	176.9	198.9	160.7	182.8	150.0	181.0	109.9
PER CENT OF OPERATING REVENUE							
1926		N.A.	N.A.	65.6%		10.0%	24.4%
1933		50.0%	40.9%	90.9		11.3	(d)2.2
1940		47.4	34.4	81.8		10.3	7.9
1946		45.4	30.1	75.5		12.3	12.2
1954		53.3	31.3	84.6		10.5	4.9
RESULTS OF OPERATION			BOSTON, MASS.				
1926	$35,371	N.A.	N.A.	$26,076	$9,295	$1,911	$7,384
1933	24,060	$11,633	$5,197	16,830	7,230	1,479	5,751
1940	26,423	13,300	5,985	19,285	7,138	1,658	5,480
1946	39,033	23,737	8,303	32,040	6,993	1,903	5,090
1954	38,550	29,101	9,483	38,584	(d)34	721	(d)755
INDEXES (1940=100)							
1926	133.9	N.A.	N.A.	135.2	130.2	115.3	134.7
1933	91.1	87.5	86.8	87.3	101.3	89.9	104.9
1940	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1946	147.7	178.5	138.7	166.1	98.0	114.8	92.9
1954	145.9	218.8	158.4	200.1	(d)	43.5	(d)
PER CENT OF OPERATING REVENUE							
1926		N.A.	N.A.	73.7%		5.4%	20.9%
1933		48.4%	21.6%	70.0		6.1	23.9
1940		50.3	22.7	73.0		6.3	20.7
1946		60.8	21.3	82.1		4.9	13.0
1954		75.5	24.6	100.1		1.9	(d)2.0

N.A.-Not Available (d) Deficit

TABLE XIII (Cont'd)
TRENDS IN OPERATING REVENUES, EXPENSES, TAXES AND NET OPERATING RESULTS FOR INDIVIDUAL CITIES (Cont'd)
Years 1926, 1933, 1940, 1946 and 1954

Year	Operating Revenue	Operating Expenses (Incl. Depr.)			Net Revenue	All Taxes	Operating Income
		Wages & Salaries	Other Than Wages & Sal.	Total Expense			
	(Thousands)	(Thousands)	(Thousands)	(Thousands)	(Thousands)	(Thousands)	(Thousands)
RESULTS OF OPERATION			CINCINNATI, O.				
1926	$8,065	N.A.	N.A.	$5,846	$2,219	$ 709	$1,510
1933	5,712	$2,586	$1,649	4,235	1,477	597	880
1940	6,225	3,074	1,702	4,776	1,449	595	854
1946	12,762	6,329	3,717	10,046	2,716	1,426	1,290
1954	12,928	7,115	4,000	11,115	1,813	982	831
INDEXES (1940=100)							
1926	129.6	N.A.	N.A.	122.4	153.1	119.2	176.8
1933	91.8	84.1	96.9	88.7	101.9	100.3	103.0
1940	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1946	205.0	205.9	218.4	210.3	187.4	239.7	151.0
1954	207.7	231.5	235.0	232.7	125.1	165.0	97.3
PER CENT OF OPERATING REVENUE							
1926		N.A.	N.A.	72.5%		8.8%	18.7%
1933		45.3%	28.8%	74.1		10.5	15.4
1940		49.4	27.3	76.7		9.6	13.7
1946		49.6	29.1	78.7		11.2	10.1
1954		55.0	31.0	86.0		7.6	6.4
RESULTS OF OPERATION			CLEVELAND, O.				
1926	$17,997	N.A.	N.A.	$15,312	$2,685	$1,206	$1,479
1933	12,514	N.A.	N.A.	9,002	3,512	1,176	2,336
1940	14,461	$7,645	$5,588	13,233	1,228	1,146	82
1946	24,670	15,946	5,980	21,926	2,744	487	2,257
1954	27,534	16,334	8,220	24,554	2,980	1,037	1,943
INDEXES (1940=100)							
1926	124.5	N.A.	N.A.	115.7	218.6	105.2	1,803.7
1933	86.5	N.A.	N.A.	68.0	286.0	102.6	2,848.8
1940	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1946	170.6	208.6	107.0	165.7	223.5	42.5	2,752.4
1954	190.4	213.7	147.1	185.6	242.7	90.5	2,369.5
PER CENT OF OPERATING REVENUE							
1926		N.A.	N.A.	85.1%		6.7%	8.2%
1933		N.A.	N.A.	71.9		9.4	18.7
1940		52.9%	38.6%	91.5		7.9	0.6
1946		64.6	24.2	88.8		2.0	9.2
1954		59.3	29.9	89.2		3.8	7.0

N.A.-Not Available.

TABLE XIII (Cont'd)
TRENDS IN OPERATING REVENUES, EXPENSES, TAXES AND NET OPERATING RESULTS FOR INDIVIDUAL CITIES (Cont'd)
Years 1926, 1933, 1940, 1946 and 1954

Year	Operating Revenue	Operating Expenses (Incl. Depr.)			Net Revenue	All Taxes	Operating Income
		Wages & Salaries	Other Than Wages & Sal.	Total Expense			
	(Thousands)	(Thousands)	(Thousands)	(Thousands)	(Thousands)	(Thousands)	(Thousands)
RESULTS OF OPERATION			DETROIT, MICH.				
1926	$24,738	N.A.	N.A.	$19,139	$5,599	$ 724	$4,875
1933	13,058	$6,807	$2,649	9,456	3,602	1,082	2,520
1940	19,899	11,066	3,707	14,773	5,126	723	4,403
1946	43,417	27,538	12,029	39,567	3,850	771	3,079
1954	40,163	23,310	14,303	37,613	2,550	1,123	1,427
INDEXES (1940=100)							
1926	124.3	N.A.	N.A.	129.6	109.2	100.1	110.7
1933	65.6	61.5	71.5	64.0	70.3	149.7	57.2
1940	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1946	218.2	248.9	324.5	267.8	75.1	106.6	69.9
1954	201.8	210.6	385.8	254.6	49.7	155.3	32.4
PER CENT OF OPERATING REVENUE							
1926		N.A.	N.A.	77.4%		2.9%	19.7%
1933		52.1%	20.3%	72.4		8.3	19.3
1940		55.6	18.7	74.3		3.6	22.1
1946		63.4	27.7	91.1		1.8	7.1
1954		58.0	35.6	93.6		2.8	3.6
RESULTS OF OPERATION			HOUSTON, TEX.				
1926	$2,779	N.A.	N.A.	$1,841	$ 938	$ 238	$ 700
1933	1,980	811	457	1,268	712	225	487
1940	3,330	N.A.	N.A.	2,407	923	428	495
1946	7,715	3,742	2,413	6,155	1,560	1,185	375
1954	8,746	N.A.	N.A.	7,431	1,315	1,075	240
INDEXES (1940=100)							
1926	83.5	N.A.	N.A.	76.5	101.6	55.6	141.4
1933	59.5	N.A.	N.A.	52.7	77.1	52.6	98.4
1940	100.0	N.A.	N.A.	100.0	100.0	100.0	100.0
1946	231.7	N.A.	N.A.	255.7	169.0	276.9	75.8
1954	262.6	N.A.	N.A.	308.7	142.5	251.2	48.5
PER CENT OF OPERATING REVENUE							
1926		N.A.	N.A.	66.2%		8.6%	25.2%
1933		41.0%	23.0%	64.0		11.4	24.6
1940		N.A.	N.A.	72.3		12.9	14.8
1946		48.5	31.3	79.8		15.3	4.9
1954		N.A.	N.A.	85.0		12.3	2.7

N.A.-Not Available.

TABLE XIII (Cont'd)
TRENDS IN OPERATING REVENUES, EXPENSES, TAXES AND NET OPERATING RESULTS FOR INDIVIDUAL CITIES (Cont'd)
Years 1926, 1933, 1940, 1946 and 1954

Year	Operating Revenue	Operating Expenses (Incl. Depr.)			Net Revenue	All Taxes	Operating Income
		Wages & Salaries	Other Than Wages & Sal.	Total Expense			
	(Thousands)	(Thousands)	(Thousands)	(Thousands)	(Thousands)	(Thousands)	(Thousands)
RESULTS OF OPERATION			KANSAS CITY, MO.				
1926	$9,850	N.A.	N.A.	$8,611	$1,239	$ 545	$ 694
1933	5,603	$2,550	$2,154	4,704	899	406	493
1940	6,262	3,171	2,691	5,862	400	410	(d)10
1946	12,708	6,082	4,323	10,405	2,303	1,186	1,117
1954	11,426	6,644	3,556	10,200	1,226	827	399
INDEXES (1940=100)							
1926	157.3	N.A.	N.A.	146.9	309.8	132.9	
1933	89.5	80.4	80.0	80.2	224.8	99.0	Deficit
1940	100.0	100.0	100.0	100.0	100.0	100.0	in Base
1946	202.9	191.8	160.6	177.5	575.8	289.3	Year
1954	182.5	209.5	132.1	174.0	306.5	201.7	
PER CENT OF OPERATING REVENUE							
1926		N.A.	N.A.	87.4%		5.5%	7.1%
1933		45.5%	38.5%	84.0		7.2	8.8
1940		50.6	43.0	93.6		6.5	(d) 0.1
1946		47.9	34.0	81.9		9.3	8.8
1954		58.2	31.1	89.3		7.2	3.5
RESULTS OF OPERATION			LOS ANGELES, CAL.				
1926	$13,091	N.A.	N.A.	$10,931	$2,160	$ 808	$1,352
1933	9,471	$4,809	$3,464	8,273	1,198	598	600
1940	11,453	6,880	3,464	10,344	1,109	915	194
1946	22,489	11,861	7,146	19,007	3,482	1,917	1,565
1954	24,544	13,065	7,558	20,623	3,921	2,871	1,050
INDEXES (1940=100)							
1926	114.3	N.A.	N.A.	105.7	194.8	88.3	696.9
1933	82.7	69.9	100.0	80.0	108.0	65.3	309.3
1940	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1946	196.4	172.4	206.3	183.7	314.0	209.5	806.7
1954	214.3	189.9	218.2	199.4	353.6	313.7	541.2
PER CENT OF OPERATING REVENUE							
1926		N.A.	N.A.	83.5%		6.2%	10.3%
1933		50.8%	36.6%	87.4		6.3	6.3
1940		60.1	30.2	90.3		8.0	1.7
1946		52.7	31.8	84.5		8.5	7.0
1954		53.2	30.8	84.0		11.7	4.3

N.A.-Not Available. (d) Deficit.

TABLE XIII (Cont'd)
TRENDS IN OPERATING REVENUES, EXPENSES, TAXES AND NET OPERATING RESULTS FOR INDIVIDUAL CITIES (Cont'd)
Years 1926, 1933, 1940, 1946 and 1954

Year	Operating Revenue	Operating Expenses (Incl. Depr.)			Net Revenue	All Taxes	Operating Income
		Wages & Salaries	Other Than Wages & Sal.	Total Expense			
	(Thousands)	(Thousands)	(Thousands)	(Thousands)	(Thousands)	(Thousands)	(Thousands)
RESULTS OF OPERATION			MINNEAPOLIS-ST. PAUL, MINN.				
1926	$13,948	N.A.	N.A.	$10,323	$3,625	$1,229	$2,396
1933	8,076	$3,666	$2,528	6,194	1,882	691	1,191
1940	8,405	4,251	2,275	6,526	1,879	852	1,027
1946	16,321	8,491	3,994	12,485	3,836	2,362	1,474
1954	16,503	8,969	5,048	14,017	2,486	1,523	963
INDEXES (1940=100)							
1926	165.9	N.A.	N.A.	158.2	192.9	144.1	233.3
1933	96.1	86.2	111.1	94.9	100.2	81.0	116.0
1940	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1946	194.2	199.7	175.6	191.3	204.2	276.9	143.5
1954	196.3	211.0	221.9	214.8	132.3	178.5	93.8
PER CENT OF OPERATING REVENUE							
1926		N.A.	N.A.	74.0%		8.8%	17.2%
1933		45.4%	31.3%	76.7		8.6	14.7
1940		50.6	27.1	77.7		10.1	12.2
1946		52.0	24.5	76.5		14.5	9.0
1954		54.4	30.6	85.0		9.2	5.8
RESULTS OF OPERATION			PHILADELPHIA, PA.				
1926	$58,028	N.A.	N.A.	$41,506	$16,522	$3,409	$13,113
1933	32,235	$12,753	$6,750	19,503	12,732	2,665	10,067
1940	33,735	16,768	8,789	25,557	8,178	2,315	5,863
1946	58,517	34,195	14,644	48,839	9,678	3,193	6,485
1954	72,666	45,318	17,566	62,884	9,782	2,370	7,412
INDEXES (1940=100)							
1926	172.0	N.A.	N.A.	162.4	202.2	147.3	223.7
1933	95.6	76.1	76.8	76.3	155.7	115.1	171.7
1940	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1946	173.5	203.9	166.6	191.1	118.3	137.9	110.6
1954	215.4	270.3	199.9	246.1	119.6	102.4	126.4
PER CENT OF OPERATING REVENUE							
1926		N.A.	N.A.	71.5%		5.9%	22.6%
1933		39.6%	20.9%	60.5		8.3	31.2
1940		49.7	26.1	75.8		6.9	17.3
1946		58.4	25.0	83.4		5.5	11.1
1954		62.4	24.1	86.5		3.3	10.2

N.A.-Not Available.

TABLE XIII (Cont'd)
TRENDS IN OPERATING REVENUES, EXPENSES, TAXES AND NET OPERATING RESULTS FOR INDIVIDUAL CITIES (Cont'd)
Years 1926, 1933, 1940, 1946 and 1954

Year	Operating Revenue	Operating Expenses (Incl. Depr.)			Net Revenue	All Taxes	(a) Operating Income
		Wages & Salaries	Other Than Wages & Sal.	Total Expense			
	(Thousands)	(Thousands)	(Thousands)	(Thousands)	(Thousands)	(Thousands)	(Thousands)
RESULTS OF OPERATION			PITTSBURGH, PA.				
1926	$22,028	N.A.	N.A.	$16,973	$5,055	$ 626	$4,429
1933	11,668	$4,415	$6,136	10,551	1,117	395	722
1940	13,223	6,271	6,245	12,516	707	880	(d) 173
1946	22,183	11,333	8,154	19,487	2,696	1,086	1,610
1954	20,607	13,315	6,570	19,885	722	735	(d) 13
INDEXES (1940=100)							
1926	166.6	N.A.	N.A.	135.6	715.0	71.1	
1933	88.2	70.4	98.3	84.3	158.0	44.9	Deficit
1940	100.0	100.0	100.0	100.0	100.0	100.0	in Base
1946	167.8	180.7	130.6	155.7	381.3	123.4	Year
1954	155.8	212.3	105.2	158.9	102.1	83.5	
PER CENT OF OPERATING REVENUE							
1926		N.A.	N.A.	77.1%		2.8%	20.1%
1933		37.8%	52.6%	90.4		3.4	6.2
1940		47.4	47.2	94.6		6.7	(d) 1.3
1946		51.1	36.7	87.8		4.9	7.3
1954		64.6	31.9	96.5		3.6	(d) 0.1
RESULTS OF OPERATION			PORTLAND, ORE.				
1926	$4,755	N.A.	N.A.	$3,591	$1,164	$ 330	$ 834
1933	2,849	$1,504	$1,209	2,713	136	176	(d) 40
1940	3,497	1,720	1,365	3,085	412	251	161
1946	7,669	3,871	2,181	6,052	1,617	988	629
1954	5,672	3,290	1,965	5,255	417	415	2
INDEXES (1940=100)							
1926	136.0	N.A.	N.A.	116.4	282.5	131.5	518.0
1933	81.5	87.4	88.6	87.9	33.0	70.1	(d)
1940	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1946	219.3	225.1	159.8	196.2	392.5	393.6	390.7
1954	162.2	191.3	144.0	170.3	101.2	165.3	1.2
PER CENT OF OPERATING REVENUE							
1926		N.A.	N.A.	75.5%		6.9%	17.6%
1933		52.8%	42.4%	95.2		6.2	(d) 1.4
1940		49.2	39.0	88.2		7.2	4.6
1946		50.5	28.4	78.9		12.9	8.2
1954		58.0	34.6	92.6		7.3	0.1

N.A.-Not Available.
(d) Deficit.
(a) Includes auxiliary operating revenue.

TABLE XIII (Cont'd)
TRENDS IN OPERATING REVENUES, EXPENSES, TAXES AND NET OPERATING RESULTS FOR INDIVIDUAL CITIES (Cont'd)
Years 1926, 1933, 1940, 1946 and 1954

Year	Operating Revenue	Operating Expenses (Incl. Depr.)			Net Revenue	All Taxes	Operating Income
		Wages & Salaries	Other Than Wages & Sal.	Total Expense			
	(Thousands)	(Thousands)	(Thousands)	(Thousands)	(Thousands)	(Thousands)	(Thousands)
RESULTS OF OPERATION			ST. LOUIS, MO.				
1926	$21,477	N.A.	N.A.	$17,201	$4,276	$1,968	$2,308
1933	12,845	$5,949	$4,853	10,802	2,043	1,239	804
1940	13,673	6,548	5,280	11,828	1,845	1,384	461
1946	27,033	11,331	10,498	21,829	5,204	3,479	1,725
1954	25,081	12,717	8,100	20,817	4,264	3,171	1,093
INDEXES (1940=100)							
1926	157.1	N.A.	N.A.	145.4	231.8	142.2	500.6
1933	93.9	90.9	91.9	91.3	110.7	89.5	174.4
1940	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1946	197.7	173.0	198.8	184.6	282.1	251.4	374.2
1954	183.4	194.2	153.4	176.0	231.1	229.1	237.1
PER CENT OF OPERATING REVENUE							
1926		N.A.	N.A.	80.1%		9.2%	10.7%
1933		46.3%	37.8%	84.1		9.6	6.3
1940		47.9	38.6	86.5		10.1	3.4
1946		41.9	38.8	80.7		12.9	6.4
1954		50.7	32.3	83.0		12.6	4.4
RESULTS OF OPERATION			SAN FRANCISCO, CAL.				
1926	$13,375	N.A.	N.A.	$11,269	$2,106	$ 691	$1,415
1933	10,190	$5,779	$3,380	9,159	1,031	382	649
1940	10,154	6,047	3,366	9,413	741	416	325
1946	18,404	11,057	6,929	17,986	418	13	405
1954	21,582	14,454	7,638	22,092	(d)510	393	(d)903
INDEXES (1940=100)							
1926	131.7	N.A.	N.A.	119.7	284.2	161.1	435.4
1933	100.4	95.6	100.4	97.3	139.1	91.8	199.7
1940	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1946	181.2	182.8	205.8	191.1	56.4	3.1	124.6
1954	212.5	239.0	226.9	234.7	(d)	94.5	(d)
PER CENT OF OPERATING REVENUE							
1926		N.A.	N.A.	84.3%		5.1%	10.6%
1933		56.7%	33.2%	89.9		3.7	6.4
1940		59.6	33.1	92.7		4.1	3.2
1946		60.1	37.6	97.7		0.1	2.2
1954		67.0	35.4	102.4		1.8	(d) 4.2

N.A.-Not Available. (d) Deficit.

TABLE XIII (Cont'd)
TRENDS IN OPERATING REVENUES, EXPENSES, TAXES AND NET OPERATING RESULTS FOR INDIVIDUAL CITIES (Cont'd)
Years 1926, 1933, 1940, 1946 and 1954

Year	Operating Revenue	Operating Expenses (Incl. Depr.)			Net Revenue	All Taxes	Operating Income
		Wages & Salaries	Other Than Wages & Sal.	Total Expense			
	(Thousands)	(Thousands)	(Thousands)	(Thousands)	(Thousands)	(Thousands)	(Thousands)
RESULTS OF OPERATION			SCRANTON, PA.				
1926	$2,241	N.A.	N.A.	$1,631	$ 610	$ 53	$557
1933	1,453	$632	$ 708	1,340	113	57	56
1940	1,260	639	362	1,001	259	90	169
1946	2,558	1,125	1,006	2,131	427	289	138
1954	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
INDEXES (1940=100)							
1926	177.9	N.A.	N.A.	162.9	235.5	58.9	329.6
1933	115.3	98.9	195.6	133.9	43.6	63.3	33.1
1940	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1946	203.0	176.1	277.9	212.9	164.9	321.1	81.7
1954	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
PER CENT OF OPERATING REVENUE							
1926		N.A.	N.A.	72.8%		2.4%	24.8%
1933		43.5%	48.7%	92.2		3.9	3.9
1940		50.7	28.7	79.4		7.1	13.5
1946		44.0	39.3	83.3		11.3	5.4
1954		N.A.	N.A.	N.A.		N.A.	N.A.
RESULTS OF OPERATION			SEATTLE, WASH.				
1926	$5,791	N.A.	N.A.	$5,055	$ 736	-0-	$ 736
1933	3,673	$2,143	$1,851	3,994	(d)321	-0-	(d)321
1940	4,627	2,668	1,435	4,103	524	$174	350
1946	9,809	5,634	2,790	8,424	1,385	412	973
1954	10,270	7,240	2,455	9,695	575	554	21
INDEXES (1940=100)							
1926	125.2	N.A.	N.A.	123.2	140.5	-0-	210.3
1933	79.4	80.3	129.0	97.3	(d)	-0-	(d)
1940	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1946	212.0	211.2	194.4	205.3	264.3	236.8	278.0
1954	222.0	271.4	171.1	236.3	109.7	318.4	6.0
PER CENT OF OPERATING REVENUE							
1926		N.A.	N.A.	87.3%		0.0%	12.7%
1933		56.9%	49.2%	106.1		0.0	(d)6.1
1940		57.7	31.0	88.7		3.7	7.6
1946		57.5	28.4	85.9		4.2	9.9
1954		70.5	23.9	94.4		5.4	0.2

N.A.-Not Available. (d)Deficit.

TABLE XIII (Cont'd)
TRENDS IN OPERATING REVENUES, EXPENSES, TAXES AND NET OPERATING RESULTS FOR INDIVIDUAL CITIES (Cont'd)
Years 1926, 1933, 1940, 1946 and 1954

Year	Operating Revenue	Operating Expenses (Incl. Depr.)			Net Revenue	All Taxes	Operating Income
		Wages & Salaries	Other Than Wages & Sal.	Total Expense			
	(Thousands)	(Thousands)	(Thousands)	(Thousands)	(Thousands)	(Thousands)	(Thousands)
RESULTS OF OPERATION			WASHINGTON, D.C.				
1926	$11,073	N.A.	N.A.	$8,175	$2,898	$ 892	$2,006
1933	7,572	N.A.	N.A.	6,183	1,389	628	761
1940	13,037	$6,592	$3,701	10,293	2,744	1,237	1,507
1946	26,997	14,876	7,933	22,809	4,188	2,746	1,442
1954	26,649	15,967	8,397	24,364	2,285	1,438	847
INDEXES (1940=100)							
1926	84.9	N.A.	N.A.	79.4	105.6	72.1	133.1
1933	58.1	N.A.	N.A.	60.1	50.6	50.8	50.5
1940	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1946	207.1	225.7	214.3	221.6	152.6	222.0	95.7
1954	204.4	242.2	226.9	236.7	83.3	116.2	56.2
PER CENT OF OPERATING REVENUE							
1926		N.A.	N.A.	73.8%		8.1%	18.1%
1933		N.A.	N.A.	81.7		8.3	10.0
1940		50.6%	28.4%	79.0		9.4	11.6
1946		55.1	29.4	84.5		10.2	5.3
1954		59.9	31.5	91.4		5.4	3.2

N.A.-Not Available.

TABLE XIV
TREND OF CONSUMERS' PRICE INDEX, AVERAGE FARE
AND OPERATING COST PER REVENUE PASSENGER CARRIED
INDIVIDUAL CITIES - 1940 TO 1954 INCLUSIVE
(1940=100.0)

Year	Consumers' Price Index (BLS)	Average Fare	Operating Costs	
			Operating Expenses Incl. Salaries & Wages	Salaries and Wages
BALTIMORE, MD.				
1940	100.0	100.0	100.0	100.0
1941	106.4	101.1	95.9	97.6
1942	118.6	103.4	93.2	92.9
1943	126.2	104.5	91.8	90.5
1944	128.1	104.5	93.2	97.6
1945	132.2	104.5	97.3	100.0
1946	142.3	103.4	95.9	100.0
1947	164.2	103.4	106.8	114.3
1948	176.2	103.4	123.3	131.0
1949	175.9	127.3	137.0	150.0
1950	177.1	135.2	150.7	164.3
1951	190.0	154.5	167.1	185.7
1952	195.7	168.2	184.9	207.1
1953	197.4	176.1	179.5	195.2
1954	198.1	179.5	184.9	202.4
BOSTON, MASS.				
1940	100.0	100.0	100.0	100.0
1941	104.2	101.1	96.9	100.0
1942	115.2	101.1	90.8	93.3
1943	121.6	101.1	92.3	97.8
1944	122.9	100.0	100.0	104.4
1945	125.3	100.0	104.6	111.1
1946	135.7	100.0	113.8	122.2
1947	154.3	112.6	135.4	142.2
1948	166.9	112.6	156.9	166.7
1949	165.0	(Not Available)		
1950	167.3	154.0	190.8	215.6
1951	178.3	156.3	216.9	251.1
1952	182.2	156.3	232.2	260.0
1953	182.7	152.9	229.2	253.3
1954	183.5	175.9	243.1	264.4

Year	Consumers' Price Index (BLS)	Average Fare	Operating Costs	
			Operating Expenses Incl. Salaries & Wages	Salaries and Wages
CINCINNATI, O.				
1940	100.0	100.0	100.0	100.0
1941	105.8	102.2	98.6	95.6
1942	117.7	103.3	95.8	91.1
1943	124.3	103.3	95.8	91.1
1944	126.9	103.3	91.5	93.3
1945	129.8	103.3	95.8	97.8
1946	140.1	104.4	107.0	106.7
1947	162.7	106.6	118.3	122.2
1948	175.3	120.9	135.2	133.3
1949	172.1	134.1	150.7	155.6
1950	174.0	142.9	160.6	157.8
1951	187.2	159.3	177.5	171.1
1952	191.3	173.6	184.5	182.2
1953	194.4	184.6	198.6	197.8
1954	193.9	192.3	216.9	220.0
CLEVELAND, O.				
1940	100.0	100.0	100.0	100.0
1941	105.9	104.3	103.8	106.3
1942	117.5	108.5	101.8	110.6
1943	125.6	110.6	97.1	122.7
1944	127.9	114.9	109.0	128.6
1945	130.0	114.9	108.4	135.7
1946	140.1	114.9	111.1	140.0
1947	160.4	119.1	127.1	158.8
1948	173.7	(		)
1949	170.9	(		)
1950	172.6	(		)
1951	186.4	(Not Available		)
1952	190.7	(		)
1953	192.3	(		)
1954	194.1	(		)

TABLE XIV (Cont' d)
TREND OF CONSUMERS' PRICE INDEX, AVERAGE FARE
AND OPERATING COST PER REVENUE PASSENGER CARRIED (Cont'd)
INDIVIDUAL CITIES - 1940 TO 1954 INCLUSIVE

(1940=100.0)

Year	Consumers' Price Index (BLS)	Average Fare	Operating Costs	
			Operating Expenses Incl. Salaries & Wages	Salaries and Wages
DETROIT, MICH.				
1940	100.0	100.0	100.0	100.0
1941	106.4	101.3	121.4	104.8
1942	118.0	101.3	125.0	109.5
1943	124.4	101.3	125.0	116.7
1944	126.3	100.0	128.6	114.3
1945	129.6	100.0	139.3	133.3
1946	141.1	133.8	164.3	152.4
1947	160.6	135.1	178.6	161.9
1948	173.4	155.4	210.7	188.1
1949	171.2	163.5	221.4	195.2
1950	174.1	175.7	237.5	207.1
1951	187.9	187.8	269.6	226.2
1952	192.4	208.1	275.0	226.2
1953	195.6	243.2	301.8	252.4
1954	196.5	245.9	317.9	261.9
HOUSTON, TEX.				
1940	100.0	100.0	100.0	(
1941	104.3	100.0	95.0	(
1942	115.2	96.4	90.0	(
1943	121.2	94.0	85.0	(
1944	122.4	94.0	95.0	(
1945	125.1	92.8	98.3	(
1946	134.9	88.0	98.3	(Not
1947	158.5	89.2	105.0	(Available
1948	171.9	102.4	120.0	(
1949	171.4	108.4	125.0	(
1950	176.6	119.3	145.0	(
1951	190.6	165.1	180.0	(
1952	193.0	163.9	181.7	(
1953	195.3	161.4	191.7	(
1954	195.1	(Not Available		)

Year	Consumers' Price Index (BLS)	Average Fare	Operating Costs	
			Operating Expenses Incl. Salaries & Wages	Salaries and Wages
KANSAS CITY, MO.				
1940	100.0	100.0	100.0	100.0
1941	104.6	100.0	97.7	95.8
1942	116.0	100.0	83.0	77.1
1943	123.2	100.0	77.3	75.0
1944	125.5	100.0	79.5	79.2
1945	128.8	100.0	81.8	77.1
1946	137.8	100.0	87.5	93.8
1947	155.8	101.1	101.1	110.4
1948	168.4	116.3	110.2	120.8
1949	166.6	132.6	131.8	145.8
1950	169.2	139.1	140.9	156.3
1951	182.0	143.5	142.0	166.7
1952	187.2	173.9	160.2	187.5
1953	188.1	180.4	165.9	195.8
1954	189.0	183.7	176.1	210.4
LOS ANGELES, CAL.				
1940	100.0	100.0	100.0	100.0
1941	105.1	100.0	98.3	97.5
1942	118.2	104.6	93.2	90.0
1943	124.0	112.3	91.5	87.5
1944	125.9	115.4	100.0	97.5
1945	129.7	118.5	111.9	100.0
1946	139.8	112.3	106.8	97.5
1947	157.8	104.6	100.0	97.5
1948	169.2	116.9	111.9	107.5
1949	168.8	135.4	130.5	117.5
1950	169.9	149.2	144.1	132.5
1951	184.3	175.4	166.1	152.5
1952	189.6	218.5	194.9	177.5
1953	191.2	233.8	213.6	197.5
1954	191.1	246.1	230.5	215.0

TABLE XIV (Cont'd)
TREND OF CONSUMERS' PRICE INDEX, AVERAGE FARE
AND OPERATING COST PER REVENUE PASSENGER CARRIED (Cont'd)
INDIVIDUAL CITIES - 1940 TO 1954 INCLUSIVE
(1940=100.0)

Year	Consumers' Price Index (BLS)	Average Fare	Operating Costs	
			Operating Expenses Incl. Salaries & Wages	Salaries and Wages
MINNEAPOLIS ST. PAUL, MINN.				
1940	100.0	100.0	100.0	100.0
1941	105.1	101.3	98.4	102.4
1942	114.9	108.8	95.2	100.0
1943	120.0	102.5	90.5	95.1
1944	121.3	98.8	90.5	92.7
1945	123.5	100.0	92.1	95.1
1946	134.5	100.0	98.4	102.4
1947	155.3	102.5	115.9	126.8
1948	169.5	123.8	142.9	156.1
1949	167.8	140.0	169.8	190.2
1950	169.5	158.8	187.3	192.7
1951	181.9	176.3	214.3	214.6
1952	188.0	182.5	219.0	214.6
1953	189.5	227.5	254.0	251.2
1954	191.8	232.5	257.1	253.7
PHILADELPHIA, PA.				
1940	100.0	100.0	100.0	100.0
1941	105.1	100.0	101.7	97.5
1942	116.9	101.3	98.3	95.0
1943	124.3	100.0	98.3	92.5
1944	126.1	101.3	101.7	105.0
1945	129.2	101.3	108.3	107.5
1946	140.3	101.3	113.3	120.0
1947	160.7	113.9	130.0	140.0
1948	173.5	130.4	151.7	160.0
1949	171.5	138.0	170.0	177.5
1950	172.5	149.4	176.7	187.5
1951	188.5	178.5	206.7	222.5
1952	192.1	181.0	213.3	230.0
1953	193.1	203.8	245.0	267.5
1954	195.1	219.0	255.0	275.0

Year	Consumers' Price Index (BLS)	Average Fare	Operating Costs	
			Operating Expenses Incl. Salaries & Wages	Salaries and Wages
PITTSBURGH, PA.				
1940	100.0	100.0	100.0	100.0
1941	105.4	98.8	93.7	97.4
1942	116.1	98.8	86.1	92.3
1943	123.6	96.3	78.5	89.7
1944	126.1	96.3	81.0	92.3
1945	129.2	96.3	84.8	100.0
1946	140.4	96.3	89.9	105.1
1947	162.6	97.6	98.7	117.9
1948	174.5	113.4	112.7	133.3
1949	172.2	115.9	129.1	153.8
1950	173.5	141.5	148.1	182.1
1951	188.1	175.6	169.6	212.8
1952	191.7	198.8	194.9	243.6
1953	192.7	202.4	202.5	266.7
1954	194.7	229.3	232.9	315.4
PORTLAND, ORE.				
1940	100.0	100.0	100.0	100.0
1941	106.3	102.8	98.4	102.9
1942	121.1	104.2	88.9	97.1
1943	128.5	105.6	85.7	100.0
1944	130.0	101.4	87.3	102.9
1945	134.1	102.8	87.3	94.3
1946	143.6	104.2	93.7	108.6
1947	162.4	107.0	104.8	137.1
1948	177.0	122.5	128.6	168.6
1949	175.1	139.4	149.2	168.6
1950	178.2	150.7	155.6	180.0
1951	192.8	160.6	168.3	197.1
1952	196.9	183.1	187.3	217.1
1953	197.9	191.5	201.6	231.4
1954	197.6	195.8	207.9	234.3

TABLE XIV (Cont'd)
TREND OF CONSUMERS' PRICE INDEX, AVERAGE FARE
AND OPERATING COST PER REVENUE PASSENGER CARRIED (Cont'd)
INDIVIDUAL CITIES - 1940 To 1954 INCLUSIVE
(1940=100.0)

Year	Consumers' Price Index (BLS)	Average Fare	Operating Costs	
			Operating Expenses Incl. Salaries & Wages	Salaries and Wages
SAN FRANCISCO, CAL.				
1940	100.0	100.0	100.0	100.0
1941	105.6	100.0	100.0	100.0
1942	118.4	101.7	92.6	91.4
1943	126.2	101.7	92.6 (Not	)
1944	129.5	105.2	96.3 (Available	)
1945	132.9	119.0	114.8	114.3
1946	143.6	134.5	142.6	137.1
1947	162.9	144.8	166.7	168.6
1948	174.3	144.8	175.9	177.1
1949	173.9	167.2	209.3	188.6
1950	174.1	169.0	203.7	188.6
1951	188.1	169.0	205.6	194.3
1952	195.1	215.5	253.7	234.3
1953	198.3	248.3	266.7	262.9
1954	198.1	244.8	272.2	274.3
SCRANTON, PA.				
1940	100.0	100.0	100.0	100.0
1941	104.9	100.0	96.5	95.5
1942	115.9	100.0	90.7	86.6
1943	123.1	100.0	86.3	78.5
1944	125.0	100.0	82.5	80.9
1945	128.5	100.0	92.6	84.2
1946	140.3	101.3	105.4	87.1
1947	163.1	101.3	110.3	101.7
1948	172.5	115.2	128.1	119.3
1949	170.3	125.3	141.4	133.2
1950	171.5	125.3	142.8	111.4
1951	185.2	145.6	162.6	157.9
1952	189.7	169.6	194.2	188.4
1953	190.1	183.5	216.6	217.3
1954	189.9 (	Not Available		)

Year	Consumers' Price Index (BLS)	Average Fare	Operating Costs	
			Operating Expenses Incl. Salaries & Wages	Salaries and Wages
SEATTLE, WASH.				
1940	100.0	100.0	100.0	100.0
1941	106.1	98.8	93.1	86.5
1942	119.3	102.5	79.4	76.5
1943	126.1	103.7	81.9	83.9
1944	127.9	103.7	82.1	80.8
1945	130.9	102.5	86.8	84.6
1946	141.0	102.5	98.4	101.3
1947	159.5	111.1	112.6	117.3
1948	172.8	119.8	127.7	129.4
1949	171.9	132.1	137.2	145.7
1950	174.5	143.2	153.4	161.7
1951	188.1	166.7	169.4	180.8
1952	192.8	176.5	186.4	199.2
1953	195.0	201.2	201.2	255.2
1954	195.1	208.6	223.8	257.1
WASHINGTON, D.C.				
1940	100.0	100.0	100.0	100.0
1941	104.8	101.5	97.5	98.9
1942	116.1	101.5	90.4	88.7
1943	123.4	98.5	86.8	86.2
1944	125.2	97.1	79.0	90.4
1945	129.0	97.1	88.6	85.6
1946	140.2	95.6	100.7	102.5
1947	158.5	102.9	117.6	118.9
1948	168.0	113.2	127.5	128.5
1949	167.9	130.9	148.9	153.4
1950	170.0	144.1	155.6	158.2
1951	181.5	160.3	168.1	168.1
1952	186.3	150.0	162.3	164.4
1953	187.5	167.6	184.4	191.2
1954	187.6	232.4	266.3	272.0

NOTE: ST. LOUIS, MO. - Omitted because passenger statistics are not available.

TABLE XV
QUANTITY OF TRANSIT SERVICE RELATED TO PASSENGER DEMAND
INDIVIDUAL CITIES
1926, 1933, 1940, 1946 and 1954

Year	Revenue Passengers (Thousands)	Vehicle Miles (Thousands)	Vehicle Miles Per 100 Rev. Passgrs	
			Number	Index (1940=100)
BALTIMORE, MD.				
1926	232,314	37,799	16.3	70.9
1933	114,740	33,174	28.9	125.7
1940	142,892	32,873	23.0	100.0
1946	262,256	39,476	15.1	65.7
1954	140,479	28,540	20.3	88.3
BOSTON, MASS.				
1926	371,218	57,896	15.6	101.3
1933	267,845	46,141	17.2	111.7
1940	294,451	45,433	15.4	100.0
1946	433,095	55,400	12.8	83.1
1954	244,112	42,279	17.3	112.3
CINCINNATI, OHIO				
1926	93,598	19,877	21.2	73.1
1933	62,532	18,298	29.3	101.0
1940	67,744	19,624	29.0	100.0
1946	132,734	26,832	20.2	69.7
1954	72,057	21,830	30.3	104.5
CLEVELAND, OHIO				
1926	276,423	39,151	14.2	124.6
1933	237,285	32,047	13.5	118.4
1940	299,593	34,279	11.4	100.0
1946	446,394	44,974	10.1	88.6
1954	N.A.	41,803	N.A.	N.A.
DETROIT, MICH.				
1926	384,790	62,087	16.1	55.7
1933	185,493	39,472	21.3	73.7
1940	262,921	76,043	28.9	100.0
1946	429,247	99,521	23.2	80.3
1954	211,840	61,807	29.2	101.0
HOUSTON, TEX.				
1926	42,172	8,604	20.4	60.0
1933	24,368	8,817	36.2	106.5
1940	39,986	13,612	34.0	100.0
1946	104,726	22,785	21.8	64.1
1954	N.A.	N.A.	N.A.	N.A.
KANSAS CITY, MO.				
1926	124,325	27,524	22.1	57.0
1933	68,191	23,543	34.5	88.9
1940	66,702	25,909	38.8	100.0
1946	135,827	27,790	20.5	52.8
1954	65,751	18,756	28.5	73.5
LOS ANGELES, CAL.				
1926	250,781	36,662	14.6	68.9
1933	140,540	32,057	22.8	107.5
1940	174,067	36,826	21.2	100.0
1946	302,038	39,592	13.1	61.8
1954	151,947	33,612	22.1	104.2
MINNEAPOLIS & ST. PAUL, MINN.				
1926	190,827	34,287	18.0	73.2
1933	100,387	26,738	26.6	108.1
1940	104,314	25,637	24.6	100.0
1946	201,527	33,071	16.4	66.7
1954	86,593	24,907	28.8	117.1
PHILADELPHIA, PA.				
1926	681,811	N.A.	N.A.	N.A.
1933	410,196	73,188	17.8	95.7
1940	423,315	78,945	18.6	100.0
1946	715,456	107,618	15.0	80.6
1954	411,827	88,058	21.4	115.1

N.A.=Not available.

TABLE XV (Cont'd)
QUANTITY OF TRANSIT SERVICE RELATED TO PASSENGER DEMAND (Cont'd)
INDIVIDUAL CITIES
1926, 1933, 1940, 1946 and 1954

Year	Revenue Passengers (Thousands)	Vehicle Miles (Thousands)	Vehicle Miles Per 100 Rev. Passgrs	
			Number	Index (1940=100)
PITTSBURGH, PA.				
1926	268,871	42,137	15.7	69.8
1933	139,725	30,391	21.8	96.9
1940	159,126	35,839	22.5	100.0
1946	275,526	42,477	15.4	68.4
1954	108,010	26,041	24.1	107.1
PORTLAND, ORE.				
1926	60,812	15,011	24.7	90.8
1933	41,792	14,635	35.0	128.7
1940	48,908	13,320	27.2	100.0
1946	102,256	18,197	17.8	65.4
1954	39,993	10,648	26.6	97.8
ST. LOUIS, MO.				
1926	296,728	N.A.	N.A.	
1933	144,251	41,086	28.5	
1940	N.A.	46,000	N.A.	N.A.
1946	400,324	56,009	14.0	
1954	149,089	35,526	23.8	
SAN FRANCISCO, CAL.				
1926	266,508	36,500	13.7	87.3
1933	207,407	32,208	15.5	98.7
1940	173,666	27,227	15.7	100.0
1946	232,508	29,626	12.7	80.9
1954	150,012	28,950	19.3	122.9
SCRANTON, PA.				
1926	28,750	3,818	13.3	52.6
1933	17,575	3,790	21.6	85.4
1940	15,808	4,000	25.3	100.0
1946	31,948	4,874	15.3	60.5
1954	N.A.	N.A.	N.A.	N.A.
SEATTLE, WASH.				
1926	69,122	16,500	23.9	77.1
1933	43,726	14,156	32.4	104.5
1940	56,385	17,469	31.0	100.0
1946	117,730	23,948	20.3	65.5
1954	59,525	20,399	34.3	110.6
WASHINGTON, D.C.				
1926	145,569	24,897	17.1	93.4
1933	91,354	22,995	25.2	137.7
1940	186,313	34,173	18.3	100.0
1946	410,126	48,267	11.8	64.5
1954	165,743	33,901	20.5	112.0

N.A.=Not available.

PART III - INDIVIDUAL COMPANY COMMENTS RE:

1. Analysis of Speeds and Delays
   a) SPEED Differentials between Transit and Private Auto
   b) Speed Differentials between Central District and Outlying Sections
   c) Delays - Specific Character, Causes and Effects on Transit
   d) Delays - Measurable Cost to Transit

2. An Indication as to the Length of Ride being taken or being offered now as compared with prewar (1940).

3. Measures Taken to Speed Up Transit, or Traffic Generally
   a) Curb Parking Control - Rush Hour Only or All Day (Central District and/or Major Thorofares)
   b) Turning Movement Controls
   c) Traffic Signal Timing
   d) One-Way Streets
   e) Pedestrian Controls
   f) Bus Stop Lengths or Locations
   g) Enforcement
   h) Other special measures

4. Operation of Transit on Expressways or Freeways (distance, travel time and speeds compared with street surface operation and with private passenger cars).

5. Additional Steps Taken to Either Speed Up Transit Service and/or Otherwise Make It More Attractive
   a) Fringe or Perimeter Parking
   b) Express Service on City Streets
   c) Extension of Distance between Stops
   d) Special Services ("Club Bus," More Seats per Passenger, etc.)
   e) Other Measures

ANALYSIS OF SPEEDS AND DELAYS
(A) SPEED DIFFERENTIALS BETWEEN TRANSIT AND PRIVATE AUTO

BRIDGEPORT, CONN.: Average transit speed is approximately 10 m.p.h. as compared to 12.2 m.p.h. for general traffic in downtown area.

COLUMBUS, 0.: During rush hours speed differentials between transit private autos estimated at 5 miles per hour,

DALLAS TEX.:

Average Speed Tests Private Auto
Downtown Area Peak Hour

Commerce Street	Main Street	Elm Street
8.4 M.P.H.	9.4 M.P.H.	9.4 M.P.H.

AVERAGE TRANSIT SPEEDS
Downtown Area Peak Hour

Commerce Street		Main Street		Elm Street		Pacific Street	
East	West	East	West	East	West	East	West
4.4 MPH	No Average Data	5.2 MPH	5.3 MPH	5.1 MPH	5.13 MPH	5.21 MPH	4.1 MPH

DAYTON, O.: Autos will average between 12 and 14 miles per hour while transit vehicles average about 7 miles per hour in the Central Business District.

DETROIT, MICH.:
(1) Average Transit Coach Speed March 1955 — 12.43 MPH
(2) Average Private Auto Speed — 18.00 MPH

HONOLULU, T.H.:
a) Average auto speed through central business district: 14 mph
b) Average bus speed (including time loading and unloading at bus stops) through central business district: 7.5 mph

INDIANAPOLIS, IND.:

Analysis of Speed

Central Area

E. Washington Route - Cruse St. to Ill-Washington

1.0 Miles

AM PEAK		PM PEAK	
Transit	8 minutes	Transit	9 minutes
Private Auto	6 minutes	Private Auto	7½ minutes

Del-Cent Route - St. Clair & Pennsylvania to Pennys to St. Clair & Delaware

1.6 Miles

AM PEAK		PM PEAK	
Transit	13 minutes	Transit	16 minutes
Private Auto	9 minutes	Private Auto	11 minutes

LOUISVILLE, KY.: Average overall auto speeds of 12 to 17 M.P.H. compares with system average speed of 11.0 MPH for transit.

MILWAUKEE, WIS.: Auto speed estimated to be 20 to 25 per cent faster.

NASHVILLE, TENN.: Ratio of Transit and Private Auto.... one to two.

OMAHA, NEBR.: Automobile 3 miles per hour faster than transit.

PHILADELPHIA, PA.: Operating speeds of transit vehicles on north-south streets of the central business district average 5.6 m.p.h. on an average weekday compared with an average of 8.3 m.p.h. for private automobiles. On east-west streets in the central business district, the speeds of transit vehicles average 5.8 m.p.h. compared with an average of 8.7 m.p.h. for private automobiles.

PITTSBURGH, PA.: All Pittsburgh transit vehicles are modern and have speed characteristics which enable them to at least keep pace with other traffic on city streets. The only difference in speed is due to the time consumed in making stops.

ANALYSIS OF SPEED AND DELAYS
(A) SPEED DIFFERENTIALS BETWEEN TRANSIT AND PRIVATE AUTO (Cont'd)

RICHMOND, VA.: Auto is 36% faster than bus

SAN ANTONIO, TEX.: Average 11.2 mph for Transit as compared with approximately 22 mph for Private Auto.

SAN FRANCISCO, CAL.:

	Downtown	Outlying	
Auto	7 to 13 mph	15 to 20 mph	(Excl. Blvds.)
Transit	6 to 9 mph	9 to 15 mph	

SEATTLE, WASH.: Transit System Average 11.37 mph
Legal Speed Limit 30 mph

TORONTO, ONT:

Trend of Surface Transit Speeds 1940-1955

March	Street Car	Bus	Trolley Coach	All Surface
1940	10.27	10.40	X	10.28
1945	10.10	10.47	X	10.13
1950	9.88	10.07	10.31	9.92
1955(c)	9.95	9.71	9.79	9.89

(c) Central Zone of Metropolitan Transit System inaugurated July 1/54.

Present Surface Transit Speed

Normal	10.48	10.29	10.59
Rush	9.40	9.58	9.52
Speed Loss in Rush Hour	1.08	0.71	1.07

The speed of private autos on main streets in the Central district runs around 8 to 10 mph and up to 15 to 18 mph on main streets beyond the Central area. However on a certain limited number of motor boulevard streets the speed of autos may average from 18 to 22 mph.

VANCOUVER, B.C.:
Average speed in downtown area proper - Transit 4.7 mph
- Auto 8.4 mph

WASHINGTON, D.C.: AM Rush - Transit 8 mph
- Auto 14 mph

WHEELING, W.VA: Transit more favorable for medium and short intracity rides, due to comparable running time. Any gain made by private care is offset by time lost in getting car out of garage and parking car upon arrival.

YONKERS, N.Y.: Speed differential between transit and private automobiles would be about 50%.

YOUNGSTOWN, O.: Speed differentials between transit and private auto - 80% differential.

CLEVELAND, O.:
1. Rail Rapid Transit operating at schedule speed of 26 mph will generally match auto speeds on trip over average city streets.
2. Express bus service via freeway will nearly approach average auto speeds on general city streets.
3. Local transit service operating at 10 to 12 mph is approximately 50% slower than auto speeds.

ANALYSIS OF SPEEDS AND DELAYS
(B) SPEED DIFFERENTIALS BETWEEN CENTRAL DISTRICT AND OUTLYING SECTIONS

ATLANTA, GA.: Transit speeds in Atlanta for the past seven years are shown below:

AVERAGE VEHICLE MILES PER HOUR
ATLANTA TRANSIT COMPANY
1946-1952

Year	Trackless Trolley	Bus	Street Car	System Total
1946	12.19	9.68	8.76	9.87
1947	10.80	9.75	9.08	9.99
1948	10.96	9.85	9.08	10.12
1949	10.78	9.84	9.21	10.54
1950	10.78	9.72	-	10.55
1951	10.69	9.84	-	10.52
1952	10.67	9.85	-	10.52

It will be noted that, with the elimination of streetcars, system speeds rose to 10½ miles per hour and there they have remained constant. Speeds of this order are characteristic of transit in cities of Atlanta's size.

Speeds in the central business district, in morning and midday hours are only about half as high as system speeds, and in evening rush hours only 40 to 45% as high.

A comparison of transit travel times during rush hours with the time required by automobiles to traverse identical distances in a somewhat larger area in central Atlanta shows that transit is at a considerable disadvantage.

Rush-hour automobile travel times were observed in 1952 by the Division of Highway Planning, State Highway Department of Georgia, and published in a report entitled "A Traffic Report Prepared for Use in Discussions Concerning the Location and Design of an East Expressway." The time studies were made by driving passenger automobiles in traffic at the prevailing speed in the direction of heaviest volume in morning and afternoon rush hours; between 7 and 9 a.m. and between 4 and 6 p.m.

Transit speeds are those scheduled in rush hours in the direction of heaviest volume.

The relative travel times on Whitehall and Peachtree between Memorial Drive and 14th St. are as follows:

	Average Travel Time in Minutes During Rush Hrs	
	Passenger Automobile	Transit
From Memorial Drive to Five Points	4-1/4	7
From Five Points to Cain St.	3	6
From Cain St. to Forrest Rd.	1-1/2	3
From Forrest Rd. to North Ave.	2	3
From North Ave. to 8th St.	2-1/2	3-1/4
From 8th St. to 14th St.	2-1/2	3-1/4
From Memorial Dr. to 14th St.	15-3/4	25-1/2

The difference of ten minutes for travel north and south between these points is consequential.

Outside this area transit speeds on lines that are not circuitously routed do not suffer much by comparison with automobile speeds. Comparisons made with automobile travel times, as observed in the tests by the Georgia State Highway Department, indicate that in this outer area, the time of transit travel over similar routes is not much in excess of that by private automobile. In general, a point that is 20 minutes distant by transit from the area described can be reached by passenger automobile in from 15 to 18 minutes.

It is thus, in the central area where transit travel times are 2/3rds greater than automobile travel times, that transit is at the greatest disadvantage.

Average speeds on the various routes during the month of April, 1953, ranged from 6.2 to 14.1 miles. The higher speeds, generally, are on the longer lines, where less congestion and more infrequent stops prevail. The route with lowest speed is the Shoppers' Special which has more mileage on congested streets than any other, and which also carries the heaviest passenger load.

ANALYSIS OF SPEEDS AND DELAYS
(B) SPEED DIFFERENTIALS BETWEEN CENTRAL DISTRICT AND OUTLYING SECTIONS (Cont'd)

BALTIMORE, MD.:

Average Transit Speed (MPH)	Bus	Rail	Trackless Trolley
Central Business Dist.	5.9	4.2	5.80
Outlying Sections	12.8	10.8	9.12
System	11.41	9.75	7.87

BIRMINGHAM, ALA.: Estimated at 6 miles per hour.

CHICAGO, ILL.: This relates to transit vehicles only. Rush-hour speeds in the Central Business District vary among routes from a low of 5.03 mph to a high of 6.69 mph with a median speed of 5.72 mph. This is from the heart of the business district to a distance of approximately one mile out. Lower speeds are the rule in the inner area.

Speeds for outlying routes during the rush hours vary from a low of 10.40 mph to 15.10 mph with a median speed of 12.31 mph. This data is for local vehicles.

COLUMBUS, O.: Speed Differentials between Central District and Outlying Sections - 10 to 12 miles per hour.

DALLAS, TEX.:

Rush Hour	
Transit	
Average Central District Speed	4.91 mph
Average Outlying Sections	13.1 mph
Private Auto	
Average Central District Speed	8.8 mph
Average Outlying Sections	16.7 mph

DAYTON, O.: Private autos gains are greater with 20 to 25 mile-per-hour average. Transit forced to wait at the curb or at intersections for a "break" in the flow of private autos does well to average 11 miles per hour in the outlying sections. On many bus lines we have gained less than 1MPH over schedules for street cars over the same route in 1947.

DETROIT, MICH.: (1) Transit - Central District 8.52 mph - Outlying A. 16.19 mph. (2) P. Auto - Central District 11.00 mph. - Outlying A. 18.00 mph.

HONOLULU, T.H.: Average auto speed through outlying sections: 22 mph. Average bus speed (including time loading and unloading at bus stops through outlying section: 12 mph.

INDIANAPOLIS, IND.: We made a comparison of our running time in the AM and PM peaks to show the difference in running time between our express and local vehicles, and the private automobile to and from outlying areas.

The following is an analysis of speed on two lines:

Analysis of Speed

Outlying Areas

E. Washington Route - Elizabeth Loop to Cruse Street
4.9 Miles

AM PEAK	
Transit (Express)	20 minutes
Transit (Local)	24 minutes
Private Auto	18 minutes
PM PEAK	
Transit (Express)	18 minutes
Transit (Local)	24 minutes
Private Auto	20 minutes

College Route - Broad Ripple Loop to Vermont and Pennsylvania
7.7 Miles

AM PEAK	
Transit (Express)	34 minutes
Transit (Local)	39 minutes
Private Auto	23 minutes
PM PEAK	
Transit (Express)	36 minutes
Transit (Local)	40 minutes
Private Auto	25 minutes

LOUISVILLE, KY.:

	Central District	Outlying Area
Peak	6.67 mph	12.62 mph
Base	7.45 mph	13.29 mph

MILWAUKEE, WIS.: The two principal routes traversing the central section average 6.9 mph in the central area and 15.0 mph in the outer residential area, an increase of 117 per cent (some of this difference is due to passenger volumes per stop).

ANALYSIS OF SPEEDS AND DELAYS
(B) SPEED DIFFERENTIALS BETWEEN CENTRAL DISTRICT AND OUTLYING SECTIONS (Cont'd)

MINNEAPOLIS-ST. PAUL, MINN.:

		2-Way	1-Way			2-Way	1-Way
Central	Bus	5 mph	6 mph	Outlying	Bus	14 mph	16 mph
	Auto	9 mph	20 mph		Auto	28 mph	28 mph

MONTREAL, CAN.: Mean average transit schedule speed (rush hours):- Central business district 4.32 mph
Outer areas (not suburban) 8.36 mph
Outer urban areas therefore 93% faster than central business district.

Average time required to travel 1 mile (Central 13.9 min. (Outer 7.2 min.

NASHVILLE, TENN.: Speed Differentials between Central District and Outlying Sections . . . . . one to five.

OMAHA, NEB.: Automobile 20 mph faster than transit.

PHILADELPHIA, PA.: Scheduled operating speeds on the entire surface rail and trackless trolley system on an average weekday declined from 10.4 mph in 1946 to 9.8 mph in 1953 and continued at that level through 1954. Scheduled operating speeds on the entire bus system on an average weekday decreased from 13.6 mph in 1946 to 13.15 mph in 1953, then rose slightly to 13.17 mph in 1954.

Within the central business district during an average weekday P.M. peak period, the scheduled operating speed of 19 surface routes (15 streetcar, 3 bus and 1 trackless trolley) dropped from 8 mph in 1946 to 6.2 mph in 1952, increased to 6.3 mph in 1953, and declined to 6.2 mph in 1954.

Actual speeds of surface transit vehicles within the central business district on an average weekday between 8 A.M. and 6 P.M. averaged 5.7 mph in November 1954, compared with 10.9 for the remainder of the system.

PITTSBURGH, PA.: A check of running times on representative routes of Pittsburgh Railways Company indicated speeds averaging 5.5 mph in the downtown district as compared with speeds of 12 mph or better in outlying districts.

PROVIDENCE, R.I.: Speed in central district approximately 5 mph. In outlying sections 20-24 mph.

RICHMOND, VA.: Bas can maintain 12 to 18 mph averages in outlying sections. In the Central District 5 mph averages and less result.

ROCHESTER, N.Y.: An analysis of our schedule running times reveals that the speed in the central area is 5.7 miles per hour compared to 10.25 miles per hour in the outlying areas of the city and to 15.55 miles per hour in the suburbs. The effect of traffic in the central area results in only half the speed of the outlying areas of the city. The outlying speed is affected also by traffic. This is reduced from 12.22 miles per hour during the day to 10.25 miles per hour during the rush hours or 16.4%. The central district speed is similarly reduced from 7.7 miles per hour to 5.7 miles per hour or 28.3%.

ST. LOUIS, MO.:

Vehicle	Cent. Bus. Dist.	Elsewhere
bus	5 mph	13 mph
auto	5.5 mph	16 mph

Bus speeds are from scheduled running times and auto speeds from observation and judgment. The 1950 interim-report on expressways for St. Louis, by Malcolm Elliott, gives the average peak period speed of automobiles in the City of St. Louis as 14.7 mph.

SAN ANTONIO, TEX.: For Transit, 5 mph in Central District and 13.9 mph in Outlying Sections.

SAN FRANCISCO, CAL.:
Typical Trunk Lines Entering Downtown - TRANSIT

	NOON--Outbound		P.M. PEAK--Outbound	
Line	Outlying	Downtown	Outlying	Downtown
B	11.08 mph	7.10 mph	10.35 mph	5.97 mph
N	11.76 "	7.81 "	10.58 "	5.74 "
M	13.85 "	7.81 "	11.96 "	5.74 "
5	12.62 "	6.22 "	10.02 "	6.22 "
15	15.02 "	6.28 "	13.24 "	4.95 "
26	11.59 "	8.98 "	10.04 "	7.50 "
31	11.29 "	6.67 "	10.47 "	6.67 "
8	8.91 "	6.57 "	8.15 "	5.92 "
30	9.02 "	5.99 "	7.36 "	5.04 "

ANALYSIS OF SPEEDS AND DELAYS
(B) SPEED DIFFERENTIALS BETWEEN CENTRAL DISTRICT AND OUTLYING SECTIONS (Cont'd)

SEATTLE, WASH.:

Transit Schedule - Central	4.02 mph min.	9.25 mph max.
" " -Outlying	9.04 mph min.	18.27 mph max.

TORONTO, ONT.: Streetcar speeds in the Central section of the City average about 9.58 mph compared with 10.34 mph on the outer parts of main trunk lines due to increased congestion and surface traffic interference in the Central area.

VANCOUVER, B.C.: Average speed on suburban trunk routes - Transit - 13.1 mph; auto - 21.2 mph. Average speeds on routes from the downtown area to the suburbs - Transit - 9.0 mph; auto - 16.3 mph.

WASHINGTON, D.C.:

	Transit	Auto
1) Central	6 mph	12 mph
2) Outlying	12 mph	19 mph

WHEELING, W.VA.: In this area, any ride over four miles favors private car. Bus stops and definite routes covered by Transit give a faster and unrestricted ride to the auto.

YOUNGSTOWN, O.: Speed differentials between Central District and outlying sections - 50%.

CLEVELAND, O.:

1. Schedule speeds in downtown areas are approximately 5 to 6 mph.
2. Schedule speeds in outlying areas will vary from 12 to 20 mph.

ANALYSIS OF SPEEDS AND DELAYS
(C) DELAYS - SPECIFIC CHARACTER, CAUSES & EFFECTS ON TRANSIT

ATLANTA, GA.: The influence of vehicle speeds on cost can be seen from the following tabulation which shows the cost per mile for drivers' wages both direct and indirect, at the present level of $1.92 per revenue vehicle hour.

Speed in Miles per Hour	Drivers' Wages in Cents per Mile	Speed in Miles per Hour	Drivers' Wages in Cents per Mile
3	64.0¢	10	19.2¢
4) Central	48.0	10.5) System	18.3
5) Area	38.4	11	17.5
6)	32.0	12	16.0
7	27.4	13	14.8
8	24.0	14	13.7
9	21.3	15	12.8

If system speeds could be raised by 1½ miles per hour (15%) to 12 miles per hour, drivers' costs would fall 2.3 cents per mile from 18.3 cents to 16.0 cents.

Assuming 17,000,000 vehicle miles, which is about what is currently being operated, annual costs would decline about $390,000 with such a speed increase.

BALTIMORE, MD.: Generally speaking, delays can be attributed to traffic volumes, inadequate parking restrictions in some areas, inadequate enforcement in some areas where parking is prohibited, double parking, loading and unloading, right and left turning movements, inadequate traffic signals in some instances, accidents, disabled vehicles, slow-moving truck traffic and horse-drawn vehicles, improperly located off-street parking facilities.

BIRMINGHAM, ALA.:

1. Downtown Area
   (a) Autos making right turns from right lane allow a minimum of cars per light change. Considerable delay caused to buses that necessarily are required to use right lane. Following are checks of afternoon rush hours auto turns at two corners:

AUTOS AND TRUCKS IN RIGHT LANE
WESTBOUND ON 2ND AVENUE AT 19TH STREET
CHECKED MONDAY 9-13-54 4:00 P.M. TO 5:45 P.M.

From	To	No. Making Right Turn West to North	No. Not Turning	No. Vehicles Making Loop More than 1 Time: 2 Rnds.	3 Rnds.
4:00P	4:15P	40	20		
4:15P	4:45P	54	47		
4:45P	5:00P	31	34		
5:00P	5:15P	19	43		
5:15P	5:30P	23	45		
5:30P	5:45P	29	30		
Total		196	219	13	4

AUTOS AND TRUCKS IN RIGHT LANE
EASTBOUND ON 3RD AVENUE AT 19TH STREET
CHECKED MONDAY 9-13-54 4:00 P.M. TO 5:45 P.M.

From	To	No. Making Right Turn East to South	No. Not Turning	No. Vehicles Making Loop More than 1 Time: 2 Rnds.	3 Rnds.	6 Rnds.
4:00P	4:15P	27	20			
4:15P	4:30P	19	52			
4:30P	4:45P	22	44			
4:45P	5:00P	19	51			
5:00P	5:15P	28	42			
5:15P	5:30P	19	43			
5:30P	5:45P	18	38			
Total		152	290	13	5	1

(b) Autos parking in right lane hold up traffic until parked.
(c) Autos double parking.
(d) Pedestrians crossing street on late light considerably reduces the length of time autos can use their green light.

ANALYSIS OF SPEEDS AND DELAYS
(C) DELAYS - SPECIFIC CHARACTER, CAUSES & EFFECTS ON TRANSIT (Cont'd)

CHICAGO, ILL.: Checks were taken in August 1954 for delays specifically due to traffic congestion at outlying traffic centers on 13 routes at 7 locations. During the morning peak hour the total delay at these traffic intersections was 81 seconds per vehicle. The time used for loading passengers was 15 seconds or the total lost time due to traffic was a net of 66 seconds. In the PM rush hour the total time lost per vehicle was 143 seconds with 24 seconds used to load passengers or a loss due to traffic of 119 seconds per vehicle.

In October 1954 11 routes were checked at 4 locations showing that in the AM peak hour 99 seconds were lost per vehicle of which 21 seconds was for passenger loading or 78 seconds were due to traffic delay. In the PM peak hour 123 seconds were lost per vehicle with 31 seconds used for loading time or 92 seconds lost per vehicle due to traffic congestion.

DALLAS, TEX.: How Time is Spent - Peak Hour, East-West Street Downtown Dallas 3189 Feet Distance, Lamar to Harwood.

	Minutes
Running Time	4:02
Passenger Loading Time	1:35
Total	5:37
Delays	
Signal Delays	1:18
Traffic Delays	2:00
(Parking in Bus Zone)	
(Left Turns)	
(Pedestrians Crossing)	
(Right Turns)	
(Double Parking)	
Total	3:18

DAYTON, O.:

1. Wherever buses make turns at intersections not controlled by traffic lights. People on buses must wait until a break in traffic or a "Samaritan" to stop and let the bus out.

2. Moving from the curb lane to the second lane. Thousands of times a day---waiting for a break.

3. Whenever (especially in the Central Business District) there is an alley at the head end of the loading zone, traffic coming out of the alley unable to clear because of traffic in the second lane --- completes the job of making it impossible for the bus to leave the curb. This happens many times a day.

4. Auto drivers too, often have no concern for the movement of people on buses---to them buses are a nuisance and they never think how these people on the buses make it possible for the auto driver to be able to drive.

5. Delivery trucks kept out of delivery zones by auto drivers improperly parked there. Truck drivers receiving little consideration, show little consideration and stop wherever they can, most convenient to themselves.

The effect on transit---lost riders---people want speed; thus more autos---more congestion---more delays.

DETROIT, MICH.: Principal delays are caused by railroads crossing at grade, and by congested traffic.

A constant campaign is waged to hold railroad delays to the maximum legal limit of four minutes, but any delay causes breakdown of scheduled headways and disruption of service.

Effects of congested traffic are evident in the approximate 50% reduction in speed in the Central District.

HONOLULU, T.H.: Narrow streets, Increased auto traffic, Insufficient restrictions on auto parking and Traffic lights not completely synchronized have Overall effect of slowing down transit operation.

LOS ANGELES, CAL.: Transit in the Los Angeles area generally experiences the same speed and delay conditions as does other vehicular traffic. Principal delay factors which regularly effect the overall average speed of operation of transit vehicles, slowing down the operation, and necessitating the use of a considerably greater number of vehicles and personnel to move a given number of people within a given period of time than would otherwise be required, are as follows:

ANALYSIS OF SPEEDS AND DELAYS
(C) DELAYS - SPECIFIC CHARACTER, CAUSES & EFFECTS ON TRANSIT (Cont'd)

(a) Heavy volume of street traffic during rush hours and other predictable times such as Monday noons when the downtown stores observe a midday opening time.

(b) Combination of heavy volume of street traffic and absence of parking prohibitions after 6:15 P.M. on nights when stores remain open.

(c) Heavy pedestrian traffic which congests the intersections; conflicts with vehicle turning movements.

(d) Rush hour parking violations, vehicles circling the block to pick up passengers.

(e) Congestion at parking lot entrances.

LOUISVILLE, KY.: During inclement weather our street traffic slows down to the point that transit becomes overloaded and is unable to maintain schedule speed.

Frequent blocking of signalized intersections by crossing motorists.

Several right-hand turns allowed in the Central District frequently delays all traffic. This situation is aggravated by pedestrian travel on the cross street.

Motorists stopping at the curb to pick up or discharge passengers.

Slowly cruising motorists apparently window shopping.

Streets in the Central District frequently crowded beyond capacity.

Curb parking in portions of Central District.

Trucks loading and unloading at the curb daily during rush hours.

Our routes cross 27 railroad grade crossings with frequent delays.

The effect of these numerous delays on our operation has been that we frequently are compelled to add several extra buses.

MILWAUKEE, WISC.:

I. Reducing effective vehicle capacity of street by one or more traffic lanes:
   1) Parked automobiles
   2) Double parked automobiles
   3) Right turns
   4) Left turns
   5) Pedestrians holding up turning traffic
   6) Automobiles backing into parking space
   7) Delivery trucks double parked or in restricted zone

II. General delays slowing transit vehicle
   1) Traffic signal operation when not needed outside of rush hours
   2) Automobiles circling block looking for parking space or waiting for passenger
   3) General traffic volumes
   4) Inadequate streets, bridges and viaducts

MINNEAPOLIS-ST.PAUL,MINN: Buses use curb lane only. Generally have exclusive use of this lane except for some motorists making right turns. Most autos, however, in order to make right turns cut in front of bus, causing considerable delay, as well as presenting accident hazard. We are now working on ordinance to prohibit right turns in loop, on grounds that most such turns are made by "cruisers" killing time while waiting to pick up friends. Loop parking ramps are presenting serious problems to traffic flow. No solution evident. Off street banks present similar congestion. If such customer services spread to other lines of business, many such traffic snarls of varying degrees may result.

MONTREAL, QUE.: Transit service is confronted with the usual delays brought about by traffic congestion. This is manifested primarily by intersection delays and slow running through narrow streets filled with automobile and track traffic.

ANALYSIS OF SPEEDS AND DELAYS
(C) DELAYS - SPECIFIC CHARACTER, CAUSES & EFFECTS ON TRANSIT (Cont'd)

NASHVILLE, TENN.: Greatest delay caused by failure of motorists to stop at an interseation when far side is blocked, that is, driving into an intersection without being able to clear intersection, thus blocking cross traffic when the signal light changes. This is especially true on rainy days.

PHILADELPHIA, PA.: The reductions in speeds of transit vehicles are primarily caused by street congestion resulting from the tremendous increase in automobile traffic following the war. In addition to the general "drag" of traffic caused by congestion of the streets, transit service is hindered by various other types of delays. Among the most serious causes of streetcar and trackless trolley delays of five minutes or more during 1954 were automobiles "down," stalled or parked on car tracks (5,424), trucks unloading (2,808), collisions of automobiles (1,461), fires (1,059), construction work (632), railroad grade crossings (544), miscellaneous (1,485), or a total of 13,413 delays.

PITTSBURGH, PA.: The principal source of delays to transit vehicles is interference from other vehicles. Specific causes of delays to transit vehicles are turning movements of other vehicles, parking, slow-moving vehicles, stalled vehicles, improperly parked vehicles, double parking, delivery stops, etc. In "A Plan to Move More People By Improved Transit Operation on Existing Streets" recently released by Pittsburgh Railways Company, it is estimated that eliminating interference from other vehicles could save from 23 to 35% of the running time. This would result in a 7 to 10% reduction in total operating expenses.

PORTLAND ORE.: As you may know, we have an odd situation in Portland in that the city is divided between the residential area and the business district by the Willamette River. 85% of the people live east of the river, and the downtown area is west of the river. There are five draw bridges spanning the river and we have daily delays due to the opening of the bridges for river traffic. Just east of the river there is a main line railroad, the Southern Pacific, and again we are subject to frequent delays at the east end of two of the bridges due to train traffic. We keep track of both the rail delays and draw span delays, but they are something we have to tolerate and as a result we haven't made any recent analysis of what they cost in lost schedule time.

There presently is a building program under way to overpass the railroad tracks at the east end of the two bridges. When completed, it will result in considerable convenience as far as we are concerned.

PROVIDENCE, R.I.: Of the total time spent enroute:
60% is running time
25% is loading and unloading time
15% is used by traffic delays. Delays are caused by Cross traffic at intersections, stop signs, police officers, pedestrians, loading and unloading, traffic signals, bus turns, parking and general traffic congestion.

RICHMOND, VA.: Improper parking, blocking of intersections, circulatory cruising by private autos and loading and unloading along transit routes in the central areas, traffic generators caused by parking lots and parking garages, and autos desiring to turn into streets already saturated are common delays above the normal delays caused by the volume of traffic.

ROCHESTER, N.Y.: Most of our delays are caused by automobile or truck traffic. Obviously delays are not conducive to good will or continuing use of transit. Bunched buses means a poor public reaction and an inconvenience to the handling of people. As everyone wants the first bus, it will be overcrowded and followed many times by an empty one.

SAN ANTONIO, TEX.: For 1954, Delays to Transit from Traffic Causes were as follows:
1. Traffic - 5016
2. Railroad Grade Crossings - 3588
3. Parades - 396

ANALYSIS OF SPEEDS AND DELAYS
(C) DELAYS - SPECIFIC CHARACTER, CAUSES & EFFECTS ON TRANSIT (Cont'd)

SAN FRANCISCO, CAL.: Traffic Congestion is major cause of delay - Retards Schedules Also - Blockades (Fires, Accidents, Parades, etc.)

We are working with other city departments toward reducing delay to transit vehicles within limits of practicability.

SEATTLE, WASH.: Transit stops per mile; pedestrians; traffic signal sequences, 2½ coaches, practical maximum, thru intersections per "green."

SPRINGFIELD, ILL.: One railroad passenger station located at exact north edge of central district, another located at exact west edge of central district. Both stations have frequent passenger train service, with resultant blocking of streets for periods of 7 to 15 minutes. Both railroads block 4 streets when trains are standing at stations. Freight trains also block these streets while passing thru the city.

Another cause of delay is the complete choking of streets at 5:00 PM each day. There are approximately 2,000 parking meters and 2,000 parking spaces in lots and garages within the central district. All stores offices close at 5:00 PM and all vehicles attempt to leave the central district simultaneously.

TORONTO, ONT.: Most of the delays to traffic on main streets are occasioned by parking, traffic signals and turning movements at main intersections. There is no doubt that these are of considerable cost to all users of the public streets as well as the transit service.

VANCOUVER, B.C.:

(i) Downtown Area:

(a) At intersections where there is no separate pedestrian phase, some delay is caused to vehicles wishing to turn right. These vehicles in turn delay transit vehicles. Or in some instances the transit vehicles themselves may be turning right.

(b) Transit vehicles themselves cause delay because their size necessitates them making turning movements very slowly. Trolley coach speed is further reduced when they are negotiating special overhead.

(c) Parking and deparking is a source of delay. Double parking takes place in some sections in spite of the provisions of commercial vehicle loading zones. The reason is probably that the duration of the stop would be exceeded by the time taken to park a large vehicle, even if space were available. Enforcement has not been effective as a deterrent.

(d) At loading points common to more than two services, passenger confusion often results in delays. Queue positions painted on the curb, and bus zones large enough to accommodate three vehicles are effective on one-way streets. But experience over the last three years has shown that bus zones designed to accommodate more than two buses are generally inefficient, and with the above exception, no bus zones larger than two are being installed.

(ii) Suburban Areas:

(a) Delay on suburban trunk routes occurs at intersections with other trunk routes where the intersection is loaded beyond the practical capacity.

(b) In suburban shopping areas parking and deparking delays traffic generally. Bus zones are often obstructed by commercial vehicles making deliveries.

WASHINGTON, D.C.:

1) Illegal parking - double parking and curb parking
2) Vehicles pulling in and out of loading zones and parking areas
3) Interferences by automobiles at transit loading zones
4) Traffic signal and sign - All traffic is effected by this delay but frequently automotive traffic is given preference over transit in signal timing
5) Pedestrian interference - especially in relation to turning movements

ANALYSIS OF SPEEDS AND DELAYS
(C) DELAYS - SPECIFIC CHARACTER, CAUSES & EFFECTS ON TRANSIT (Cont'd)

6) Insufficient street capacity (space and time) to accommodate total traffic and transit
7) Inadequate geometric design of streets

WHEELING, W.VA: Bus Passenger Stops, Stopping at RR crossings, Block of bus at curb stop by dense thru traffic. Missing a traffic light to pick up a tardy passenger are peculiar to bus transportation. In aggregate they may influence a potential rider to use his own car.

CLEVELAND, O.:
1. Double parking - particularly by delivery trucks.
2. Left turn movements into parking lots and garages.
3. Blocking intersections - (over-running signals).
4. Single lane traffic because of curb parking.
5. Weaving on multi-lane streets not marked properly.

Trucks double parked - Many delays to traffic are caused by double parking of trucks. Where you find trucks double parked, you often find autos parked in zones reserved for truck parking. This should not be tolerated, and track zones might very well be also established as tow-away zones, with enforcement of the tow-away regulation.
Traffic Lanes - Weaving from one lane to another on multi-lane thoroughfares is both hazardous and inefficient. Engineers report that 22% of the capacity of a three lane thoroughfare is lost where weaving is permitted. The loss is 35% on four lanes. Marking of lanes reduces weaving. A very effective job has been done on some streets by marking off traffic lanes. The capacity of such streets for moving vehicles is considerably increased. Some additional streets should be so marked. Streets which are recommended for painted lanes are Scranton Road, East 55th Street, Superior, St. Clair, Euclid, Lorain, Detroit, Franklin. (It is assumed that East 9th Street will again be "laned" when paving is completed.)
Accidents - In many traffic accidents, drivers will not move their vehicles until inspected by police. This often blocks two lanes and sometimes more. It takes up to a half an hour for Accident Prevention Bureau squads to arrive, and it has taken as much as 50 minutes. More Accident Prevention Bureau squads are needed in rush hours. Perhaps some squads that do other work could be detailed to this type of work during the rush hour part of the day. There seems to be a misunderstanding as to the law or regulations requiring that vehciles not be moved until police have inspected them. Too often traffic tie-ups are caused because drivers refuse to move automobiles after accidents of slight damage. Clarification and better understanding of the law is needed.

ANALYSIS OF SPEEDS AND DELAYS
(D) DELAYS - MEASURABLE COST TO TRANSIT

BALTIMORE MD.: In the period between March 21, 1954 and March 26, 1955, delays and relays alone cost this Company $78,766.70. We also spent $7,826.99 in that period in extensions, most of which should be attributed to delay. Our total show-up time for this period amounted to $117,912.09. While most of this sum is a normal operating expense it may be conservatively estimated that 15% of this sum may be directly attributed to traffic delays. Thus an excess of $100,000 annually would be a conservative estimate of the cost accruing to our system from traffic delay.

BIRMINGHAM, ALA.: Right turns and parking by autos in right lane, double parking and other factors banded together have been directly responsible for the addition of three to five minutes during afternoon rush hours to schedules on most lines in the downtown area.

DAYTON, O.: Delays cost us nine cents a minute.

DETROIT, MICH.: Current coach operating costs approximate $6.75 per hour so that each minute of delay, or each additional minute required by reduced speed due to traffic congestion, costs this Department in excess of eleven cents.

HONOLULU, T. H.: Cost to transit immeasurable but generalized into cost of wasted operators' wages during delays, fuel and oil wasted and wear and tear on engines at unnecessary stops and loss of income from fewer passengers than might be possible if the transit ride could be speeded up.

LOUISVILLE, KY.: The measurable direct cost to our Company is difficult to determine. We calculate that an increase of 1 mile per hour in the average system bus speed would result in a direct saving of $205,000.00 per year. The effect of these delays on transit passengers is not measurable but we feel that many people do not use our service because of these delays.

MILWAUKEE, WISC.:
1) Loss in revenue due to irregular and slow service.
2) Increased accident hazard going around obstacles.
3) Increased wear of equipment in slow operation.
4) Increased investment in equipment proportionate to increased time to make round trip and increased cost of operation. An analysis of certain routes which have not changed physically since 1940 indicates a slow down of 5 percent in average speed despite inauguration of skip stops, longer loading zones, etc. If we assume that this reduction in average speed is system-wide, this 5 percent slow down is requiring an investment in approximately 45 additional vehicles, the employment of 85 additional operators and an additional annual expense of over $750,000.

MINNEAPOLIS-ST. PAUL MINN.: 15 buses are required on account slow rush hour speed caused solely by traffic delays. At $6.60 per hour, 1½ hours in each rush hour = $74,250 per year. Supervisory force could be reduced by 5 men if not needed for traffic delays = $20,000 per year. Fuel consumption thru traffic is approximately 50% over normal consumption = 1000 Gal fuel per day = $50,000 per year. Minimum costs per year chargeable to traffic = $144,250.

OMAHA, NEBR.: Probably 75 hours per day, or $450.

PHILADELPHIA, PA.: The increased traffic congestion since 1946 has not only seriously slowed surface transit service, but also has materially increased operating costs. Running time has been lengthened by reduced speeds to the extent of 618,000 hours annually. This, translated into extra wage costs, exceeds $1,200,000 per year.

RICHMOND, VA.: Aside from causing in many instances conditions that make it impossible for a transit company to furnish any semblance to satisfactory service, the normal traffic congestion in our City costs approximately 4% more equipment and adds an average of 18% to the round trip running time.

ANALYSIS OF SPEEDS AND DELAYS
(D) DELAYS - MEASURABLE COST TO TRANSIT (Cont'd)

ROCHESTER, N. Y.: In 1953 we maintained records of the cost of delays where fill-in buses could be used to maintain service. The cost is only for those occasions where a fill-in was available and the cost of those fill-ins. This amounted to $13,500 for 4,932 fill-ins at the prevailing wage scales. Not included are delays during the rush hours or at times when fill-ins could not be obtained. Not included also are the many other factors that could not readily be assessed.

An analysis of our average speed during the past few years revealed that the slow-down in service caused by traffic has increased our operating cost $90,000 during 1954 compared to 1953. This is not the total cost of traffic but only an additional cost that has developed in one year's time. Traffic is not only disrupting service and discouraging riding but inflicting terrific increased operating costs.

ST. LOUIS, MO.: Study for December 1952 showed total of 171 hr. 27 min. delays due to traffic and transportation. This is only .05% of 318,337 platform hours operated in month. But schedules allow for traffic delays, so most of delay is built into running time. AM rush running times, according to same study, averaged 9.51% longer than midday, and PM rush 18.14% longer. It may very easily be that 10% of total running time is allowance for traffic delays. 10% of 318,337 is 31,834. Same x 12 = 382,000 for year. Last figure times $1.87 operator's rate = $714,000. This is not an exact analysis, but it indicates that the cost of traffic delays is heavy.

SEATTLE, WASH.: An increase in average speed of 1 MPH will decrease operating costs at least 10%.

SPRINGFIELD, ILL.: Choke-up of central district during P.M. rush period forces scheduling of about 16% additional running time on major bus lines.

VANCOUVER, B. C.: It is very difficult to measure the cost of delays to the transit service. There has been such a steady increase in auto registration and use that the removal of the particular delay simply means that current speeds can be maintained rather than reduced. On the major lines, it is sometimes possible to eliminate a vehicle from the schedule by the elimination of delays caused by curb parking, for example, both by virtue of the actual increase in speed and by virtue of the fact that the service operates more regularly, the loads per vehicle are more even and the schedule can be trimmed closer to the design figure.

WASHINGTON, D. C.: Due to complexity of factors involved, it is not possible to evaluate the delay of specific items. In spite of continued efforts by Operating and Traffic Engineering Departments, terminal to terminal speed for the system has dropped from about 11.4 mph in 1948 to 11.0 mph in 1954 as a resultant of these types of delay. Based on present annual mileage, hours and unit costs, this reduction in operating speed amounts to about $400,000 per year, in added variable cost.

WHEELING, W. VA.: Delays along with traffic bottlenecks, and road construction frequently cause loss of a scheduled trip. Sometimes several vehicles may be trapped in the downtown loop resulting in temporary loss of service to more than one route. In this situation many short ride passengers will walk.

CLEVELAND, O.:
1. Increased operating cost due to increased running time of 10 to 15%.
2. Additional capital investment for vehicles which will make only one trip in A.M. and P.M. rush and in many instances only one trip per day.

THE LENGTH OF RIDE BEING TAKEN OR BEING OFFERED NOW AS COMPARED WITH PREWAR (1940)

ATLANTA, GA.:

CITY SYSTEM

1940-36 Routes - Average Length 4.27 miles
1955-44 Routes - Average Length 4.81 miles

BALTIMORE, MD.:

COMPARATIVE ONE-WAY ROAD MILEAGES

	Rail	Bus	Trackless Trolley	Total
1940	175.5	94.3	19.5	289.3
1954	71.1	241.3	38.8	351.2

BRIDGEPORT, CONN.: No changes in lengths of major routes since 1940. Average length of ride offered is 9.39 miles.

CHICAGO, ILL.: Prewar length of ride on Surface System was about 4.5 miles, on Rapid Transit System was about 7.0 miles. Have no post-war data but believe Rapid Transit length of ride has increased due to operational changes. No opinion on Surface System.

CINCINNATI, O.: We do not have data as to average length of ride, but can advise that, since April 29, 1951, we have made eight bus line extensions totalling 11.0 net route miles, into newer suburban areas. April 29, 1951, was the date street car operations ended and exclusive operation, by trolley bus and motor coach began.

DAYTON, O.: Extensions and rerouting has increased the length of ride on practically all our lines. One main line has been extended to 17.2 miles round trip from 14.8 in 1940. Another, 13.5 to 14.8. Another 16. to 17.6.

LOS ANGELES, CAL.: No specific data is available showing the length of ride being taken now as compared to 1940. However, it is reasonable to assume that the average length of ride to or from the Central Business District has increased somewhat, because of the outward movement of population by choice and as a result of removal of close-in housing by freeway construction. Population resident within a radius of approximately 5 miles from the Central Business District decreased by approximately 13% between 1946 and 1953.

During this same period there has been considerable development of neighborhood shopping centers with some resultant increase in local travel in the outlying areas, although probably not offsetting in volume to the decline in short haul riding to the Central Business District.

Transit potential is somewhat less in outer areas because of relatively less street traffic and extensive free parking facilities associated particularly with newer outlying commercial centers.

LOUISVILLE, KY.:

	1942	1955
Line mileage	137.85	180.68

MILWAUKEE, WIS.: Increase in average length of ride as indicated by increased route mileage is 32 per cent.

MINNEAPOLIS-ST. PAUL, MINN.: Route miles have been increased 5% since 1940. No definite statistics available on average ride. General loading characteristics have remained unchanged except for over-all drop in numbers. New extensions to lines probably off-set loss of long line riders who are most susceptible to pool riding.

MONTREAL, CAN.:

Miles of streets served (1939 = 201.12 (1954 = 287.83

Expansion of the system in the past 15 years = 43.1%

Vehicle miles operated (1939 = 32,509,621 (1954 = 50,028,336

Increase in vehicle miles during the past 15 years = 53.9%

Number of vehicle miles operated per mile of street served. (1939 = 161,643 (1954 = 173,812 Increase=7.5%

As the expansion of the system took place almost entirely in the outer areas, and service requirements increased by a still greater percentage, it follows that passengers are being carried over a greater average distance.

THE LENGTH OF RIDE BEING TAKEN OR BEING OFFERED NOW AS COMPARED WITH PREWAR (1940) (Cont'd)

Extension of service into areas which had thinly scattered population in 1940 is reflected by the following:-

The length of ride offered today between the central business district and ten typical outlying residential points shows an increase of from 6% to 19% (ave. 10%) over the pre-war transit ride to reach the same points. Greater penetration of these areas by transit, due to outward trend of population results in a longer ride being available to residents of these areas. The above does not include residential areas non-existent in 1940.

NASHVILLE, TENN.: 27% increase in one-way route miles, exclusive of three purely suburban routes added since 1940.

OMAHA, NEBR.: Routes have been extended, but we have lost many short-haul riders.

PHILADELPHIA, PA.: The average length of route (round-trip) was 11.5 miles in 1934; 11.4 miles in 1946, and 11.9 miles in 1951. In 1955 the average is 12.3 miles.

RICHMOND, VA.: Extensions and attaching shuttle or transfer lines to through routes have lengthened the average one-way route mileage from 3.1 to 3.87.

ROCHESTER, N.Y.: In 1940 the longest ride offered without a transfer was 12.47 miles and with one transfer it was 15.56 miles.

In 1955 the longest ride offered without a transfer is 14.99 miles and with a transfer it is 18.16 miles.

ST. LOUIS, MO.: 1954 Origin and Destination survey indicates that passengers originating outside City of St. Louis made an average journey of 7.2 miles, while those originating in the City rode 4.1 miles. (combined 4.6 mi.) In 1940 the population of St. Louis County (all outside St. Louis City) was 25.15% of the total for City and County. The corresponding figure for 1950 was 32.17%. This indicates a tendency toward longer rides due to spreading of population.

SAN ANTONIO, TEX.: 1955 - 5.33 miles
1940 - 4.11 miles

SAN FRANCISCO, CAL.:

	Average Length of Ride	
1931	2-1/2 Miles	- Report of Calif Railroad Commission
1955	3 "	- Estimate

VANCOUVER, B.C.: A study made for the Canadian Car Advertising indicated that the average length of ride in 1950 was 25 minutes or about four miles. Unfortunately we have no figure available for 1940. As a matter of interest, our passenger vehicle miles, route miles and passengers carried for 1939 and 1954 were as follows:

	Passenger Vehicle Miles		Route Miles	Average (One Way)		Passengers Carried
1939	11,611,835	1939	93.49		1939	55,845,026
1954	15,293,576	1954	132.04		1954	72,335,771

WASHINGTON, D.C.: No specific data is available on the average length of ride as compared with prewar. The average length of ride today is probably greater than before 1941, due largely to the change in fare structure. The replacement of the pass by the permit has brought about a sharp reduction in short riding. This is especially true in the shopping centers of the central business district.

The length of the major routes has not changed appreciably. Rail lines have been contracted outside of the city boundaries, but feeder and express bus routes have been added in the suburban areas that have grown rapidly since the war.

WHEELING, W. VA.: Would say that average ride has been shortened since 1940. The further away a passenger lives from his destination the more likely he is to use his own car. The same routes as served in 1940 do not carry as many long line riders now. However, no figures are available on this topic.

THE LENGTH OF RIDE BEING TAKEN OR BEING OFFERED NOW AS COMPARED WITH PREWAR (1940) (Cont'd)

YONKERS, N.Y.: Because of the rather static condition of our routes over a number of years and with comparatively little building expansion in the area, I would say that as far as our system is concerned, there has been little difference in the length of rides between 1940 and the present time.

Our line mileage approximates 56 route miles and the average length per ride would be about 2-3/4 miles.

CLEVELAND, O.: Length of routes increased 77.7% as shown in following table:

Route Miles	12-21-42	4-1-55
Street Cars	158.04	0.00
Rapid Transit	0.00	7.80
Trackless Trolley	4.66	94.25
Bus	173.63	406.68
Special Bus	0.00	88.87
Total	336.33	597.60

MEASURES TAKEN TO SPEED UP TRANSIT, OR TRAFFIC GENERALLY
(A) CURB PARKING CONTROL - RUSH HOUR ONLY OR ALL DAY (CENTRAL DISTRICT AND/OR MAJOR THOROFARES)

ATLANTA, GA.: The most helpful measure has been a constant though piecemeal cutting out of On-Street Parking. This has been reduced 32% in the downtown area since 1949. In the outlying area 45.5 street miles have been made No-Parking at any time (since 1949), representing a 113% increase of No-Parking street miles over 1949. The amount of street mileage that has been made No-Parking during the rush hours is 22.8 miles additional, or an increase since 1949 of 45%.

BALTIMORE, MD.: Note: In answering the several questions concerning "Measures taken to speed up transit," extensive use has been made of a report titled, "Baltimore Traffic Study" prepared by Henry A. Barnes, Traffic Consultant to City of Baltimore, and Director of Traffic Engineering, City and County of Denver, dated May 15, 1953. Subsequently, Mr. Barnes was engaged as Director of Traffic in Baltimore, in July, 1953 and data pertaining to work done by his Department in correcting the deficiencies noted in the aforementioned "Baltimore Traffic Study", were taken from Department of Traffic Engineering Annual Report covering period from July, 1953 to June 30, 1954, and interim report covering period from July 1, 1954 to December 31, 1954:

In the Central Business District and on major thoroughfares parking, loading or unloading is generally prohibited from 7:30 a. m. to 10.00 a. m. and from 4.00 p. m. to 6.00 p. m; also in most instances parking is prohibited from 10.00 a. m. to 4.00 p. m. To ascertain the meaning of "loading or unloading" was most difficult and in almost every case where a violator was given e ticket, he claimed that he was in the process of loading or unloading his car of merchandise or that he had to enter a building nearby for the purpose of obtaining the merchandise which he was about to load. Mr. Barnes recommended: "make a complete study of all parking regulations and resign them clearly so that a driver knows just where he can and cannot park. "Extend the tow away zones to include all the major arterials in the City and rigidly enforce this regulation on a city-wide basis." Toward that end the Department of Traffic is now in the process of replacing every parking type sign with signs which carry directional arrows and prohibit stopping or standing in lieu of loading or unloading. In the period from July, 1953 through December, 1954, 6,335 parking signs were replaced or installed.

BIRMINGHAM, ALA.: Only on main thoroughfares leading into downtown area. (All day.)

BOSTON, MASS.: A ban on the parking of automobiles in the streets of downtown Boston would, we believe, result in a quick and sharp upturn in MTA patronage. The Board has advocated a complete ban of parking downtown. However, a ban on parking in downtown streets until after 9:30 a.m. and from 4 to 6 p.m. would, if strictly enforced, accomplish much for all public transportation systems. There is no doubt that the majority of the automobiles which, each business day, use the streets of Boston for public garaging, are operated by those who use these automobiles to go to and from their employment.

BRIDGEPORT, CONN.: Curb parking banned all day on Main Street 4 to 6 p.m. on other downtown streets.

BUFFALO, N. Y.: The Board of Safety has approved a suggestion by Buffalo police and public works officials that parking be prohibited during rush hours on all bus routes, and on certain main arteries rush hour prohibitions are now in effect. Much remains to be done however in this direction.

CHICAGO, ILL.: Parking in the Central Business District is prohibited by ordinance from 7AM to 6PM, except Sundays and Holidays. On Saturday the restriction applies from 7AM to 3 PM. This ordinance has been in effect since about 1927. In addition to the above, Standing of any vehicle is prohibited between 4:30 PM and 6:00 PM on weekdays on most of the streets in the Central Business District.

Rush hour parking controls have been enacted for about 25% of the major thoroughfare mileage. Of these approximately one-third have been posted.

MEASURES TAKEN TO SPEED UP TRANSIT, OR TRAFFIC GENERALLY
(A) CURB PARKING CONTROL - RUSH HOUR ONLY OR ALL DAY (CENTRAL DISTRICT AND/OR MAJOR THOROFARES) (Cont'd)

CINCINNATI, O.: There has been general elimination of on-street parking in the Central District. On main arterial highways, curb parking is prohibited from 7 to 9 AM, or 4 to 6 PM in the direction of traffic flow.

CLARKSBURG, W. VA.: In Fairmont, parking is prohibited between 3:00 and 6:00 P.M. in downtown business section and for six city blocks southward along Fairmont Avenue.

COLUMBUS, O.: No parking in downtown area 7 A.M. to 9 A.M. and 4 P.M. to 6 P.M. Also, parking restrictions on some streets inbound on one side of street in the A.M., opposite side in the P.M.

DALLAS, TEX.: About 18 months ago, Dallas inaugurated an all day curb parking ban on a 90 day trial basis, in the Central District. Due to complaints of merchants, it did not run but a short time and the ordinance was rescinded. However, from a Transit standpoint, this complete ban of curb parking in the downtown area showed considerable gain. The data below shows some of the effects.

From Austin to Harwood - 3500 Feet

Commerce Street

Period	Before Ban		After Ban	
	East	West	East	West
7:30 a.m. to 8:00 a.m.	(Minutes) 9:03	No Comparative Data Available	(Minutes) 7:08	No Comparative Data Available
8:00 a.m. to 8:30 a.m.	9:30		7:20	
8:30 a.m. to 9:00 a.m.	8:48		6:35	

We are saving an average of 2:06 minutes per car East on Commerce from Austin to Harwood (3500 feet) in the A.M. Rush. This represents about 22% saving in time.

Main Street

Period	Before Ban		After Ban	
	East	West	East	West
	(Minutes)	(Minutes)	(Minutes)	(Minutes)
7:30 a.m. to 8:00 a.m.	7:50	7:28	6:57	6:43
8:00 a.m. to 8:30 a.m.	7:48	7:53	6:40	6:30
8:30 a.m. to 9:00 a.m.	7:03	6:58	6:30	6:25

On Main Street we are saving Eastbound - 51 seconds per car; Westbound - 53 seconds per car. This represents a saving of 12% in Running Time.

Elm Street
Day Check

Period	Before Ban		After Ban	
	East	West	East	West
	(Minutes)	(Minutes)	(Minutes)	(Minutes)
3:30 p.m. to 4:00 p.m.	6:47	6:56	6:02	6:13
4:00 p.m. to 4:30 a.m.	6:55	7:49	6:15	6:20

This represents a savings of 43 seconds per car Eastbound or 10.2% and 1:07 minutes Westbound or 15.0%.

From Safety Superintendent
From an Accident Standpoint in the Downtown Area Affected by the Ban

Before Parking Ban Week of October 25, 1952			After Parking Ban Week of October 25, 1953		
Main St.	Elm St.	Commerce St.	Main St.	Elm St.	Commerce St.
6	4	6	1	2	3
TOTAL 16			TOTAL 6		

% REDUCTION 62.5%

MEASURES TAKEN TO SPEED UP TRANSIT, OR TRAFFIC GENERALLY
(A) CURB PARKING CONTROL - RUSH HOUR ONLY OR ALL DAY (CENTRAL DISTRICT AND/OR MAJOR THOROFARES) (Cont'd)

Schedule Interruption Due to Traffic

Before Parking Ban			After Parking Ban		
Week of September 20, 1953			Week of October 22, 1953		
Total	Time Lost	Ave. Delay	Total	Time Lost	Ave. Delay
268	1,564 Min.	5.8 Min.	165	984 Min.	5.9 Min.

Our Delays Due to Traffic Have Reduced 38.5%

At the present time, Dallas has rush hour parking bans from 7:00 a.m. to 9:00 a.m. and 4:30 p.m. to 6:00 p.m. on many downtown streets, and the city has been gradually removing parking from other sections. This resulted in an average speed up of operations on major east-west streets of about 10 percent. A high proportion of delays on transit lines id due to inexperienced or inattentive motorists pulling into and out of parked spaces at the curb.

A rush hour curb ban from 4:30 p.m. to 6:00 p.m. was installed on a major route near the entrance to an Expressway. The before and after data is given below, between 5:00 p.m. and 5:30 p.m.

Before Parking Removed on Ross Ave. from Pearl to Central

	Distance in Feet	Running time in seconds	Time in Sec. for stops	Running Time Plus time in Seconds for Stops
Pearl to Leonard	670	34	18	52
Leonard to Good	620	30	8	38
Good to Boll	460	24	20	44
Boll to Allen	690	18	25	43
	2,440	106 Sec.	71 Sec.	177 Sec.
	.462 Miles			

9.3 M.P.H. Ave. Schedule speed including stops
NOTE: 45 autos parked South Side of Ross between Pearl & Central.

After Parking Removed on Ross Ave. from Pearl to Central

	Distance in Feet	Running time in seconds	Time in Sec. for stops	Running Time Plus time in Seconds for stops
Pearl to Leonard	670	26	16	42
Leonard to Good	620	25	15	40
Good to Boll	460	23	12	35
Boll to Allen	690	15	24	39
	2,440	89 Sec.	67 Sec.	156 Sec.
	.462 Miles			

10.7 M.P.H. Ave. Schedule speed including stops.

DAYTON, O.: There has been enactment of curb parking (in the Central Business District and major thoroughfares) restrictions but the enforcement is weak.

DETROIT, MICH.: Parking in Central District is practically eliminated during rush hours. On main thoroughfares during rush hours parking is prohibited on the side carrying the prevailing flow of traffic.

HONOLULU, T. H.: No parking on main streets during peak hours: 6:30 - 8:00 a.m., 3:30 - 5:30 p.m.

INDIANAPOLIS, IND.: We have fairly good curb parking control in the rush hours in the direction of traffic with fairly good enforcement through police being permitted to tow vehicles away that are found parked in prohibited areas.

KANSAS CITY, MO.: Some progress has been made to eliminate curb parking in the Central District during rush hours only. Little or no success, as yet, in controlling curb parking in the Central District all day or on major thoroughfares. There has been considerable development of one-way streets with more in the offing; some progress in securing curb cut-backs; and an active recognition by City officials and Police Department for the speed-up of transit with a resulting improvement in enforcement.

MEASURES TAKEN TO SPEED UP TRANSIT, OR TRAFFIC GENERALLY
(A) CURB PARKING CONTROL - RUSH HOUR ONLY OR ALL DAY (CENTRAL DISTRICT AND/OR MAJOR THOROFARES) (Cont'd)

LOS ANGELES, CAL.: Considerable progress has been achieved by the Traffic Engineering Department of the City of Los Angeles in expediting traffic in the Los Angeles area. Curb parking in the more congested portions of the Central Business District has been prohibited between the hours of approximately 7:00 A.M. and 6:15 P.M., with loading and unloading of commercial vehicles only permitted between the hours of 10:00 A.M. and 4:00 P.M., since shortly prior to World War II. Time limit parking with parking prohibited during the A.M. and P.M. rush hours on important arterials throughout the City has since developed and is being continually expanded.

Extensive data is not available in this connection. However, following are some average coach running time comparisons made prior to and after establishment of rush hour parking prohibition on the fringes of the Central Business District.

Los Angeles Transit Lines West 6th and Central Avenue Trolley Coach Line No. 3 westbound on West 6th Street between St. Paul Street and Wilton Place, a distance of 3.3 miles.

P.M. Rush Period
Average Actual Running Time

20" Period Beginning	Prior To Parking Prohibition Friday 11/18/49	After Parking Prohibition Wednesday, 9/20/50
4:00 P.M.	18.1 Min.	17.6 Min.
4:20	19.8	17.6
4:40	20.3	17.3
5:00	21.2	17.6
5:20	19.3	17.8
5:40	18.6	16.8

Los Angeles Transit Lines Beverly Boulevard Motor Coach Line No. 44 westbound on Beverly Boulevard between Vermont Avenue and Western Avenue, a distance of 1.0 mile.

P.M. Rush Period

20" Period Beginning	Prior To Parking Prohibition Tuesday 9/19/50	After Parking Prohibition Thursday, 11/15/51
4:00 P.M.	4.7 Min.	4.3 Min.
4:20	4.8	4.6
4:40	4.9	4.5
5:00	6.0	4.7
5:20	6.0	5.0
5:40	5.6	4.7

LOUISVILLE, KY.: Extensive control of curb parking practices has already been effected throughout the Central District and on major thorofares.

MILWAUKEE, WISC.: Curb parking has been eliminated on the main downtown thoroughfare 24 hours per day and on some other main routes during rush hours in controlling direction only. Company has presented city with list of additional streets on which parking should be removed with no results to date. Although these measures reduce travel time it has not been possible to measure the actual affect of parking eliminations because of other offsetting factors.

MINNEAPOLIS-ST. PAUL, MINN.: 55% of loop is "No Parking" 7 to 9 AM and 4 to 6 PM. 15% "No Parking" 24 hours. Minneapolis streets are wider than many other cities, including St. Paul. Three (3) main streets are 60 Feet wide. All others are 50 Feet., making parking restrictions less critical than on narrow streets.

MONTREAL, CAN.: Helpful measures have been taken, such as prohibition of parking on certain main transit streets, one way streets, stop streets, widening streets, rounding curbs at intersections etc. These expedients do not offer real benefit in the face of increasing automobile use. Their effect is soon submerged in the more fundamental problem of declining street space for passenger movement in the central area.

A complete changeover from street cars to buses is now in progress.

NASHVILLE, TENN.: Prohibition of all-day curb parking has been extended, especially in the downtown area, and curb parking during rush hours is now prohibited in a large portion of the downtown area.

Truck deliveries and pick ups are prohibited 7:00 to 9:00 A.M. and 4:00 to 6:00 P.M.

OMAHA, NEBR.: Some rush hour restrictions and some all day parking bans, but not enough.

MEASURES TAKEN TO SPEED UP TRANSIT, OR TRAFFIC GENERALLY
(A) CURB PARKING CONTROL - RUSH HOUR ONLY OR ALL DAY (CENTRAL DISTRICT AND/OR MAJOR THOROFARES) (Cont'd)

PHILADELPHIA, PA.: The most effective single measure taken in Philadelphia to speed up transit and general traffic movements has been the daytime (8:00 A.M. to 6.30 P.M.) central-city parking ban that went into effect on December 1, 1952. A number of checks have been made since the ban was inaugurated and have shown that the results have been gratifying. The benefits have varied, however, in accordance with the amount of enforcement the police are able to provide.

The average speed of PTC surface vehicles in passing through the parking ban area was 4.8 m.p.h. prior to the ban. It rose to 5.8 m.p.h. or 21.5% the week after the ban became effective, and increased to 6.5 m.p.h. or a total improvement of 35.4% by February 1953. A check in March 1954 showed an average speed of 6.2 m.p.h. or an improvement of 30%, while in the latter part of November 1954, the time of the latest check, the average speed had dropped to 5.7 m.p.h. or an improvement of 18.3%.

Similarly, the average speed of private automobiles in passing through the parking ban area improved materially. From an average speed of 6.7 m.p.h. before the ban, the speed rose to 8.5 m.p.h. or an improvement of 26.9% during the first week, and climbed to a peak of 9.8 m.p.h. in February 1953, an improvement of 46.3%. At the time of the latest check, last November, the figure was 8.5 m.p.h., or 26.9% better than before the ban.

The running time of PTC vehicles through the parking ban area decreased 2 minutes and 33 seconds in the first week of the ban; 3 minutes and 43 seconds by February 1953, and at the time of the latest check was still 2 minutes less than before the ban.

Significantly, the average number of automobiles parked in the area dropped from 1,140 before the ban to 360 during the first week. The number in February 1953, when the speed of transit vehicles through the area reached the peak, was 436. By November 1954, time of the latest check, however, the number had risen to 784. While that was more than twice the number during the first week of the ban, it was still substantially less than before the ban's inauguration.

Trucks have presented a greater problem than private automobiles. With an average of 431 trucks parked in the area before the ban, the number dropped to 407 during the first week, but soon began to increase, and by last November had reached 487 - more than before the ban.

Nevertheless, experience has shown that the parking situation is controllable when a sufficient number of police can be spared from other duties to enforce the parking regulations.

* * * *

In a cooperative move by the City and PTC, streetcar traffic has been eliminated from two important and adjacent one-way arteries (6th Street, southbound; 7th Street, northbound) to permit their development for the exclusive use of automotive traffic, and as approaches to the Delaware River Bridge. They are being repaved, and are to have traffic signal timing for the most expeditious movement of motor traffic. More stringent parking regulations also are being adopted to aid in speeding traffic, and it is anticipated that the two streets will divert automotive travel from adjacent north-south streets still retaining their streetcar service, thus reducing congestion on the latter and speeding streetcar traffic.

* * * *

Traffic on Broad Street - principal north-south artery - has materially been speeded during rush hours by assigning four of the six traffic lanes for inbound (southbound) traffic during the morning peak period and four of the six lanes for outbound (northbound) traffic during the evening peak. This arrangement is in effect inbound between Belfield Avenue (4600 North) and Norris Street (2000 North), a distance of about 2-3/4 miles. Outbound it is in effect from Lehigh Avenue (2700 North) to Lindley Avenue (5100 North), a stretch of 2-1/2 miles. So beneficial has this plan been that consideration is now being given to lengthening the sections of Broad Street involved. The effectiveness of the plan has greatly been aided by elimination of all parking and stopping on both sides of Broad Street during both peak periods, instead of on one side in the A.M. and on the other side in the P.M. peak as formerly. Broad Street bus service and traffic in general have been speeded materially.

MEASURES TAKEN TO SPEED UP TRANSIT, OR TRAFFIC GENERALLY
(A) CURB PARKING CONTROL - RUSH HOUR ONLY OR ALL DAY (CENTRAL DISTRICT AND/OR MAJOR THOROFARES) (Cont'd)

PORTLAND, ORE.: In 1954 parking was removed on east-west streets from 4:00 to 6:00 P.M. in the downtown district. This reduced our travel time by about 33% in the area. Due to protests of downtown merchants, some of the parking is again being allowed.

PROVIDENCE, R. I.: No concrete data available. We have repeatedly argued for better enforcement of no-parking regulations, reserved traffic lanes for transit vehicles on one-way streets, all rolling traffic during rush hours on certain streets and the extension of no-curb-parking areas in the central business district.

RICHM0ND, VA.: Rush hour parking prohibitions already in effect were extended to include the hours of 9:00 A.M. to 4:00 P.M. on the south side of Broad Street between 2nd and 9th Sts. (This is in the Central Area on the main street - eight lanes wide with a median strip).

Actual running time for buses before - 8 minutes, 53 seconds. After the prohibition, it required only 5 minutes, 22 seconds - a decrease of 39%. 20,680 passengers were carried on 353 bus trips over this street saving 3 minutes, 31 seconds for each passenger or 1,211 hours saved each day.

Auto traffic over these seven blocks benefited as follows: Lane # 1 (next to the median strip) required 1 minute, 35 seconds average which represented no change. Lane # 2 required 1 minute, 42 seconds which was approximately 20 seconds faster than before the parking ban. Lane # 3 required 2 minutes, 29 seconds which was approximately 31 seconds faster. Lane # 4 required 2 minutes, 59 seconds which, of course, was the parking lane previous to the ban. Another example - a parking ban on Franklin Street from 7:00 A.M. to 6:00 P.M. resulted in a 20% or 1.2 minutes saving average per trip. 9,439 passengers traversed this stretch saving collectively 188 hours for bus patrons.

ROCHESTER, N. Y.: In the past few years we have made some progress in controlling curb parking. When our system was first converted to buses curb parking was entirely eliminated on Main Street through the central business area. From that start we have gradually branched out with complete elimination of parking on certain main feeder streets. Surrounding the central business district curb parking has been eliminated between the hours of 4:00 and 6:00 p.m. and in some cases from 7:00 to 9:00 a.m. This has also been accomplished at other congested areas outside of the central business district.

ST. LOUIS, MO.: Varying restrictions on parking on large mileage of streets, in central business district and elsewhere. Some no parking all day. Some no parking in rush hours. Some no parking on inbound side in AM rush and on outbound side in PM rush.

SAN ANTONIO, TEX.: Houston Street, which is main shopping and business street through Central District - one-way traffic, east. No parking for private vehicles with truck loading limited as follows:

1. North side of street - (buses use south side of street.) Truck loading - 12 midnight - 4 P.M,
2. South side of street - (Bus lane). Truck loading - 7 P.M. - 10 A.M.
3. No stopping, standing, and no parking in bus loading zones. Curb parking prohibited 7 A.M. - 9 A.M. and 4 P.M. - 6 P.M. on principal north-south arteries from points several blocks north and south of east-west Central Business District Streets.

SAN FRANCISCO, CAL.: Approximately 50 miles of street sides have had no stopping regulations apply to them for peak hours. Most of these are in the central business district. That they have helped the movement of traffic and transit is evident although no factual studies are available.

MEASURES TAKEN TO SPEED UP TRANSIT, OR TRAFFIC GENERALLY
(A) CURB PARKING CONTROL - RUSH HOUR ONLY OR ALL DAY (CENTRAL DISTRICT AND/OR MAJOR THOROFARES) (Cont'd)

SEATTLE, WASH.:

Curb Parking Control	In Central Bus. District	On Major Thoroughfares
1. Rush hour only	No Parking 7-9 AM & 4-6 PM	No Parking INBOUND 7-9 AM OUTBOUND 4-6 PM
2. All day	Metered	Some Metered

SPRINGFIELD, ILL.: Parking is permitted and encouraged at all curbings in central district. Motorcycle police patrol parking meters spasmodically with stress on "red flag" meters, and no attention to autos that may park all day by feeding the meter at regular intervals.

TORONTO, ONT.: About two years ago an Amendment to the Traffic By-Law prohibited stopping on the heavy traffic side of most main thoroughfares and no parking on the opposite side in rush hours. This meant that there was no stopping on the inbound side and no parking on the outbound sides of main streets in the morning rush hours and no stopping on the outbound side and no parking on the inbound side of main streets in the evening rush hours.

Under the definition of parking it is allowed trucks to make delivery from the light traffic side of these streets but barred to parking of private autos.

Due to opposition from various sections of the city, it took about two years to get this By-Law into operation, but it is now just about fully in effect on all main streets and is reasonably well enforced although the size of the traffic squad is insufficient to ensure 100% enforcement on all streets at all times.

VANCOUVER, B.C.: Rush hour stopping prohibitions are put in where they are warranted, and are strictly enforced. Infringing vehicles are towed away. On transit routes where a rush hour stopping prohibition is in force, at least 12 feet is allowed for the curb lane.

WASHINGTON, D. C.: Before and after studies conducted on a heavily travelled major thorofare to measure the effects of a 4:00 to 6:30 p.m. parking restriction showed that transit speeds were increased and resulted in a relative savings of an average of 30 seconds per trip.

WHEELING, W. VA.: Parking in downtown area is prohibited entirely between 8:00 and 9:30 A.M. Also certain main thoroughfares are cleared of parking on one side of street between 4:00 and 5:30 P.M.

WILMINGTON, DEL.: 1st Step - No parking central city district - main street - (Market) between 4:30 p.m. and 6:00 p.m.

2nd Step - No parking central city district - main street - (Market) and two other highly traveled arteries between 7:00 a.m. and 9:15 a.m.

YONKERS, N. Y.: Outside of the establishment of a few one-way streets and the installation of temporary channelization at Getty Square (main business area), nothing much has been done in the way of eliminating curb parking to improve traffic conditions.

YOUNGSTOWN, O.: In two central business areas rush hour parking bans tried. Repealed at request of business men. Resulted in 50% reduction in transit vehicle delays.

CLEVELAND, O.: Parking is now prohibited on most main arteries in the direction of heaviest travel between 7:00 to 9:30 A.M. and 4:00 to 6:30 P.M. Because many factory shifts start at 7:00 A.M., traffic becomes heavy before this time. It is recommended that the restricted hours in the A.M. might better be 6:30 to 9:00 A.M. Likewise, because of shift changes between 3:00 and 4:00 P.M., it is recommended that the restricted hours in the afternoon be from 3:00 to 6:00 P.M. instead of from 4:00 to 6:30 PM.

Parking is now prohibited on main arteries inbound in the morning and outbound in the evening. The growth of Cleveland's industry and employment has developed a strong counterflow of traffic so that may arteries are

MEASURES TAKEN TO SPEED UP TRANSIT, OR TRAFFIC GENERALLY
(A) CURB PARKING CONTROL - RUSH HOUR ONLY OR ALL DAY (CENTRAL DISTRICT AND/OR MAJOR THOROFARES) (Cont'd)

crowded outbound in the morning and inbound in the afternoon, thereby delaying workers in getting to and from work. It is recommended that parking be taken off in both directions on such main arteries from 6:30 to 9:00 A.M. and 3:00 to 6:00 P.M. This is especially recommended on Detroit, Lorain, St.Clair, Kinsman, Woodland, and Denison. Many other streets could be added to these.

Traffic lanes must be kept open in congested areas. This requires parking restrictions and a step up in the tow-away program. Nine out of ten persons will risk getting a parking ticket at some time or other. Very few, if any, will park illegally if they know there is a reasonable chance of their car being towed away. Areas which are critical traffic bottlenecks should be marked "Tow-away Area" as well as "No Parking" - and then parked cars in those areas towed away. A rigid tow-away action is such areas would, within a few weeks, clean up parking violations and a minimum of policing be required thereafter.

MEASURES TAKEN TO SPEED UP TRANSIT, OR TRAFFIC GENERALLY
(B) TURNING MOVEMENT CONTROLS

BALTIMORE, MD.: (Mr. Barnes comments) "One of the most serious detriments to a smooth traffic flow in Baltimore lies in the fact that left turns, or in some cases right turns, are not restricted at more than a few locations within the entire City. During the Easter rush it was observed that at many of the busiest intersections within the central business area pedestrians were being held up to permit turning movements by drivers. Such movements often held up long lines of cars behind the one trying to make the turn, with the result that most of the traffic in this important shopping district was badly snarled." He recommended: Prohibit left turning movements at all signalized intersections on all major arterials in the City at least during the peak hours or at all times where necessary. In the period from July, 1953 through December, 1954, 466 No Left Turns/or/Right signs were posted. Transit Vehicles were excepted where necessary.

BIRMINGHAM, ALA.: Turns have been prohibited at busiest intersections in downtown area.

Right hand lanes on one way streets approaching other busy intersections have been designated for right turns only.

BRIDGEPORT, CONN.: Pedestrian controls at main intersections.

BUFFALO, N.Y.: At certain key intersections, left-turning movements are prohibited during rush hours.

CHICAGO, ILL.: Turning movement controls are in effect at many signalized intersections. Other locations are added from time to time as signal controls are installed or modernized.

CINCINNATI, O.: Turning movement control and prohibition has been increased.

COLUMBUS, O.: No left-hand turns permitted at major intersections in downtown area.

DALLAS, TEX.: At vital strategic intersections, Dallas has restrictions on turning movements. Needless to say, without these restrictions traffic congestion would be excessive.

DAYTON, O.: What has been done has been with the auto in mind almost solely. Elimination of right turning movements on transit routes where buses must stay in the curb lane are practically nil.

DETROIT, MICH.: On Woodward Avenue, Detroit's main street, during the day, no turns of any kind are permitted for a distance of seven blocks in the downtown area. On other main streets, such as Gratiot, Grand River and Woodward, left turns are prohibited at all times, not only in the downtown area but also for a distance of about six miles from the downtown area.

HONOLULU, T.H.: No left turns at key intersections during peak hours, and at some no left or right turns.

INDIANAPOLIS, IND.: Both the State Highway and City have put preferential turn lights at major intersections to allow the turning movement to be made before straight through movement. This has considerably expedited traffic at certain intersections.

LOUISVILLE, KY.: Several turn restrictions are in effect in the Central District. Extension of these restrictions is desirable.

MILWAUKEE, WISC.: Permitting left turns in advance of oncoming traffic has been inaugurated in several instances and has resulted in substantial savings of as much as one to two minutes in running time at certain intersections.

MINNEAPOLIS, MINN.: 40% of Loop posted permanently restricting turns. Critical intersections posted "No Turn" by officer in charge only at times when necessary. This method unsatisfactory to motorist. City now planning on installation of illuminated signs reading "No Turn" visible only when turned on. Entire Loop will be controlled at same time.

MEASURES TAKEN TO SPEED UP TRANSIT, OR TRAFFIC GENERALLY (Cont'd)
(B) TURNING MOVEMENT CONTROLS

NASHVILLE, TENN.: Left turn movement of vehicular traffic is prohibited at a number of downtown intersections and at several thorofare intersections.

OMAHA, NEBR.: Where right-hand turns are allowed on 1-way streets in loop, we have been skipping these stops.

PORTLAND, ORE.: Turning movements are controlled by portable street signs placed by traffic officers. We have no specific data, but this measure taken during the rush hour has been effective.

RICHMOND, VA.: The only turning movement controls in the Central Area are effective on Broad Street where left turning movements are prohibited. Broad Street is practically the only two-way street in the Central Area.

ROCHESTER, N.Y.: Right and left turns have been completely eliminated at some main intersections in the central business district. Others have been restricted for certain hours of the day. This also applies to busy intersections and bottlenecks outside the central district.

ST. LOUIS, MO.: In general, St. Louis does not permit left turns on green light. Special left turn periods are provided at some intersections.

SAN ANTONIO, TEX.: Turning Movements at several Major Central District Intersections controlled during peak periods by Police and portable "No-turn" signs.

SAN FRANCISCO, CAL.: At a considerable number of intersections, peak-hour left-turn prohibitions have been installed. Notable among these locations are all intersections on Third Street and intersections of Powell and Sutter Streets and Bay and Van Ness Avenue. At the intersection of Bay Street and Van Ness Avenue, the institution of left-turn prohibitions increased the peak-hour travel speed from 6.5 miles an hour to 12 miles an hour.

SEATTLE. WASH.:

In Central Bus.District	On Major Thoroughfares
No Left Turn 7-9 & 4-6	Center Dividers restricting
Right Turn - Transit only	mid-block left turns.
	Free Right Turns Permitted

SPRINGFIELD, ILL.: Right and left turns permitted at all downtown intersections.

TORONTO, ONT.: All turning movements have been barred at a few main intersections during the rush hours or during the business day, and a great many other main intersections have left turns prohibited during the business day.

VANCOUVER, B.C.: Rush hour left turn prohibition have been installed at the intersections of major thoroughfares and require little enforcement. To expedite transit turning movements curbs have been cut to conform with the bus swathes, and guide lines have been painted on the streets for operators to follow with their steering columns, so that vehicle placing becomes speedy and accurate.

WASHINGTON, D.C.: Before and after studies have revealed that when the phasing is split to provide for special turning movements the running time of transit vehicles remains approximately the same provided that special turning lanes are also installed. When turning lanes are not provided, there is an increase in running time. However, there is usually a reduction in accidents which results when the intersection conflicts are removed.

WHEELING, W. VA.: During rush periods, traffic policemen on several main crossings shut off right or left turns to expedite the flow of traffic.

WILMINGTON, DEL.: 13 Seconds pre-green turn signals at 2 heavily congested intersections.

YOUNGSTOWN, O.: No right turns are permitted where pedestrian traffic is heavy. No left hand turns permitted where vehicular traffic is heavy.

MEASURES TAKEN TO SPEED UP TRANSIT, OR TRAFFIC GENERALLY (Cont'd)
(B) TURNING MOVEMENT CONTROLS

CLEVELAND, O.: Cut back curbs - At certain locations where frequent right turns are made, traffic is backed up because the turn must be made into oncoming traffic due to square corners. Traffic is often delayed on both the street from which the vehicle is turning and the street onto which it turns. If such corners were cut back, traffic could move more freely and many more vehicles move around these corners at each change of a traffic light. Some locations where it is recommended that the curb be cut back for right turning movement are:

Monroe - West 25th
East 116th - Harvard
East 88th - Union
Ontario - Eagle

Left turns - With traffic heavy in both directions on many arteries, an automobile driver in the P.M. rush, stopping to make a left turn, will hold up an entire lane of traffic until he finds an opening in the opposing traffic which will allow him to make his turn. The principal virtue of one-way streets is that delays caused by making left turns in the path of oncoming traffic are avoided. Inasmuch as the layout of our streets does not readily lend itself to one-way street operations, it is recommended that further restrictions be put on left turns in rush hours on major arteries. Some of the places where no left turns in rush hours are recommended are:

East 79th Street - All intersections from St.Clair to Kinsman.
Superior Avenue - Particularly east of East 55th Street where congestion is worse because Superior is narrower than it is west of East 55th Street.
East 105th and Wade Park - In the P.M. rush.
Westbound on Woodland - At both East 54th and East 51st Streets during both rush hours.

MEASURES TAKEN TO SPEED UP TRANSIT, OR TRAFFIC GENERALLY
(C) TRAFFIC SIGNAL TIMING

BALTIMORE, MD.: (Mr. Barnes comments): "It could be safely said that there is nothing wrong with the street system of Baltimore that an adequate, modern, well-engineered traffic signal system can't rectify. The traffic signal system in the City is so antiquated, so inflexible, and so outmoded, that in many cases it actually impedes the smooth flow of traffic rather than assists it. The need for modernization of the existing signal system, as well as for the proper engineering prior to the installation of any future traffic signals, is so great that it should be given first consideration among all the things to be done for the improvement of traffic in Baltimore." He recommended: "Install a complete system of coordinated or actuated signals. This system should provide flexibility to the extent that signal timing can be changed to meet varying traffic demands during the different hours of the day. This system should be broken into about nine districts as shown on the map submitted to the Traffic Commission, so as to provide for the needs of the City in one section without disturbing the timing of the signals in another. All signals should be dual indications and should be painted federal yellow with the inside of the visors painted a flat black.

"All traffic signals should be entirely engineered before installation as to the type of controller, the type of signal to be installed, and the timing of the lights. Complete records of these installations should be kept in the files of the Traffic Commission at all times. This entire program should be planned before any further signals are installed so as to eliminate the need to replace expensive traffic signal control equipment later on.

"Use more 'actuated' traffic signal control so as to better satisfy requests from the public for signal installations that do not warrant the use of older type 'fixed time' equipment."

In the period from July, 1953 through December, 1954, signals were installed or rebuilt at approximately 257 intersections.

BIRMINGHAM, ALA.: New traffic signal system has been installed on southside area and plans are underway for new downtown signal system which is badly antiquated. Much improvement has been made because of new southside traffic signals.

CHICAGO, ILL.:Several systems of progressive signal timing exist in various parts of the city. The Central Business District utilizes a 25% offset system for east-west streets, with a double alternate system for north-south streets.

CINCINNATI, O.: Our downtown area traffic signal timing was formerly 16-4-16-4 (half cycle spacing). As new signals are installed in conjunction with the one-way street program, they are set at 26-4-26-4 timing (quarter cycle spacing) with WALK-WAIT signals for pedestrians. Under this latter timing, one experiment with the "Barnes' Dance," or plan of having pedestrians move in all directions at once on a separate interval, was conducted at two corners. This experiment caused heavy congestion of vehicle traffic, and it was abandoned.

CLARKSBURG, W.VA.: In Clarksburg, some work has been done toward coordinating traffic lights. In the rush hour, traffic officers assist in the downtown business district. Clarksburg's two main thoroughfares, east and west, are one-way.

In Fairmont, traffic lights have been changed recently and new ones have special "walk" signal for pedestrians, at which time they may criss-cross intersections. This "walk" signal is not after each change of light (such as former caution light) but after each change of cycle.

MEASURES TAKEN TO SPEED UP TRANSIT, OR TRAFFIC GENERALLY (Cont'd)
(C) TRAFFIC SIGNAL TIMING

DALLAS, TEX.: Transit delays due to signals can be wide and varied. At the present time, Dallas has 380 signalized intersections. Five years ago, it had 280 and is steadily increasing at the rate of 22 intersections per year. At least 90% of the signalized intersections affect transit lines. Street car and bus delays can be traced to traffic signals not being coordinated with the transit loading zones. Many suggested changes have been made by the city in order to benefit transit and passenger cars alike.

On one section of street alone for a distance of 2,000 feet merely by shortening the cycle length from sixty-five to sixty seconds and connecting the area to work as an alternating progressive system with a 50-50 split at each intersection, the following improvement in transit vehicle speeds were noted.

	Rush Hours 5:00 PM to 5:30 PM
Average speed before change	6.02 mph
Average speed after change	8.02 mph

A detailed study of a traffic signal operation on Ross Avenue eastbound at Harwood, Olive and Pearl Streets, disclosed that the overhead signal lights were alternated so that one intersection was green, one red and the other green at the same time. The blocks are only 300 feet apart as compared to a normal city block of 500 or 600 feet. By suggesting to the city that all (3) signals operate green simultaneously, the following transit speed improvement was noted.

	Rush Hours 4:30 PM to 6:00 PM
Average speed before change	5.1 mph
Average speed after change	8.8 mph

DAYTON, O.: Could be improved. It is a centralized system in the Central Business District---all intersections having the same timing.

DETROIT, MICH.: Progressive timing is maintained on all streets excepting Grand River. Traffic lights on main thoroughfares are equipped with different timing sequences to favor the heaviest flow of traffic at different times of the day.

HONOLULU, T.H.: Traffic signal timing; individual automatic clocks which may be controlled manually by a police officer during peaks as traffic conditions require.

INDIANAPOLIS, IND.: On one-way streets progressive timing of lights has helped expedite the movement of traffic, but there is still need for many more traffic lights.

LOS ANGELES, CAL.: Off-center laning and progressive signal timing with the trend of travel has also been developed to expedite the movement of traffic.

LOUISVILLE, KY.: Existing signal installations are adequately interconnected.

MILWAUKEE, WISC.: Because of stops for passengers, traffic signal timing has usually only an indirect effect on transit in that it permits other traffic to move more expeditiously. On express routes signal timing is normally handled satisfactorily.

MINNEAPOLIS, MINN.: All signals have been retimed within last 24 months. Are being constantly checked for possible retiming.

NASHVILLE, TENN.: Considerable progress has been made in improvement of traffic signal timing and in synchronization of traffic signals. Complete synchronization of timing signals in the business district now being carried out.

OMAHA, NEBR.: Increased from 15 mph to 17 mph.

PHILADELPHIA, PA.: Traffic-actuated signal control of street and highway intersections is being adopted in Philadelphia on an extensive scale in a program to completely modernize the city's signal control system. Fifty of the electronic units have already been installed, half of them directly benefiting transit vehicles, and it is

MEASURES TAKEN TO SPEED UP TRANSIT, OR TRAFFIC GENERALLY (Cont'd)
(C) TRAFFIC SIGNAL TIMING

anticipated that a total of from 250 to 300 will have been installed by the end of this year. By this July it is expected that seventy-two intersections in a 7-1/3 mile stretch of Broad Street from Oregon Avenue (2700 South) to Belfield Avenue (4600 North) will be controlled by traffic-actuated signals, together with numerous other intersections elsewhere throughout the city

RICHMOND, VA.: Where synchronization is possible, the traffic lights are synchronized by the efficient Traffic Engineering Bureau of the City of Richmond.

ROCHESTER, N.Y.: Signal lights in the central business district have been recently retimed and synchronized. This has helped speed the flow of traffic but has not been sufficient to increase the scheduled speed of buses.

ST. LOUIS, MO.: Timing is adjusted from time to time, as need appears.

SAN ANTONIO, TEX.: Traffic Signals antiquated and fixed control, permitting no flexibility.

SAN FRANCISCO, CAL.: Large amounts of money have been expended since 1947 to provide new traffic signals which are flexible to provide for variable traffic loads. An example of traffic signal timing with new signals is to be had on Bush and Pine Streets where in the Western Addition traffic moves on an average of approximately 25 mph on rather narrow city streets. On Market Street, new traffic signals have been put in which are timed primarily to benefit transit vehicles. Approximate average loading times have been calculated and signals have been so timed so as to enable transit vehicles to move along the street with a minimum of interference from signals. Although no "before" and "after" study has been made, it has been the general opinion of both the public, the Police Department and transit officials that traffic movement has improved very considerably on Market Street despite a very heavy increase in traffic volumes.

SEATTLE, WASH.:

In Central Bus.District	On Major Thoroughfares
60 Second Cycle to 3:OO PM	Various and automatic
70 " " 3-7 PM	counters

SPRINGFIELD, ILL.: All signals work as a unit. No changes are made in timing at various hours. No attention is paid to fact that 58% of traffic moves north and south and only 42% moves east and west.

VANCOUVER, B.C.: Where undue delay at an intersection is experienced by transit, some attempt is made to adjust signal timings in order that the delay is not greater than is necessary to maintain a headway.

WASHINGTON, D.C.: Continuous studies of traffic signal progression and the effect on transit movements are conducted, manpower permitting, on all major street systems. Since the signal systems do not correspond to scheduled time points, it is impossible to accurately reflect time savings involved.

WHEELING, W.VA.: Traffic signal timing is changed to suit traffic conditions at rush times.

WILMINGTON, DEL.: Lights changed to tie in with heaviest flow of traffic.

YOUNGSTOWN, O.: Advance green arrows for left turns on signals. Synchronizing controls installed.

MEASURES TAKEN TO SPEED UP TRANSIT, OR TRAFFIC GENERALLY
(D) ONE-WAY STREETS

BALTIMORE, MD.: Mr. Barnes commented: "Probably next to the installation of an adequate signal control system, the need for study and correlation of the one-way street movements in Baltimore City is of the most important need."

"Tied into this study should also be that of correlating parking regulations so as to make for better and more efficient use of the one-way thoroughfares once they have been created. It will be absolutely necessary to reverse the direction of travel on some streets if anticipated improvements to the traffic plan are to be had."

"The ordinances passed by the City Council governing the installation of one-way streets throughout the entire Baltimore City area are so integrated among other City ordinances that a complete picture of their location and correlation is almost impossible to obtain. It is of the utmost importance that the Traffic Engineer's Office, without delay, prepare adequate spot maps showing all of the existing one-way streets so that, in the future, whenever any ordinances are adopted governing the direction of traffic an attempt can be made to tie this straggly system together into a compact, complete system. Certainly, the City Council would be willing to accept the recommendations of the Traffic Engineer's Office, provided that these recommendations were based on careful study, toward the end that the present practice of creating one-way thoroughfares in a hodge-podge manner could be eliminated.

"It is further recommended that in no instance should a one-way street, more than two or three blocks long, be instituted without at the same time making this thoroughfare a 'through' street. For some unknown reason, whenever a driver uses a one-way thoroughfare he automatically assumes that he has the right of way and does not yield to cross-street traffic. Many accidents, serious injury and death result because of a driver's erroneous attitude.

"A need for the installation of stop signs cannot be overemphasized, particularly if you are to have a smooth flow of traffic. The primary purpose for a one-way thoroughfare may be two-fold. First, it may be the means of eliminating congestion on narrow thoroughfares where parking is permitted on one or both sides. By having a one-way movement the problem of vehicles approaching from two directions on a street where they cannot pass safely is eliminated. The other purpose for a one-way thoroughfare is to expedite the free flow of traffic and to speed up vehicular movement. It is a well-known fact that vehicles will operate, side by side, on a one-way street much closer together and faster than on the same street with traffic permitted in a two-way direction. This is because of the driver's feeling that an approaching vehicle may swerve to his line of travel and cause a serious accident. If these vehicles are traveling side by side in the same direction, if one does swerve, seldom is serious damage encountered, provided traffic speeds are not too high."

In the period from July 1953 through December 1954, Phase I of the major one-way street system, involving 16 streets in whole or in part, was planned and put into operation.

BIRMINGHAM, ALA.: Four north and south avenues and two east and west streets have been made one way and results have been very satisfactory.

BRIDGEPORT, CONN.: Before and after data on traffic speed indicates an increase in speed on the three main thoroughfares which were converted to one-way system, as follows:

	Before (Feb. 1952)	After (Oct. 1952)
Fairfield Ave. (1.2 miles)	10.7 m.p.h.	12.0 m.p.h.
State St. (1.3 miles)	12.0 m.p.h.	12.3 m.p.h.
John St. (1.25 miles)	11.3 m.p.h.	12.1 m.p.h.

BUFFALO, N.Y.: One-way streets have been applied to some degree in the downtown business district and the same restrictions are used in some instances on adjacent narrow thoroughfares in residential districts.

MEASURES TAKEN TO SPEED UP TRANSIT, OR TRAFFIC GENERALLY (Cont'd)
(D) ONE-WAY STREETS

CHICAGO, ILL.: Four pair of one-way streets have been established in the Central District - Three pair on east-west streets, one pair on north-south streets - Two pair of the east-west one-way streets extend considerably beyond the control district to the west - up to 4½ miles west. Many other one-way streets have been established throughout the city, but generally they are on local residential streets, rather than on major thoroughfares.

CINCINNATI, O.: One way traffic has gradually been extended to all important streets in our downtown area. Our downtown streets are generally 40 feet wide, curb to curb.

One way traffic facilitates greatly the movement of automobiles, but, unless skip-stopping, or a plan providing "separate stops for separate routes" is used, transit vehicles become congested on one way streets where 75 or more buses per hour, are scheduled, in peaks, to move through common stops.

Early this year, the Traffic Engineering Department of the City of Cincinnati proposed changing Broadway, a street at the edge of our downtown district, to one way north. We had, in the peak, 18 buses per hour, scheduled north, and also 18 per hour scheduled south, on Broadway; and they were operating with little congestion.

Had the 18 southbound buses been moved to Sycamore Street, the next southbound one way street to the west, the peak number scheduled south in Sycamore Street would have been increased from 61 to 79 buses per hour. This would have congested transit movements and stops on Sycamore Street.

As the result of a special survey on "Rush Hour Time Used By Buses" we demonstrated that transit vehicles were moving faster on Broadway than on Sycamore or Main Streets, the nearest one way streets. This, coupled with other reasons, resulted in our City Council permitting Broadway to remain a two way street.

DETROIT, MICH.: Jefferson Avenue carrying two-way traffic is paralleled by two one-way streets.

Woodward Avenue carrying two-way traffic is paralleled by two one-way streets immediately to the east, and by two more immediately to the west.

Other one-way streets are established but the above are the principal ones.

All are utilized by Public Transit.

HONOLULU, T. H.: New one-way street system went into effect early in 1955. A "Before and After Survey" covering the average speed of automobiles in the A.M., Noon and P.M. peak hours indicated increases of 3% to 30% on 14 Street in the downtown business area. On five streets speed declined from 4% to 18% and two streets there were no changes.

INDIANAPOLIS, IND.: In 1952 a transit study was made and recommendations made for a pair of east and west one-way streets and two pairs of north and south one-way streets, either side of central Meridian Street. This has been done, and has helped a lot to move traffic and transit.

When Illinois Street, formerly a two-way street, contained street car tracks, 5,000 vehicles a day were moved in 24 hours. Now this street is a one-way street and has a trolley coach line upon it and 21,000 vehicles are moved in 24 hours.

LOS ANGELES, CAL.: Several pairs of one-way streets have been establishment. In the case of public transit, the resultant added congestion in the curb lane caused by the concentration of right turns on the one-way streets as well as on intersecting two-way streets has necessitated establisbment of mid-block or far-side coach stops and in the case of multi-line operation on one-way streets, the establishment of skip stop operation.

LOUISVILLE, KY.: An extensive one-way system has been installed in the Central District.

MINNEAPOLIS-ST. PAUL, MINN.: One way street pattern will be completed this year. Installation has been in progress last 2 years. 45% of loop streets will be one way.

MEASURES TAKEN TO SPEED UP TRANSIT, OR TRAFFIC GENERALLY (Cont'd)
(D) ONE-WAY STREETS

NASHVILLE, TENN.: Practically all streets in the business district have been made one-way streets since 1945.

PORTLAND, ORE.: We have a complete one-way street grid in the downtown district. Average auto speeds, according to the traffic engineer, have been increased from 5.8 M.P.H. to 14.2 M.P.H. The one-way grid has done little to increase our speeds, and the following comparison will illustrate the point. This is an actual check of running times of our lines before and after the one-way grid was put into operation:

	June 10, 1947		June 15, 1950	
	Two-way Street Broadway		One-way Street 6th Avenue	
Hour of Day	Northbound		Northbound	
	Minutes	M.P.H.	Minutes	M.P.H.
11:00 A.M. to Noon	7.0	7.37	9.5	5.74
Noon to 2:00 P.M.	8.5	6.00	9.2	5.93
2:00 to 2:30 P.M.	8.5	6.00	10.5	5.20
2:30 to 3:00 P.M.	8.5	6.00	12.5	4.37
3:00 to 3:30 P.M.	9.0	5.73	9.5	5.74
3:30 to 4:00 P.M.	9.0	5.73	10.7	5.10
4:00 to 4:15 P.M.	10.5	4.91	9.0	6.07
4:15 to 4:45 P.M.	10.5	4.91	10.9	5.10
4:45 to 5:00 P.M.	12.0	4.60	12.0	4.55
5:00 to 5:30 P.M.	12.0	4.60	12.4	4.40
5:30 to 6:00 P.M.	9.0	5.73	10.5	5.20
Average		5.60		5.22

RICHMOND, VA.: With the exception of Broad Street, an eight-lane street, practically all others in the Central Area are directional streets. Data are not available before and after conversion but one way streets have been a means of avoiding complete strangulation for the present traffic.

ROCHESTER, N. Y.: The street pattern of Rochester has not allowed the use of one way streets on any main traffic arteries or bus routes. Subsidiary streets have been made one way which has helped traffic generally.

ST. LOUIS, MO.: Most streets in central business district are one-way. One-way operation extends outside said district on some streets, to maximum length of 2.5 miles. There is one reversible street, 2.5 miles long, inbound in AM and early PM, thereafter outbound. Some narrow residential streets have been made one-way so traffic, though light, can move despite parking on both sides.

SAN ANTONIO, TEX.: Major Central District Streets, both east-west and north-south, one way.

SAN FRANCISCO, CAL.: The "one-way" street program has expanded considerably in San Francisco since 1947. These streets, because of their greater capacity, have measurably improved traffic flow while carrying on increasingly heavy traffic load themselves. An example of how one-way street improved traffic flow is to be seen on Mason Street which, while a two-way street - traffic flowed on it at an average speed of about eight miles an hour in the off-peak period in the daytime. Under one-way operation, the traffic speed increased approximately 40% to 11 miles per hour.

In some instances one-way streets have attracted vehicular traffic from vicinity transit streets, thus reducing delay to transit vehicles.

In one recent change to one-way operation, additional traffic was attracted to a two-way transit street, causing some delay to transit vehicles during part of the day only in one direction only. This is currently under study, but it is believed that the change referred to may improve traffic flow in general.

SEATTLE, WASH.:

In Central Bus. District	On Major Thoroughfares
None in CBD	-

SPRINGFIELD, ILL.: 4 alternate streets made one way north and south in April, 1952. 2 streets made one way east and west in April, 1954. No appreciable relief of congestion in our opinion.

MEASURES TAKEN TO SPEED UP TRANSIT, OR TRAFFIC GENERALLY (Cont'd)
(D) ONE-WAY STREETS

TORONTO, ONT.: A number of one way streets have been established but for the most part these are on narrow minor streets or residential streets with relatively narrow pavement and where the streets are close together and parallel. Unfortunately the street pattern of our main streets does not lend itself to the inauguration of one way streets because few pairs of closely parallel main streets exist which could be conveniently created into one way streets.

VANCOUVER, B. C.: There is at present only one pair of one-way streets, which function primarily as channels for bridge traffic to and from the downtown area.

WHEELING, W. VA.: Existing one way streets have not been changed in recent years with exception of a couple minor cross streets in business section.

WILMINGTON, DEL.: 4 mainly traveled streets changed to one-way travel. Proposals have been made for one-way on an important main street section.

YOUNGSTOWN, O.: Installed in downtown area. No main arteries are one-way.

CLEVELAND, O.: One-way streets have helped speed up traffic in cities with a grid layout of streets and short blocks. Their application in Cleveland is quite limited because of our street pattern. Nevertheless, they might help in some situations, and the following are suggested for consideration:

(a) Carnegie Avenue - Between East 22nd Street and the eastern end, make Carnegie Avenue one-way during P.M. rush from 4:OO to 6:00. We need more capacity for moving vehicles in the P.M. rush. This will give it. It would require rerouting of westbound route 32-A, 32-B, and 32-C buses during those hours. The advantage of increasing eastbound capacity will outweigh the disadvantage of this rerouting. Making Carnegie Avenue one-way in one direction and either Cedar Avenue or Chester one-way in the other would add nothing to the number of eastbound lanes, which are needed.

(b) East 22nd Street - Between Euclid Avenue and Carnegie, make East 22nd Street southbound only from 4:00 to 6:00PM. Traffic is bad on Euclid Avenue between East 14th and East 22nd Streets and also on East 22nd Street. This is because traffic from the parking lots around East 21st and East 22nd Streets and from Euclid Avenue flows southbound on East 22nd Street to get over to Carnegie Avenue. This would require a rerouting of east bound trackless trolleys between Carnegie and Prospect Avenue. They could be rerouted via East 21st Street which should then also be made one-way northbound during the same hours.

(c) Bridge Avenue and Franklin Avenue - Westside traffic could be helped by making Bridge Avenue one-way eastbound between West 65th and West 25th and Franklin Avenue one-way westbound between West 25th and West 65th. This could not be done until after the Madison Avenue street car line has been converted to buses, but that conversion is scheduled for about February 1st of next year. Transit riders living on Franklin Avenue might object, but riding is light on that line. We would be willing to go along with a try of this one-way routing.

MEASURES TAKEN TO SPEED UP TRANSIT, OR TRAFFIC GENERALLY
(E) PEDESTRIAN CONTROLS

BALTIMORE, MD.: (Mr. Barnes comments): "After a master traffic signal system is planned, make studies to see what corners 'Walk, Don't Walk' type of pedestrian control can be justified. It will be impossible to use this type of control until the present signal system has been entirely replaced."

In the period between July, 1953 through December, 1954, special pedestrian signals or traffic signals with pedestrian actuated phase were installed at 20 locations. They were coordinated with the traffic signal so as to provide the safest movement for pedestrians. Permanent-type crosswalks were installed at 145 intersections, using a total of 42,424 pieces of non-flexible tile. A total of 23,816 pieces of flexible plastic markers were used to install 79 permanent-type crosswalks. 2,377 crosswalks were painted, approximately 350 of the total being new installations.

BUFFALO, N.Y.: There has been some attempt at obtaining pedestrian observance of traffic signals, but with relatively little success. Jay-walking is frequent in the downtown business district.

CHICAGO, ILL.: Pedestrian signals have been installed at relatively few locations - some of them in the Central District, on Michigan Avenue principally.

CINCINNATI, O.: Pedestrian controls are well observed.

DALLAS, TEX.: City is experimenting with a scramble light at one of its main downtown intersections. Pedestrians walk in every direction during a certain walk interval on the signal light.

The right hand turning movements of two major transit lines has been improved at this point due to no pedestrian interference. At least 16 seconds of delay time was saved on these two lines.

DAYTON, O.: With the "walk" - "don't walk" traffic signal pedestrian control is in effect.

DETROIT, MICH.: Many traffic signals are now equipped with pedestrian signals. Enforcement is through "Jay-Walking" ordinance.

HONOLULU, T.H.: Trying out "Barnes System" at some intersections in town at this time with as yet unevaluated success.

LOS ANGELES, CAL.: Pedestrian traffic obedience to the traffic signal controls is strictly enforced and during heavy shopping periods such as pre-Christmas, right and left turns at intersections and left turns into parking lots are prohibited when warranted by traffic conditions.

LOUISVILLE, KY.: Pedestrian walk lights are now being installed in Central District. Extension of jay-walking restrictions to outlying areas is being proposed.

MILWAUKEE, WISC.: A trial of "All-Walk" pedestrian controls resulted in a slowing down of our service of three minutes round-trip running time over a four block area requiring an additional bus to be operated on each of four routes affected. This experiment has been discontinued.

MINNEAPOLIS-ST. PAUL, MINN.: Elimination of right turns has been biggest help to pedestrian. "Barnes Dance" method tried in St. Paul.Very unsatisfactory. Abandoned. Issuance of "Traffic Tags" to jay-walkers has reduced this hazard to minimum. Semaphore timing has been set with pedestrians movement a major consideration.

NASHVILLE, TENN.: A few automatic pedestrian control signals have been installed in the central business district. In the suburban areas a few manually operated pedestrian signals have been installed.

OMAHA, NEBR.: New "walk" lights in loop.

PORTLAND, ORE.: We have "Walk" "Wait" pedestrian signals in the downtown district. The signals are obeyed. There is a minimum of jay-walking.

RICHMOND, VA.: "Walk" and "Don't Walk" signs exist along Broad Street. The additional time in the traffic signal cycle to include the pedestrian signal just about offsets the delays of right turn movements threading their way between pedestrians crossing.

MEASURES TAKEN TO SPEED UP TRANSIT, OR TRAFFIC GENERALLY (Cont'd)
(E) PEDESTRIAN CONTROLS

ROCHESTER, N.Y.: New pedestrian signal lights have been installed in the central traffic district to govern pedestrian crossings within the timing of vehicular signals. The city has also invoked a no-jay-walking ordinance to prevent pedestrians from crossing streets away from crosswalks. These recent controls have to a great extent cleared the streets of pedestrians when signals permit the movement of vehicular traffic.

ST. LOUIS, MO.: Pedestrians are required by ordinance to obey signals and officers. This is well enforced in central business district by giving out tickets.

SAN ANTONIO, TEX.: No Special Pedestrian control measures, other than prohibition of turning movements at heavy pedestrian crossings to eliminate interference with shoppers.

SAN FRANCISCO, CAL.: Numerous methods of channelization have been instituted which provide for controlling the movement of pedestrians so as to minimize conflicts between pedestrians and automobile and transit vehicles. If the conflict is heavy enough such as at Fifth and Market Streets, an entire pedestrian crosswalk has been eliminated. At certain points, barriers are erected to control pedestrian movement.

SEATTLE, WASH.:

In Central Bus. District	On Major Thoroughfares
Same as for Vehicles	Same as for Vehicles
	Some "Scrabble"

SPRINGFIELD, ILL.: "Wait" and "walk" signals installed October, 1954, but pedestrians "walk" co-incides with green lights, and pedestrians interfere with vehicle turning, which results in vehicle wishing to turn, and all others behind him in same lane, being delayed.

TORONTO, ONT.: In Ontario, pedestrians are permitted to cross on a red signal if they can do so without interfering with traffic proceeding on the green. The police have endeavored to educate the public to wait for the green signal at congested intersections and in a few places special walk-wait signals have been installed to facilitate pedestrian crossings. At one instance, a downtown intersection was equipped with special signals to operate the so-called "Barnes Dance," wherein a special pedestrian signal is provided which allows waiting pedestrians to cross in all directions but not at all during other signal phases. This operation was discontinued after a trial of a month or so.

VANCOUVER, B.C.: At signalized intersections there is strict pedestrian compliance with the signals. At certain intersections a separate pedestrian phase, accomplished with pedestrian signal heads, permits a "scramble" crossing system that has proven effective in increasing vehicle volume through the intersections and reducing accidents. This, in spite of the reduction of the overall "green" time available.

Enforcement has produced little or no jay-walking and strict compliance with the use of crosswalks, even in suburban areas.

WASHINGTON, D.C.: Before and after studies reveal that the general type of pedestrian controls have little effect on transit operations. However, the all-red (Barnes Dance) pedestrian control is creating considerable delay. Before and after studies reveal that as much as 30% of the total delays have resulted from and are attributed to the all-red pedestrian signals.

WHEELING, W.VA.: Pedestrian walk lights are not used. Walkers are principally on their own except at corners where a policeman is directing traffic.

WILMINGTON, DEL.: Walk lights at two busy intersections.

YOUNGSTOWN, O.: Jay-walking penalties, Don't Walk signals.

MEASURES TAKEN TO SPEED UP TRANSIT, OR TRAFFIC GENERALLY
(F) BUS STOP LENGTHS OR LOCATIONS

ATLANTA, GA.: Downtown bus stops have recently been revised with a view to splitting up heavy loading points and the elimination of left turns from the right-hand lane. Two very heavy stops have been split by moving them around corners and dividing the number of lines which pass each stop.

Stops have recently been relocated at 8 heavy intersections downtown to eliminate left turns from the wrong lane.

BALTIMORE, MD.: Under existing ordinances we are permitted to establish bus stops of the following lengths:

At Intersections -	75 ft. in length measured along the curb or footway from the building line of any intersecting street.
At Places Other Than Intersecting - Streets	Not exceeding 100 feet.

Approval of the location of bus stops must be obtained from the Department of Traffic Engineering. This agency has circumvented problems at specific locations by issuing us Loading Zone Permits in lieu of Bus Stop Permits, thus enabling us to post reservations of greater length than the standard bus stop reservation.

BIRMINGHAM, ALA.: Bus stops and lengths as well as downtown routing have been completely overhauled in the downtown area. Bus stop lengths are designed to fit the need according to concentration of buses at each stop. Stops in the downtown area range from 60 feet to a full block.

BUFFALO, N.Y.: Bus stops are located generally at the nearside, although local conditions govern and some stops are made mid-block, farside, or around the corner. The Board of Safety has prohibited standing in many bus stops but posting has not been completed.

CHICAGO, ILL.: Approximately one-half of the 13,000 odd bus stop locations in the city are signed with "BUS STOP NO PARKING" signs. The standard length of zone is 85 feet.

CINCINNATI, O.:

Bus stop lengths are near side	85'
far side	65'
mid-block	100'

If provisions are to be made for more than one bus, the stop is extended 40' for each additional bus.

CLARKSBURG, VA.: Bus stops in Fairmont are arranged so that buses operate through intersections before stopping, the idea being that traffic will not be halted by bus stopping for passengers at a green light but will continue through the light and around the stopped bus uninterrupted.

DALLAS, TEX.: Loading zones have been increased in length 25%, more are needed. Downtown loading zones range from 85 ft. to 171 ft. in order to accommodate from two to four coaches loading at one time. Especially is this desirable at certain intersections with large numbers of units per hour. Three and four transit units can pass through one signal cycle of green after they have loaded, thus saving signal light delays of from one to two minutes. The location of the bus stop is very important in the downtown area.

Where there are intersections having heavy right turn movements for automobiles, it is imperative to have far side stops, so buses can go around the right turning traffic and thus save from three to four signal light cycles. This has been a cause of much transit delay.

DAYTON, O.: We are among the unfortunate cities who have mid-block stops in our Central Business District. When we converted from street car operation and safety zone loading to buses in the curb lane we asked for near side corner bus stops but here again city officials were cognizant only of the private auto and its right turn so we were put in the middle of the block with no regard for the convenience of the transit rider.

DETROIT, MICH.: In Central District stops are usually made at all intersections. Outside of Central District stops are usually at alternate intersections. Stops are located on the far side of intersections and are generally about 70 ft. long.

MEASURES TAKEN TO SPEED UP TRANSIT, OR TRAFFIC GENERALLY (Cont'd)
(F) BUS STOP LENGTHS OR LOCATIONS

HONOLULU, T.H.: Average length of bus stop, 50 ft. The majority are near side stops but some far side stops as required to the best advantage of transit.

INDIANAPOLIS, IND.: Our bus stop lengths for single stops are 95 ft. and are near side in most instances. In the central area, that is the business district, our transit stops are mid-block, this so that our transit vehicles can get out around vehicles desiring to make right-hand turns.

LOUISVILLE, KY.: Stops have been lengthened to 90 to 150 ft. in Central District. This has improved transit speed. Most stops are near-side. Where conditions indicate, stops are far-side. No mid-block stops.

MILWAUKEE, WISC.: Lengthening of bus stop loading zone lengths from 50 to 80 ft. (in 1954) facilitated movement into the curb but as in the case of other time saving expedients, the benefit is difficult to measure because it merely offsets delays caused by heavier traffic, additional traffic signals, etc. Inauguration of skip stops as a war measure and their retention since then has been a tremendous help in maintaining speed. Establishment of skip stops in the downtown area (800 ft. apart instead of 400 ft.) resulted in a saving of running time of 14 per cent over the section of congested street affected.

MINNEAPOLIS-ST. PAUL, MINN.: Most stops were 40 to 60 ft. long 2 years ago. Now all are 80 ft. We had requested 120 ft. All near-side except one line on one street that has been far-side since 1925. Much difficulty experienced in "Curbing" buses when 80 ft. zone is used, illegally, as a loading zone. Sentiment is growing for longer stops. Goal is 100% "No Parking" with mid-block stop. May be able to develop a skip-stop mid-block arrangement. No skip-stop at this time.

MONTREAL, CAN.: Bus stop locations are well marked and are in general 80 ft. in length. Near-side position except in special circumstances. At present the City authorities are studying the program synchronization of traffic signals on certain arteries and in certain districts.

PHILADELPHIA, PA.: Relocation of bus stops from the near-side of intersections to the middle of the block has substantially speeded the movement of all westbound traffic on Market Street east of City Hall. The stops are for the accommodation of large numbers of suburban interstate buses crossing the Delaware River Bridge from New Jersey. With the bus stops located at the near-side of intersections, there was insufficient room for automotive traffic to pass between buses loading and unloading at the curb on the right and trolley-loading platforms on the left. By relocating the bus stops to mid-block, the bottlenecks were eliminated.

PORTLAND, ORE.: For 1 bus we get 75 to 80 ft. for a bus stop. We have a few using the whole block 200 ft. during rush hours.

RICHMOND, VA.: 132 ft. are allotted bus stops in the Central Area which will accommodate three buses. Far-side stops are utilized only at locations where right-turning movements would be made in front of the lead bus at a near-side bus stop. This automatically reduced the number of bus stops to about an average of one stop every 1-1/2 blocks.

ROCHESTER, N.Y.: Many of the heavier bus routes were surveyed and bus stops respaced. This was accomplished with the cooperation of the City Department of Public Safety who then permitted longer bus zones. They increased the zones from 60 to 80 ft. and backed them up with no-parking signs on the routes surveyed. This survey is continuing until all routes are covered. We have no rigid distance specified between bus stops. We are attempting to accomplish an average of 500 ft. by the use of near side, far side and mid-block stops.

ST. LOUIS, MO.: We try, with some success, to get adequate bus stop lengths, on streets where parking is permitted, especially where headways are short, so two or more buses can load at once without blocking street. Stop locations are changed at times if same will improve traffic movement.

MEASURES TAKEN TO SPEED UP TRANSIT, OR TRAFFIC GENERALLY (Cont'd)
(F) BUS STOP LENGTHS OR LOCATIONS

SAN ANTONIO, TEX.: Bus stops in Central District near-side with few exceptions.

SAN FRANCISCO, CAL.:

	Near Side	Far Side
Street Cars	95%	5%
Buses	54%	46%
1-Coach Zone	90 ft. (Avg.)	75 ft. (Avg.)
2-Coach Zone	140 ft. "	125 ft. "

In rush periods on streets where vehicular parking is prohibited, additional "stop bars" are painted on street at certain stops downtown to permit loading 3 or 4 coaches simultaneously.

SEATTLE, WASH.:

In Central Bus. District	In Major Thoroughfares
60'- 1 coach 136' - 3 coach 96'- 2 coach 170' - 4	Same as CBD
Far side - standard with exceptions	Same as CBD

SPRINGFIELD, ILL.: Bus stop lengths are adequate - space given us requested, however, locations are decreed by city officials. In October, 1954, all stops changed from near side to far side without regard to wishes of transit company or transit patrons. Currently have problem of buses entering packed traffic lane from curb in far side stops.

TORONTO, ONT.: We have endeavored to locate bus stops to minimize as far as possible interference with other traffic.

VANCOUVER, B.C.: Bus zones are generally located on the far-side of intersections, and rarely, if ever, mid-block. A special pavement marking has been adopted defining clearly 20 foot corner clearance, 40 foot bus loading area, and 25 foot bus pull out distance. An extra 40 foot loading area is provided for every extra bus to be accommodated.

Bus bays, 10 feet wide, are constructed on major thoroughfares which have only 24 foot pavements, when traffic is heavy enough to justify the cost.

WASHINGTON, D.C.: The District of Columbia recently adopted new standard bus zone lengths that resulted from cooperative studies between the Company and local traffic authorities. The comprehensive study conducted by the Company accurately determined the bus zone length needs. The longer lengths are as follows: One bus, near side - 130 ft.; one bus, far side - 85 ft.; one bus, mid-block- 120 ft.; for each additional bus the zone lengths are increased 43 feet.

A major improvement in this area was the lack of enforcement because of insufficient regulations. The recently adopted regulations can now be upheld in the courts, and proper enforcement has resulted.

Another development was the adoption of a "No Parking At Any Time - Bus Zone" sign, in place of the "No Parking - Bus Zone" sign as recommended by the Manual on Uniform Traffic Control Devices. Before and After observations have revealed that at locations where the new signs are installed complete observance is being achieved.

WHEELING, W. VA.: Several bus stops have been eliminated in business section. During rush hours buses are not permitted to linger at stops.

WILMINGTON, DEL.: Several stops changed from near side to far side stops.

YOUNGSTOWN, O.: Except on two routes parking is permitted in bus stops.

MEASURES TAKEN TO SPEED UP TRANSIT, OR TRAFFIC GENERALLY
(G) ENFORCEMENT

BALTIMORE, MD.: (Mr. Barnes comments): "After a sufficient period of education and public information has passed, then the Police Department must take over, that is, if it is a problem which requires law enforcement. They must wield the big stick that makes the 'unbeliever' do as he should if a majority of the public is to have the benefit of a new facility. It is too bad that this must be the case, because it would seem that people should just naturally do those things which would mean the protection of their own life and property. However, bitter experience has proven that such is not so.

"It has also been proven time and again that the Engineer can install the best possible traffic control facility that man can devise, but if he doesn't have the complete support and cooperation of the Police Department the money spent for the new facility, be it simple or complicated, could better have been saved.

"It is not intended by the order of the foregoing procedure that there would not be a considerable amount of intercommunication and consultation, during the study of such problems, between the various departments involved before the final answer is reached. For example, if the problem involved the installation of major parking restrictions or other such regulations, while the Engineer should be the first to find this out through his studies, still he should not make a recommendation for such legislation as would be necessary until he has carefully discussed this with the officials of the Police Department to see if they have the manpower necessary to enforce such regulations if they are adopted.

"It was found that so much friction has been generated during the past several years between major and minor departments concerned with the control of traffic in this City that actually each department, even though they should be coordinated through the Traffic Commission, operates almost independently and with little or no consultation or reference between the entities concerned. In at least one instance it was found that friction between two of the major departments is so great, and mistrust has been built up over a period of years as to each other's motives to a point that one department is actually bucking the other, so that little or no good can be gained by either department. This condition primarily exists between the Police Department and the Traffic Engineering Division and has reached such proportions that a member of the Police Department refuses to be seen talking to personnel of the Traffic Engineering Division in the quarters of the Police Department, or even on the street, for fear that someone will think they are carrying tales or spying on the other department. A high-ranking police officer stated that he had informed the Traffic Engineer that he would be happy to discuss traffic problems with him in the men's rest room, or elsewhere, provided nobody was around to observe the fact that he was talking to the Traffic Engineer. Such a condition certainly is to be deplored, regardless in what city it exists!

"Nowhere in the country has it been observed where police officers are so diligent in their job of moving traffic at busy intersections. These men work very hard, are very observant of traffic regulations, except parking, and particularly so when it comes to assisting pedestrians or aged people across the street. (Emphasis supplied) It seems quite apparent that the basis for most of the lack of enforcement, if such does exist, can be traced directly to the terrific ambiguity which exists with present City ordinances. Many cases were cited where traffic officers attempted to do the proper job of enforcing traffic regulations only to have the courts hold, when these cases came to trial, that the law was vague, that the ordinances were not properly posted, or that other things were wrong with the methods of issuing summonses, or that the officer did not prove that the violator was actually in violation. These cases have been dismissed on a wholesale basis.

"There seems to be considerable question in the minds of local police officials as to whether or not parking regulations can be enforced. Incidents were cited along this line where courts have thrown out literally thousands of tickets because ordinances governing this violation are not specific as to their meaning.

"Considerable time was spent with top-ranking members of the Police Department, from the Commissioner's Office through some of the Lieutenants. In all cases these men were extremely helpful, and cooperative, and seemed to know their business. Many of them pointed out that difficulties do exist, in so far as proper regula-

tions of traffic laws are concerned, primarily because of the ambiguities of traffic regulations.

"Of all the phases of traffic investigated in this City during the 30-day period, certainly the fewest number of complaints concerning traffic operations were voiced in respect to the Police Department. Again, the main complaint voiced by practically everyone other than police personnel was that parking regulations are not being adequately enforced and that special privilege for parking seems to exist, particularly in the banking or large department store areas. Unquestionably, the Police Commissioner has justification for his feelings that he cannot do a satisfactory job of enforcing general parking regulations until the ordinances governing those regulations have been cleared of any ambiguities or conflict.

"While there is some reason why a good job of enforcement cannot be done on parking in prohibited places, or overtime parking, there is no excuse whatsoever for permitting double-parking. The Traffic Engineering Division should establish a system of loading zones within the business area as well as in the outlying sections. Once these are properly signed no further double-parking should be allowed. Strict enforcement against double-parking should be the order of the day, without exception, on all one-way and arterial streets during the morning and afternoon peaks, and any cars found double-parked or parked in prohibited areas during the traffic peak should be towed away. This should be done on a city-wide basis and not just in the downtown area. It was understood that sufficient equipment is on hand at the Police Department now to make possible the expansion of the towing practice. This equipment should, therefore, be placed into service at once. Probably, if many streets were better marked and properly signed it would be possible to permit some parking on them during now restricted periods. A careful study of this problem should turn up some interesting facts.

"The Police Department should, without exception, enforce against any parking in bus zones. It is now a common practice for commercial vehicles, or anyone else who desires, to park in a bus loading zone and force this vehicle to double-park while loading or unloading passengers. While there is a tendency on the part of bus operators not to pull in to the curb even when it is clear, certainly, if all zones were kept open, proper pressure could be put on the transit officials to force their vehicles to pull to the curb properly when loading."

In the period between July 1953 and December 1954 the work of recodifying the entire traffic code was started and a good cooperative program of traffic regulation and enforcement has been achieved by close liaison maintained by the Department of Traffic Engineering and the Police Department.

BIRMINGHAM, ALA.: Enforcement is fair. Cooperation from police department is excellent and improvement in enforcement is being made.

CHICAGO, ILL.: Enforcement of regulations is about evenly divided between "Nonmoving" violations and "Moving" violations. Over 1,000,000 traffic tickets are issued each year. Enforcement of "Nonmoving" violations - principally parking violations are not as well enforced as we would like.

CINCINNATI, O.: The enforcement has been generally good.

DAYTON, OHIO: Enforcement's poor.

DETROIT, MICH.: Enforcement is through the Police Department, and they are always cooperative.

HONOLULU., T.H.: Enforcement generally good by a very efficient police department.

INDIANAPOLIS, IND.: Enforcement is very poor in keeping vehicles out of transit stops.

LOUISVILLE, KY.: Stops are well signed and enforced. General level of enforcement is high.

MINNEAPOLIS-ST. PAUL, MINN.: Very good in all phases except with local truckers. Flagrant violation of all parking regulations. Partly due to lack of off-street loading facilities here.

MEASURES TAKEN TO SPEED UP TRANSIT, OR TRAFFIC GENERALLY (Cont'd)
(G) ENFORCEMENT

OMAHA, NEB.: Poor enforcement.

PORTLAND, ORE.: Downtown traffic regulation enforcement is good. Generally bus zones are kept clear. Outside the congested area enforcement is poor.

RICHMOND, VA.: Enforcement of traffic regulations in Richmond does not reach the standards found in some cities due partially to the lack of manpower and the tenor of the populace.

ROCHESTER, N.Y.: Enforcement would eliminate many of our traffic delays. It is sporadic and not severe enough in the restricted areas. Parking violations plague us at our bus stops and many times prevent the free movement of traffic along main arteries. Turning cars and blocked intersections continually hamper the movement of traffic and create delays.

ST. LOUIS, MO.: Enforcement is good in general. Some parking restrictions, though provided for in ordinance, have not been put into effect because Police Department lacks manpower to enforce them.

SAN ANTONIO, TEX.: Traffic signals in Central District augmented by Police Traffic Officers during peak periods.

SAN FRANCISCO, CAL.: Clipping from San Francisco Examiner, April 6, 1955:

"TRAFFIC CASES SET RECORD, CITY COLLECTS
$269,544 DURING MARCH

"A record number of motorists paid an all-time high of $269,544 into the city's coffers during March to pay for traffic violations, Municipal Judge Walter Carpeneti reported yesterday.

"Police citations for moving violations during the month reach a total of 12,882, he said, which was 45 per cent above March of 1954. Parking tags dropped slightly from 57,803 last year to 55,378 this year, he said but collections rose from $149,983 to $172,191.

"Fines for moving violations, he said, reached $97,353 as compared with $69,497 last year. Judge Carpeneti credited the increases with stricter enforcement and tightened court procedures."

SEATTLE, WASH.: In Central Bus. District - Traffic Officers at some intersections. On Major Thoroughfares - Prowler car patrol.

SPRINGFIELD ILL.: Enforcement could not be more lax. Double parking permitted any and all times. Autos are permitted to park in bus stops. Traffic tickets easily fixed.

TORONTO, ONT.: We believe the police do a fair job of enforcement considering the relatively small number of men assigned to traffic control for a City of this size.

VANCOUVER, B.C.: The general observance of traffic bylaws demonstrates adequate enforcement of traffic measures. Particular emphasis is placed on the requirement that motorists yield the right-of-way to pedestrians legally in crosswalks; but vice-versa midblock.

WASHINGTON, D.C.: Factual before and after studies are not available. Observations indicate that since the special traffic squad of eight motorcycle officers has been patrolling the central business area the increased enforcement has resulted in fewer traffic violations and delays to transit movements.

WHEELING, W. VA.: Illegal pickup of passengers at undesignated stops or loitering at regular stops are traffic violations and drivers may be arrested for such action.

WILMINGTON, DEL.: Police Department enforcement much better 1954-55.

YOUNGSTOWN, O.: Not satisfactory.

MEASURES TAKEN TO SPEED UP TRANSIT, OR TRAFFIC GENERALLY (Cont'd)
(G) ENFORCEMENT

CLEVELAND, O.: When traffic is heavy, autos sometimes block an intersection because vehicles ahead of them stop moving. This ties up traffic on intersecting streets preventing them from moving on their phase of a traffic light cycle. Traffic officers do a very effective job of preventing this blocking of intersections. Unfortunately, the personnel of the traffic department is too limited to do the job this department is capable of doing. The difficulty was made more acute about a year ago when the force went on a five day week. The traffic department should have enough personnel to station officers at many key points and keep traffic moving. This applies throughout the downtown area, especially on East 9th Street.

Some traffic officers are assigned to automobiles which have no radio facilities. It has been suggested that they could more effectively get to and assist in traffic tie-ups if they had radio equipment so they could be informed of traffic tangles which occur nearly every day but at varying locations. The traffic officials do a splendid job when they get to a tie-up, but they cannot be blamed for failure to assist in situations which they have no means of knowing about until later.

MEASURES TAKEN TO SPEED UP TRANSIT, OR TRAFFIC GENERALLY
(H) OTHER SPECIAL MEASURES

BALTIMORE, MD.: 1. Pavement Markings - (Mr. Barnes comments): "The present methods for painting City streets in Baltimore are inadequate. The majority of the streets in this City are painted only on the approaches to intersections with traffic in between moving in a hodge-podge manner without any orderliness, or general control. It has been found that more can be done with paint to increase the capacity of streets than through almost any other means outside of the traffic signal control. Certainly every major one-way thoroughfare in this City, and every four-lane arterial street, should be center-lined and lane-lined from one end to the other." During the period from July 1953 through December 1954, 9,068 gallons of paint were used in installing 2,627,200 feet of center lines and lane lines and 1,500 feet of double yellow center line was installed, using 3,000 permanent, flexible, yellow plastic markers.

2. Channelization - (Mr. Barnes comments): "While a great deal of channelization has been done in this City during the past few years, many of these locations have been so poorly engineered that they actually offer an impediment to the smooth flow of traffic. While it is rather easy for the average draftsman to lay out a channelization plan on a drafting board, still oftentimes when this plan is constructed and placed into operation it is found that it does not handle traffic satisfactorily. A recent issue of Life Magazine explains in some detail the methods used at Providence, Rhode Island, for channelization and the trouble that the local Traffic Engineer encountered with his plans. Many cities use either sand bags, or paint pails, or some other such medium to first lay out the intersection to see what actually happens to traffic.

"Oftentimes it is found that radii are too short, or that other difficulties are encountered which hamper the flow of traffic. By using such temporary media it is easy to readjust proposed curb lines until traffic moves in a smooth, even manner. After these experiments have been carried out to the satisfaction of the local officials, then is the time that permanent plans can be drawn and permanent curbs constructed.

"It is probably too late to change the design of many of the intersections which have already been channelized. However, careful thought and study should be given to this problem before further mistakes are made."

In the period between July 1953 and December 1954, channelization and/or medians were installed at 16 locations while channelization and/or median designs were drawn for approximately 30 additional locations.

3. Arterial Highways - (Mr. Barnes comments): "Much more careful study should be given to the problem of arterial streets so as to offer greater protection to the general driving public. It was noted on trips throughout the city that there are many heavily traveled broad streets, on which public transportation is operated, and many of these streets have very blind corners because of buildings being located so close to the intersection, yet these streets are not protected with stop signs and vehicles crossing these mass transportation lines are always in jeopardy of being struck. It is recommended that, wherever possible, major, or even minor, mass transportation lines be protected by the installation of stop signs.

"A careful study of dangerous intersections should be made in this City and where it is found that adequate visibility cannot be obtained because of obstructions, whichever street shows the major traffic volume should be protected by the immediate installations of stop signs. This undoubtedly will result in the installation of many isolated stop intersections. However, when it is considered that the lives of the public are involved such installations are not improper.

"A plan should be instituted immediately for taking traffic counts on arterials, and a standard established so that when a street reaches a certain volume of traffic, or has conditions such as the operation of street cars, trucks, major trolley lines or heavy bus lines, this thoroughfare may automatically be made, a through street. Certain warrants could also be established as to the need for isolated stop signs at intersections where visibility does not meet a minimum requirement. This could be tied in with speed regulations and other such

MEASURES TAKEN TO SPEED UP TRANSIT, OR TRAFFIC GENERALLY (Cont'd)
(H) OTHER SPECIAL MEASURES

matters, so as to provide a much better system of 'through arterials' without need for great study and delay."

During the period from July, 1953 through December, 1954, approximately 3,000 stop signs were installed with specific attention being focused upon providing mass transportation lines with protection wherever possible.

4. Truck Routes - (Mr. Barnes comments): "The Traffic Engineer's Office should make very effort to come up with a major truck route in the near future. Not only is this necessary from the standpoint of expediting traffic movements, but it is absolutely necessary for the protection of public safety in this municipality." In the period between July 1953 and December 1954, two commercial vehicle truck routes, one east-west route and one north-south route, were established and put into operation; also an "explosives" route and a "flammable" route through the City were established and put into operation. Trucks over 3/4 ton capacity were prohibited from 85 streets within the City.

CHICAGO, ILL.: Consideration is being given by City officials to a major thoroughfare improvement program, involving throat widening, channelization, traffic signal modernization, grade separations, etc. This is a long range program and can be accomplished only as funds become available. Considerable work has already been done in repaving and resurfacing of major thoroughfares, largely as a result of the conversion from streetcar to bus operation.

CINCINNATI, O.: THE CLUB FLYER PLAN

Cincinnati Transit is in competition with the private automobile on only two points: convenience and cost.

Business has been lost to the autombile solely on the factor of convenience. Our answer has been to widen headways, abandon routes and reduce expenses to achieve the lowest possible fare. But the automobile driver doesn't care about minimum cost. He wants maximum convenience. To get it he is willing to pay $2,500 and up for an automobile, 3½¢ per mile for basic operating costs and 65¢ to $1.50 per day to park if his business is downtown.

"If that's the case," reasoned Cincinnati Transit's Management, "there are really two transportation markets. We're catering to one and neglecting the other. Let's establish something for the maximum convenience buyer to meet his needs better than his automobile, at a cost under what he is now paying to drive and park. If it can be done, we'll be ahead on both competitive counts and we'll get his business."

"But at the start, the effort should be limited to people who work in the downtown area, where the traffic and expense of parking gives transit its best advantage. If anything can be done for movements between suburbs or for shopping we'll get into that later."

These elements of convenience competition were the foundation for the development of Cincinnati Transit's Club Flyer. The next step was to find an appropriate neighborhood to begin a trial operation.

SELECTION OF THE AREA

Any area where people work downtown and drive to get there would do. A start in an exclusive area would tend to upgrade bus riding and would help to make the Curb Flyer fashionable. But it ought to be a neighborhood close to the downtown district, so that the fixed fee involved would be relatively low. Later, in more distant areas, the fee would be higher as in a zone system, to reflect the additional mileage cost of both competitive automobile and bus operation. It ought also be an area offering an opportunity to traverse residential streets two or three squares removed from regular service.

The conviction there was a demand for premium fare express service that could be met profitably was based upon the success of the Arrow Express to Cincinnati Redleg night games. The Arrow, now sold at 60¢ for a round trip, has grown steadily from carrying 2.5% of the attendance in 1949 to 4% of the attendance in 1954, via seven suburban and one downtown route.

Subsequent discussions with the staff and various local business leaders led to a decision to organize a club plan and to try it first in Mt. Lookout, a suburb which met the foregoing qualifications.

MEASURES TAKEN TO SPEED UP TRANSIT, OR TRAFFIC GENERALLY (Cont'd)
(H) OTHER SPECIAL MEASURES

The support of the civic club and the suburban newspaper was obtained and an announcement was made in the daily press on October 31, 1954 that questionnaires would be mailed in November to the 1,500 homes in the area.

RESULTS OF THE FIRST QUESTIONNAIRE
AND ESTABLISMENT OF SCHEDULE, ROUTE AND PRICE

Letters addressed from the City Directory by a direct mail firm, were mailed to 1,500 Mt. Lookout residents, describing the service in general terms but giving no specific details as to route, time of operation or price. Those elements were to be determined by the questionnaire enclosed which asked "Will you give the Club Flyer a free trial?", and requested the home address, business address and hours of employment of those interested.

There were 203 replies, or 13.5% of the 1,500. Of these, 103 people consented to give the service a free trial. Their desired office arrival times in town were spread from 7:45 AM to 9:30 AM and departure times from 4 PM to 6:15 PM.

This information resulted in establishing three morning trips arriving in the center of town at 7:50 AM; 8:20 AM and 8:50 AM and leaving at 4:40 PM; 5:10 PM and 5:40 PM. These times appeared to accommodate 80 of the 103 people interested in the plan.

The exact routing in the suburb and in the downtown area was decided upon after origins and destinations were plotted on maps, but duplication of existing suburban service was deliberately avoided.

The downtown routing naturally evolved into one which passed over the main streets where major office buildings were located.

The price was established to undersell the competition. Monthly rates in central downtown parking facilities range from $15 to $25. A membership card of $10 in a 21 working day month like January, where the 10¢ rides would total $4.20, would be less than the cost of parking and would yield a fare of at least 33.8¢ per ride. As the former automobile driver noticed less frequent gasoline purchases, he would realize an additional saving. At that price it appeared the break-even point on basic costs would occur at about 45 club members. Buses with seating capacity of 40 to 51 could be used, making up to 153 seats available for sale on 3 trips.

Memberships sell on a sliding scale. In January they were $10 on the 3rd, 4th and 5th; $9 on the 6th and 7th; $8 on the 10th and 11th, down to $1 on the 28th and 31st. Refunds for vacationers or people called out of town are paid upon receipt of the card in the treasurer's office.

Members may take guests at 50¢ per ride. The membership card is punched and no more than two guests per month are permitted.

No provision has been made as yet for persons who want to ride the Flyer only one way.

For the present it is planned to mail a February card and a bill for $10 to all members on January 20th, requesting payment by check, partly to relieve the operator of concentrated transactions around the early part of the month with resultant delays, and partly to put the initiative on the prospect for declining the sale. Cards will be numbered. Results will be observed carefully to determine future policy.

MAILING OF THE SECOND LETTER
and
QUESTIONNAIRE

Full and detailed information as to route, price and schedule went out in a second mailing along with the announcement that the service would begin operating December 27 through December 31, with no charge, upon presentation of a free ticket. Ten were enclosed in each envelope. They were numbered and coded in the directory used for addressing, to identify persons who presented them on the bus. The tickets were mailed to the entire 1,500 homes, and persons who had not responded to the first mailing did so on the second mailing after learning definite information as to route and price.

A test of 200 telephone calls indicated 88% of the 1,500 homes did not house prospects for the Club Flyer. Almost 9 out of 10 were the homes of people who worked in a suburb, used a car for sales or other calls, traveled out of the State, had expense accounts to cover automobile use, cane and left town at odd hours, were retired or were unemployed.

MEASURES TAKEN TO SPEED UP TRANSIT, OR TRAFFIC GENERALLY (Cont'd)
(H) OTHER SPECIAL MEASURES

Thus only 12% of the 1,500 homes housed a person who could possibly use the service even when it was free. There were 180 prospects on that basis, many so far from the route that convenience was lost.

To the second questionnaire there were 132 replies, each indicating which trips were preferred as a guide to the number of seats required during the free trial. Of that number 116 said they would try the service and 16 explained why they could not try it. The club member may use any trip on any day. The problem of providing a seat is to be ours to solve. Every question that arose was answered according to the passenger's convenience with the intent of passing the cost along to him.

RESULTS OF THE FREE TRIAL

On the first day of the free week 88 persons rode inbound. On the second day 15 additional rode and 20 dropped out, leaving 83. On the third day American Airline stewardesses rode each inbound trip and sold 49 $10 memberships. By Wednesday noon of January 5th, the third day of validity of the membership cards, 72 persons belonged to the Club. However, only 57 rode that afternoon. Fifteen in effect paid 47.6¢ for not riding. There will always be a percentage of non-use by members, who pick up another ride or stay in town, but the Company will be reimbursed for having made the service available. Members interviewed on this point invariably say the availability of service is worth what they are paying, whether they use it or not. A standby charge operates effectively in other utilities and appears practical in transportation. One hears nothing but favorable comments from the passengers on the Club Flyers. It is possible more are riding at the $10 - 10¢ rate than would ride at a straight ticket rate. There is a distinct club relationship among members. A record of riding to date is a supplement hereto.

PUBLICITY AND PROMOTION

There were several elements in this situation that made news. The possible effect on the heavy traffic problem every city experiences, the Club Plan itself, the guaranteed seat, the free rides, and particularly the use of American Airline stewardesses, who also gave the service the desired upgraded quality. Charles H. Startup, American's District Manager in Cincinnati, was most cooperative.

The free week cost less than a half-page newspaper ad and helped to gain the equivalent of about four pages of news space. Virtually every day for a month there was something in the local press about the Club Flyer. The free week served primarily, however, to bring out prospects and put them in one place for solicitation by the American Airline girls. Tedious city directory work and telephone calls would have been less productive and more costly, and after identifying a prospect it probably would have been extremely difficult to get $10 from him without demonstrating what the service could do. To let the initiative up to the prospect by simply announcing the service and the price would have been low pressure selling, not strong enough to break the firmly entrenched automobile habit.

The first national news appeared in the Wall Street Journal of November 3 and again on December 9. Business Week carried a story on November 27. Prior to the first week the Associated Press sent out a story and during the free week two more were filed. On December 29, Columbia (Television) Broadcasting System assigned their local representative to take motion pictures of the operation giving specific instructions to feature the American Airlines stewardesses. Fifty prints of the film were made for distribution to that many television stations around the nation which subscribe to the CBS News Service. The national news created a great deal more local interest than there would otherwise have been.

Paid advertising was limited to two direct mailings and one advertisement in the suburban monthly circulated in Mt. Lookout.

There were two appearances before the Civic Club. On the first day of operation the appropriate civic leaders and municipal officials were invited to ride. Newspaper photographers and reporters were present and pictures along with a story appeared in all three Cincinnati dailies.

MEASURES TAKEN TO SPEED UP TRANSIT, OR TRAFFIC GENERALLY (Cont'd)
(H) OTHER SPECIAL MEASURES

There were two television and two radio news interviews, and numerous TV and radio news announcements.

Newspaper circulation men who recognize the relationship between bus riding and newspaper reading put free copies on every Club Flyer during the free week. Each of the three dailies will be sold on the Club buses henceforth.

Six signs were posted in the suburban area showing the times buses were due at that point.

MILEAGE HOURS AND COSTS

Mt. Lookout is 6 to 7 miles from the heart of the city and 14.2 miles garage to garage. At 6 trips that's 85.2 daily miles and 1,789.2 miles for the 21 business days in January 1955. Each operator gets 1.2 hours at time and one-half. For 6 trips per day at $2.865 per hour the operator cost for January will be $433. The $720 in memberships plus say, 90% of the potential in 10¢ fares will yield a gross of around $992, or $559 after operators time, over 31.3¢ per mile after operators wages and 55.4¢ per mile to cover all expenses, with 81 vacant seats left.

Selling of vacant seats will be continued from a prospect list composed of persons who rode free, identified through coded tickets. The Company receives a record of new residents, in all suburbs, used for public timetable distribution, which will also develop prospects. Park and ride appeals to persons passing Club Flyer stops enroute to town from other suburbs will be made. Memberships are expected to increase rather than decline, since the competition is being out-performed on both points of convenience and cost.

Flyer operators volunteered to drive and were selected from the most capable men on the property, since this is a charter operation. All employees are enthusiastic about the plan. It has raised the morale of the organization considerably. Morning drivers have 8-hour runs in the afternoon, and afternoon drivers have 8-hour runs in the morning, thus qualifying for overtime. The Flyer buses come directly from the garage with a 10-minute layover before starting, to insure an on-time operation. The newest equipment is being used. Every possible value is put into the ride in return for the high fares being asked, and to avoid passenger loss through dissatisfaction. Combining this service with other earlier work and posting it for picks may make it late and subject to other operating failures. For the present it will continue on a charter bus basis.

PROSPECTS FOR THE FUTURE

The magnitude of the Mt. Lookout operation is small, but the significance is important. The 72 members represent 144 daily and 36,720 annual passengers, most of whom formerly rode automobiles. The encouraging reaction of the Club Members and the growth potential possible through the extension to more and more suburbs indicates it is an important tool toward winning back a portion of the riders who left transit in favor of the automobile.

Not all of the riders are new ones. Replies to one of the questionnaires lead to the estimate that a small percentage of the rides formerly taken by members were by public transit. But they want convenience and are willing to pay for it. Perhaps they were passengers who were to be lost next year. Now their business is retained at a rate 78 2/3% higher than the 18 3/4¢ ticket rate, in return for giving them what they want.

It is expensive to provide this luxury service and it has required a lot of time and hard work by the organization. The higher rates are justified. As it is extended, more time and work will be required.

The Club Plan is definitely not a device advanced for the principal purpose of giving favorable publicity and improving public relations, though its accomplishments in this direction have been remarkable. Its purpose is to gain new riders and more net.

The next area selected for operation by the end of February is Mt. Washington, a suburb of 7,000. If the 4.8% (72 of 1,500) sale in Mt. Lookout holds, 336 more club members would result in 171,360 annual rides, including people who paid but didn't ride.

The formula seems to be to find streets removed from regular service where it appears the residents employed downtown are now driving. Offer every possible convenience and reasonable inducement. Keep the price lower than the cost of driving and parking. If it's more convenient, costs less and involves an element of

MEASURES TAKEN TO SPEED UP TRANSIT, OR TRAFFIC GENERALLY (Cont'd)
(H) OTHER SPECIAL MEASURES

prestige, it will sell itself.

Earnings from a successfully extended Club Flyer Plan mean lower fares on regular service, and a better opportunity for return on capital to the shareholder. Traffic will be reduced by the number of former automobile drivers who choose to use Club Flyers, thus making it easier for all buses to get through the downtown area.

INDIANAPOLIS, IND.: The City has recently installed and will have installed at some 6 to 8 special intersections mandatory left-hand turns. These generally on two-way streets to keep straight through vehicles out of left-hand turn lanes where there is a preferential turn light for the left-hand turn lanes.

MINNEAPOLIS-ST. PAUL, MINN.: City engaged in extensive laning program. Bus stop zones are being very clearly marked. Stencil will be used on side walk to mark loading zones. It is expected to speed up bus loading by grouping waiting riders.

NASHVILLE, TENN.: On a few thorofares two lanes of traffic are permitted in one direction and one lane in the opposite direction during a portion of the day, with the reverse being true the other portion of the day, i.e., two lanes inbound in the morning and one outbound; in the afternoon two lanes outbound and one lane inbound.

PHILADELPHIA, PA.: Other measures adopted in Philadelphia to speed the movement of transit vehicles and traffic in general include:

a. Elimination of many left-hand turns, particularly at peak periods, and on arteries with double car tracks.

b. Cutting back curbs to increase turning radii.

c. Parking control and appropriate painting of street lines and signs to facilitate turning movements.

d. Inauguration of pedestrian-control light systems of two types: one permitting pedestrian movement conforming with the direction of the vehicular traffic flow; the other permitting pedestrian movement in all directions at the same time, with all vehicular traffic meanwhile stopped. The latter is recommended at intersections where pedestrian traffic is particularly heavy and hazardous, and thus far is in effect at only two intersections.

e. Progressive establishment of one-way streets.

f. Establishment of bus stops with sizes regulated by the length of the buses accommodated, and, in most cases, with corner clearance signs provided by the City.

PITTSBURGH, PA.: All of the measures to speed up transit have been continuously pursued in Pittsburgh since the advent of the low-priced automobile in the 1920's. Each of them had a temporary beneficial effect, but with the exception of the World War II period, any benefits gradually disappeared as the volume of private automobile traffic increased. Without the measures that were effected, traffic conditions today would be immeasurably worse. Some recent moves, such as widespread parking restrictions and strict enforcement of parking regulations have noticeably improved traffic movement.

The Pittsburgh Railways Company recently released to City officials, local business and civic groups and the newspapers "A Plan to Move More People by Improved Transit Operation on Existing Streets." The Plan proposes to restore to the traffic picture some measure of balance in the use of street space between mass transit facilities which transport 50% of the people in 6% of the vehicles and the private automobile which transports 50% of the people in 94% of the vehicles. Briefly, the Plan suggests separation of all transit vehicles (including those operated by other firms) from other vehicular traffic by assigning lanes to transit vehicles and another portion of the street to all other vehicles; prohibition of parking, or stopping; reduction of allowable--and in some cases prohibition of--vehicular turns into or from the lane assigned to transit, and installation of "through traffic stop" signs on intersecting streets.

PORTLAND, ORE: Other special measures include reversible traffic lanes on the bridges, which helps prevent jamming up of traffic on the bridge approaches. New bridge approaches are being planned now.

MEASURES TAKEN TO SPEED UP TRANSIT, OR TRAFFIC GENERALLY (Cont'd)
(H) OTHER SPECIAL MEASURES

RICHMOND, VA.: A one-stop loading practice has been established. Once a bus driver has finished loading all of his passengers at a bus stop, the door is closed, and the operator remains alerted for the permissive green traffic signal. Bus patrons arriving after the doors are closed must board a later bus.

ROCHESTER, N. Y.: We have done some rerouting to avoid particularly bad intersections and traffic arteries.

SAN FRANCISCO, CALIF.: Exclusive Lanes for Transit --
Street cars only are permitted on car track strip on downtown portion of principal thoroughfare (Market Street).
Street car "right-of-way" at certain other places.
Two Street Car tunnels.
Audible Right-Turn Signals on Buses.
Collectors to load passengers at exit doors at certain points during rush periods.
"Off-routing" in direction of light travel during rush periods to obtain more efficient use of equipment in direction of heavy travel.
Use of limited number of platform employees and inspectors to assist getting transit vehicles through points of extreme congestion or difficult points of traffic conflict.
Regular staff meetings attended by representatives of the Municipal Railway, Police, Public Works Traffic, and City Planning Departments to consider mutual problems and co-operate as far as practicable in effecting solutions thereto.

SEATTLE, WASH.:

In Central Bus. District	On Major Thoroughfares
Controlled Turns	
3-wheel Police Patrol	Transit Routes Posted

VANCOUVER B. C.: No special measures of an extreme nature have yet been undertaken. One-way street system in the downtown area is being considered, as are rush hour stopping prohibitions on all suburban trunk routes. Curb parking in the downtown area may be further curtailed.

WHEELING, W. VA.: In outlying areas a bus running late may be turned short of end of line and returned to town to get back on schedule.

CLEVELAND, O.: Market Places - Sidewalk market places are congested areas because of the manner in which trucks are parked alongside of them. These locations are: Woodland market, Central market (Bolivar and East 4th), West side market, and the street market on West 25th, south of Lorain. At the latter location, stalls are put up in the street. Our trackless trolleys are delayed so often at the Central market that we relocated the wires near the center of the street so that we could pass. Regulation or elimination of truck parking at these locations is needed to improve traffic conditions.

Speed up public transit vehicles - Some cities have talked of a lane for use by transit only. With frequent transit service, such a lane could carry more persons than ten lanes of automobiles. Many persons drive automobiles because it takes them too long to get to or from work on public transit. A speed up of surface transit vehicles will get them back to transit or keep them there, and congestion will diminish. This requires careful thought and discussion with traffic officials, and we are not yet ready to propose a specific location for trial. It should be given further study by both transit and city traffic officials.

Bridge openings - Traffic through the industrial valley is tied up in rush hours by bridges opening for boats at any hour of the day. Bridge openings were prohibited during rush hours. During the war, the steel and shipping interests wanted this time limitation reduced, in the interest of steel production for the war effort. They seem to have forgotten all about the restrictions. Specifically, I recommend that the Scranton Road Bridge not be opened between 7:00 to 9:00 A.M. and 4:00 to 6:00 P.M.

OPERATION OF TRANSIT ON EXPRESSWAYS OR FREEWAYS

CHICAGO, ILL.: We operate express buses non-stop on the Outer Drive, for a distance of about five and one-half miles, at a scheduled speed of 35 miles per hour. The buses have no difficulty in maintaining this schedule. Speed limits in this area are 45 miles per hour, except for about three-quarters of one mile, where the speed limit is 40 miles per hour.

DALLAS, TEX.:

Transit

Present express lines constitute only about 16% of our total miles.

Schedule Speeds

Express Lines	15.4 mph
Average of all other lines	11.9 mph

Length of regular local lines vary in distance from 2.1 miles to 9.9 miles. Express lines vary in length from 7.0 miles to 11.5 miles.

Example of travel times between transit express and transit surface operation.

	Miles	Travel Time	
		Mid-day	Rush Hour
Length of surface line	5.7	28 min.	34 min.
*Length of express line	7.0	27 min.	31 min.

*Note: 2.5 miles of this line actually operates over Central Expressway.

Recently two new express lines were inaugurated with the following.

	Oneway Length	Running Time Mid-day	Running Time Rush	Average Schedule Speed
Ferguson Express	11.0 mi.	40 min.	42 min.	16.1 mph
Greenville Express	7.7 mi.	23 min.	25 min.	19.3 mph

Private Auto Versus Transit

Sample Runs	Running Time 5:00 PM Rush Hour		
	Length of Line	Running Time Transit	Private Auto
Urbandale Express	7.3 Miles	35 min.	31 minutes
Piedmont Express	9.0 Miles	36 min.	30 minutes

No Mid-day Data

DETROIT, MICH,: We are presently operating five express coach lines over the portions of the Lodge, Ford and Davison Expressways now completed. These coaches operate at scheduled speed of 35 to 40 mph but actually must keep up with traffic which has a top legal speed of 55 mph.

HONOLULU, T.H.: No operation of transit vehicles on any expressways at this time because the construction in Honolulu of this type of highway is not yet completed.

LOS ANGELES, CAL.: Within the City of Los Angeles bus loading facilities are being included in the freeway construction at locations where freeway routes cross important public transit routes. At the present time our freeway operation is limited to the operation of rush hour service on one line over a portion of the Hollywood Freeway for a distance of approximately three miles. This has resulted in a saving of approximately five minutes per trip over regular surface operation. Additional freeway operation is planned as appropriate freeway routes are completed. It is our belief that the operation of public transit service on the completed freeway system will be of substantial benefits to users of transit in the area.

OMAHA, NEBR.: We have two expressways -- one approximately 5 miles long, and the other a little over 2 miles long. We have been able to cut running time on both of these expressways.

PHILADELPHIA, PA.: With Philadelphia's first expressway still under construction along the west bank of the Schuylkill River, there is no experience with transit operation on an expressway in this city upon which to make a report. PTC's plans for possible future use of the Schuylkill Expressway are briefly covered in the discussion of park-and-ride facilities (See Fringe & Perimeter Parking).

OPERATION OF TRANSIT ON EXPRESSWAYS OR FREEWAYS (Cont'd)

PITTSBURGH, PA.: Three new express bus routes were established on June 21, 1954 to operate over the partially completed Penn-Lincoln Parkway between Downtown Pittsburgh and the residential districts of Wilkinsburg, Blackridge, Edgewood and Swissvale. The average speed (excluding layover) of the express routes is about 22 mph as compared with 12.25 mph on the system. The Edgewood-Swissvale route is developing satisfactorily while the other two are growing more slowly. The Penn-Lincoln Parkway is completed to within three miles of the downtown area, and when completed, the greater speed of the express routes is expected to make the service increasingly attractive.

PROVIDENCE, R.I.: To date we have had no experience with the operation of transit vehicles on expressways or freeways. We do use a traffic interchange on one of our suburban lines which has greatly relieved the traffic bottleneck which formerly existed. An expressway which has been constructed to by-pass Olneyville Square, a highly concentrated shopping area upon which seven roadways converge, has materially relieved the traffic congestion in that area. Although we do not operate on this by-pass highway, our vehicles can now maintain their schedules and are no longer delayed in this area.

ROCHESTER, N.Y.: Rochester is just beginning to benefit by Expressways and Freeways. It will be several years yet before such roads will be completed and available for use.

SAN ANTONIO, TEX.: At present time, only one Express line operating over one section of Freeway during peak periods.

a. Distance - 4.8 miles
b. Travel time - 18 minutes
c. Speed - 16 mph

Comparable surface street line serving same area operates as follows:

a. Distance, inbound - 5.35 miles
b. Travel time - 28 minutes
c. Speed - 11.5 mph

SAN FRANCISCO, CAL.: Present Use of Freeways.

Pull-out, pull-in, and "off-route" trips only at considerable saving in time.

Examples:	Before	After
	25"	18"
	30"	20"

Plans for Future Use of Bayshore Freeway

Example:	Present	Proposed
Park Merced Express (Via Alemany, Freeway)		
Distance to Third & Market	7.5 mi.	9.0 mi.
Time by Transit	44 min.	34 min.(est.)
Speed	8½ mph	16 mph (est.)

Also: Mission and San Jose via Mission, Alemany, Freeway.
Geneva and Mission via Geneva, Visitacion Valley, Freeway.

The Bayshore Freeway is the only major freeway presently near completion suitable for express bus operation. It is planned to initiate this service within 12 months pending receiving additional motor coach equipment.

It is planned to use certain additional freeways for express transit service in the more distant future as they become available.

TORONTO, ONT.: Just a year ago we inaugurated Canada's first subway rapid transit service and proposals have been actively discussed for the construction of two additional rapid transit lines, one of which would incorporate a rapid transit line in a centre mall of an expressway. The principal obstruction to progress on these projects is finance.

Another proposal which has been planned for years and which appears now to be rapidly approaching the construction stage is the Don Valley Expressway. There would be no provision for rapid transit service in a mall on this Expressway, but provision will probably be made for the operation of express buses on this Expressway at some time in the future.

OPERATION OF TRANSIT ON EXPRESSWAYS OR FREEWAYS (Cont'd)

WASHINGTON, D.C.: Company is now operating only one express route over a street with expressway but not freeway characteristics. Its experience with this operation has not been too favorable, for the expressway is used to capacity and the speed of operation of this route per mile is about the same as on competitive city streets. The shorter expressway distance does, however, make the overall travel time often minutes less for the express route.

WHEELING, W. VA.: There are none at present, but one is under construction now. It will be about 4 miles in length and will speed up traffic considerably, one division so affected.

CLEVELAND, O.: We have had two major express bus lines operating on two freeways for several years. Route 39 - Lake Shore Express and Route 55 - Clifton Express operate 7 and 4 miles respectively over freeway routes and both lines are popular with our customers.

We will continue to operate over freeway routes wherever economically feasible in order to give our customers the advantage of faster public transit.

ADDITIONAL STEPS TAKEN TO EITHER SPEED UP TRANSIT SERVICE AND/OR OTHERWISE MAKE IT MORE ATTRACTIVE

(A) FRINGE OR PERIMETER PARKING

ATLANTA, GA.: On November 15, 1954 a new Express Bus Line known as the Piedmont Limited was begun from an outlying 150-car parking lot to the center of the city over the North Expressway.

On January 27, 1955 a New Express Bus Line called the Peachtree Limited was started from a suburb known as Peachtree Hills along Peachtree Street and the North Expressway to the downtown area.

These two limited lines together with the "Medlock Limited" (See Exp. Serv. on City Streets) keep some 275 autos per day out of downtown Atlanta.

BALTIMORE, MD.: As a means of reducing traffic congestion in the downtown area, and with the idea of encouraging more people to use transit service, a parking lot was established on ground leased from the City of Baltimore at the intersection of Howard and Biddle Streets, on the outskirts of the downtown area. The lot, accommodating about 205 vehicles, was inaugurated on August 26, 1946, and at the same time the No. 61 bus line was inaugurated for a trial period as a shuttle line connecting the lot with the business and shopping areas. The parking fee of 25 cents included two 5-cent fare tickets on the bus line which enabled patrons to reach their place of employment or the shopping area. The bus was routed through the central business district, a distance of 2.7 miles per round trip. In addition to the privilege of riding on the No. 61 Line with tickets obtained with the parking fee, other passengers were carried at a cash fare of 5 cents with no transfer privilege.

Buses were operated on the following headway:

7:30 a.m. - 8:00 a.m. - 15 minutes
8:OO a.m. - 9:00 a.m. - 5 minutes
9:00 a.m. - 4:00 p.m. - 7½ minutes
4:00 p.m. - 6:30 p.m. - 5 minutes

On January 7, 1948, the parking lot fee was increased to 35 cents, including two 5-cent fare tickets, the cash fare on the No. 61 bus remaining at 5 cents.

On September 14, 1948, in compliance with the request of the Off-Street Parking Committee of Baltimore and the Downtown Committee, a second parking lot, accommodating approximately 200 autos, was opened on Pier 6, Pratt Street, and the route of the No. 61 line was extended to the new lot, increasing the round trip mileage to 3.6 miles. Both parking lots were open to the public from 7:30 a.m. to 6:30 p.m., excluding Sundays and holidays. The parking fee of 50 cents at both lots included two 10-cent fare tickets which were accepted as fare on any transit line with transfers issued upon request. The No. 61 line buses operated only between the hours from 7:30 a.m. to 9:30 a.m., and 4:00 to 6:00 p.m., on five weekdays, with no operation on Saturdays, Sundays and holidays, on a 7½-minute headway. Other passengers on the No. 61 line were carried at a cash fare of 10 cents with transfer privileges to and from intersecting lines. Patronage of the Pier 6 parking lot was so disappointing that it was closed on January 3, 1949. Studies of the revenue and operating costs of the No. 61 line also showed that it was unprofitable (losing an estimated $22,000. annually), and this line was discontinued at the same time the parking lot on Pier 6 was closed. At the same time the parking rates for the Howard St. parking lot were changed as follows:
From 7:30 a.m. to 10:00 a.m. and after 4:00 p.m.-45 cents
10:00 a.m. to 4:00 p.m. - 35 cents.

The parking fee of 45 cents included two fare tickets which were accepted as fare on the date cancelled on any line at any time of the day or night and passengers were given, upon request, a transfer.

The parking fee of 35 cents included two fare tickets which were accepted on the date cancelled on any line between the hours from 10:00 a.m. to 4:00 p.m. only and passengers were given, upon request, a transfer.

On August 29, 1950, the parking lot rates were changed as follows and remains at present:
From 7:30 a.m. to 10:00 a.m. and after 3:30 p.m. - 50 cents. 10:00 a.m. to 3:00 p.m. - 40 cents.

There was no change with respect to the fare tickets included in the 50-cent parking fee. The fare tickets in the 40-cent parking fee are accepted on the date cancelled on any line between the hours of 10:00 a.m. and 3:30 p.m. only, with transfer privileges.

The annual revenue and expenses accruing from our parking lot operations have been as follows:

ADDITIONAL STEPS TAKEN TO EITHER SPEED UP TRANSIT SERVICE AND/OR OTHERWISE MAKE IT MORE ATTRACTIVE (Cont'd)

(A) FRINGE OR PERIMETER PARKING

Year	Revenue#		Expenses*		Net Profit
1946	$ 7,893		$ 8,604	(Def.)	$ 711
1947	19,992		15,368		4,624
1948	23,011		15,874		7,137
1949	13,474		12,452		1,022
1950	14,448		12,358		2,090
1951	15,990		13,076		2,914
1952	13,535	(a)	13,017	(a)	518
1953	17,823		14,184		3,639
1954	(Figures not available as yet)				

#Cash fares received on No. 61 bus not included.
*Include rental, parking lot attendants' wages, supplies and maintenance.
a) Transit strike January 10, through January 28, 1952 - lot not operated for 16 days.

Total expenses for paving ($9,093), were spread over 1946, 1947 and 1948.

No costs of operation of No. 61 bus line included.

On the basis of our experience cited above, we concluded that the operation of fringe parking lots might in some instances be economically feasible when the passengers may be transported on existing transit service, but the operation of a reduced fare service did not stimulate patronage sufficient to make such service self-sustaining. Our experience indicates that all-day parkers comprise approximately 70 per cent of the patronage. We seriously doubt that the above recited experience should be used as a criterion in evaluating the benefits of perimeter parking because our lots were not as strategically located as they might have been.

Between December 3, 1954 and December 30, 1954, a further experiment with Park-Ride express service between the Baltimore Memorial Stadium and the downtown area, a distance of 4.7 one-way miles, was tried. Motorists were permitted by City officials to park free in the Stadium Parking lots (capacity 2,300 vehicles), and we operated express buses from the lots to downtown Baltimore every 10 minutes from 9:00 a.m. to 9:00 p.m. on Mondays, Thursdays and Fridays and from 9:00 a.m. to 5:30 p.m. on Tuesdays, Wednesdays and Saturdays. Buses operated nonstop from the Stadium to the downtown section, and then made all stops within the immediate shopping area. The fare was 20 cents per one-way trip. Results were encouraging in the period between December 3, 1954 and December 24, 1954, but after the Christmas shopping rush, patronage declined sharply and for the 23-day experimental period we sustained losses in excess of $1,900.

Although the Stadium lots were not permanently available for such operation, the Department of Traffic Engineering requested continuance of the experiment for an additional 30 days with the express service to be started at approximately 7 A.M. This we refused to do because operation of such service during the A.M. peak could have been accomplished only by purchasing additional vehicles and we did not consider economically feasible any operation which could tend to increase our peak hour vehicle requirements. Although we expressed our willingness to operate such service during the hours covered in the experimental period, the Department of Traffic Engineering felt that the true intent and purpose of perimeter parking would not be achieved and to date further experiments with perimeter parking are not being actively studied.

BOSTON, MASS.: During the year, the MTA parking lots showed a continued increase in patronage each month during 1954. In the twelve months, the number of automobiles parked at MTA lots totalled 467,000. In December an average of over 12,000 automobiles per week used MTA lots. While the use of these lots by MTA patrons has gradually increased, there is still ample room for additional patrons who wish to avoid driving into congested areas.

In addition to the all-day parking, the Authority established on three nights each week, free parking at 6 of its lots, provided a nonredeemable, round-trip fare ticket on the MTA was purchased. The Authority was aided in this latter effort by the cooperation of the Retail Trade Board of Boston, merchant members using a portion of their advertising space to publicize the MTA's free night parking. Night parking showed a steady increase through December and will be continued.

ADDITIONAL STEPS TAKEN TO EITHER SPEED UP TRANSIT SERVICE AND/OR OTHERWISE MAKE IT MORE ATTRACTIVE (Cont'd)

(A) FRINGE OR PERIMETER PARKING

CHICAGO, ILL.: Parking from lots on edge of Central Business District is catered to by special 10¢ bus service. Some lots are also served by regular routes. Four CTA owned parking lots are located at the outer end of rapid transit lines. Three of these are free,one is paid parking with lower parking rates for the users of rapid transit service.

DETROIT, MICH.: We are now operating on a trial basis one parking lot located on Jefferson Avenue, approximately 4-1/2 miles from downtown.

HONOLULU, T.H.: No fringe parking lots in operation, but perimeter parking is being done on an individual basis on outlying city streets.

INDIANAPOLIS, IND.: We started a Park and Ride arrangement from the eastern edge of the city and put signs on our span wires, but had no cooperation from the State Highway department, even though it was a means of alleviating traffic, and we were forced to take the signs down.

KANSAS CITY, MO.: There is a major development under the Urban Redevelopment Project to provide parking at the edge of the Central District for 1800 autos.

LOUISVILLE, KY.: One fringe parking lot now in planning stage.

MINNEAPOLIS-ST. PAUL, MINN.: Many small private lots. No special service. No single area heavy enough to support special service.

NASHVILLE, TENN.: There has been considerable study of the fringe parking idea but nothing concrete has been developed. Motorists have been encouraged to park along bus routes at filling stations and supemarkets, etc., and ride into the downtown shopping and business area.

PHILADELPHIA, PA.: PTC's two principal park-and-ride lots are located at the extremities of the Market-Frankford Subway-Elevated, and have been in service since 1925. The Market Street Subway-Elevated is owned by PTC, while the Frankford Elevated is municipally-owned and leased to PTC. The Company operates both as one facility.

One of the park-and-ride lots is located at the 69th & Market Streets Terminal, six miles west of City Hall, and is owned and operated by PTC. It is filled to capacity every weekday with an average of 450 cars. The other is located at the Frankford Avenue & Bridge Street Terminal in the northeastern section of Philadelphia seven miles from City Hall by the route of the Market-Frankford high-speed line. Owned by the City and operated by PTC, the lot was enlarged last year by the City, with PTC paying a compensating increase in Frankford Elevated rental. It is now being operated virtually at capacity, with about 650 cars parked there on an average weekday.

So successful have these two lots been in inducing motorists to park their cars on them and travel into the center-city by high-speed rail service, the City has now recognized the need for park-and-ride facilities at the northern end of the municipally-owned Broad Street Subway, which extends six miles north of City Hall and two miles south of the Hall. As a result, the City is now extending the subway to 10th Street and Nedro Avenue, a distance of seven blocks, where a new parking lot is being built to accommodate over 400 automobiles. This project is expected to be finished this autumn.

The rate charged at the two lots at the extremities of the Market-Frankford Subway-Elevated is 55¢, which includes all-day parking and a round-trip on the high-speed line. The rate of fare on the transit system is 18¢ cash or two tokens for 35¢.

Three smaller parking fields in West, North and Northeast Philadelphia are in a different category from those already mentioned. They are independently owned and operated. Their owners buy transit tickets from us, at our regular two-for-35¢ rate, which are given to customers who pay varying park-and-ride fees.

ADDITIONAL STEPS TAKEN TO EITHER SPEED UP TRANSIT SERVICE AND/OR OTHERWISE MAKE IT MORE ATTRACTIVE (Cont'd)

(A) FRINGE OR PERIMETER PARKING

PTC is also working toward establishment of park-and-ride fields at the City Line interchange of the new Schuylkill Expressway, which would be served by express buses operating to the center-city, and another at a point in South Philadelphia convenient to motorists entering the city from New Jersey over the new Delaware River Bridge now under construction. Consideration is being given to extending the Broad Street Subway at least ten blocks farther south toward the Philadelphia Naval Base, partially for the purpose of accommodating park-and-ride customers at the proposed South Philadelphia field.

Our experience with park-and-ride service convinces us that it is successful in keeping hundreds of motorists out of the congested central business district and that it is a good source of additional riding. It also has public relations value since it represents a direct and practical move by transit to help solve its own problems.

PITTSBURGH, PA.: During the past two years free parking at five fringe parking lots, with a total present capacity of about 350 vehicles, has been available adjacent to Company lines operating over private right-of-way. Three of these lots are within five minutes of the downtown business section but are not being used to capacity. The other two lots, which are at the outer ends of respective lines, have been patronized to a greater extent. Because of the hilly character of Pittsburgh terrain there are very few locations where sizable lots are available or could be secured at reasonable cost to provide park-and-ride facilities as a profitable stimulant to passenger riding.

Effective May 1, 1955, the Company, in cooperation with the various oil companies, will inaugurate a courtesy park-and-ride plan which will be started initially with 40 gasoline service stations involving approximately 500 parking spaces.

PROVIDENCE, R.I.: We opened a 160-car perimeter lot in Aug. 1953 on land which we own. After a slow start, we are now averaging better than 100 cars per day and have on many occasions filled the lot to capacity. Frequent express service is available from several lines. Parking is free. We built and rented store space. We rent the lot evenings to an adjoining theater for a four-figure annual rental. The complete investment is amortizing itself, and it is one of the best good will builders we have. Uniformed attendants assist the customer in every way.

In August 1954 the Company introduced a novel "Courtesy Station Plan." Eighty miniature "Park 'n Ride Stations" were set up along bus routes throughout the greater Providence, Pawtucket and Woonsocket areas.

Six major oil companies in the Rhode Island area, together with eighty of their service stations are participating with United Transit Company in a plan whereby the motoring public may drive toward the city and at some convenient point en route leave their car at one of the "Courtesy Stations" and continue their journey by bus. "Courtesy Stations" are designated and recognizable by means of a three-foot sign in the standard yellow and green UTC colors conspicuously displayed at the service station.

Rhode Island was the first state in the nation to install this miniature "Park 'n Ride" or "Courtesy Station" plan and it is the result of a carefully worked out plan, instituted by the Transit Company. As far as known, it represents the first concentrated and widespread cooperative venture between two opposite transportation philosophies, the private car as against mass transportation.

It is one of the few ideas that have come along in today's congested and hectic American city which seem to have a potential benefit to everyone; the motorist, because he can save time and money, the oil company because it may stimulate the dealers' sales (and the service station operator for that same reason), the Transit Company because it may not only stimulate business, but hold down the cost of operation by reducing traffic and increasing speed, the downtown merchant by either bringing customers back downtown or at least helping to retain those who now shop there, and lastly, the hard hit real estate owners, and the city itself, who, as business leave the downtown areas, face a spiral of rising real estate taxes, decreasing real estate values, and the perplexing problem of traffic congestion - a never ending merry-go-round of unanswerable enigmas.

ADDITIONAL STEPS TAKEN TO EITHER SPEED UP TRANSIT SERVICE AND/OR OTHERWISE MAKE IT MORE ATTRACTIVE (Cont'd)

(A) FRINGE OR PERIMETER PARKING

The "Courtesy Station" plan is being watched with interest from coast to coast, for its application is national in scope. It will be interesting to note what community benefits are derived from this experiment, and how much support will be given it by the motorist and by those civic, community, and business groups who stand to benefit it most.

RICHMOND, VA.: 19 service stations display sandwich billboards inviting autoists to park free and ride the bus. Three other parking lots are advertised for this same purpose with small results.

ROCHESTER, N.Y.: We have been unable to establish any special parking lots or special service for this promotion. However, we are continually stressing to leave cars at convenient points along bus routes and continue the trip by bus to eliminate walking long distances from central parking lots to one's destination.

ST. LOUIS, MO.: We operate three perimeter parking lots with express service between same and downtown. They are open five days a week and service is given through both rush hours and intervening base period. Total capacity of lots is about 2,100 cars.

TORONTO, ONT.: For about five years, 1947-1952, we operated a waterfront parking bus service at a 5¢ fare to encourage motorists to park their cars at the waterfront and ride the bus into the centre of the Downtown Area. This met with so little success that it was finally discontinued.

We have more recently purchased two lots located within a mile or two of the north end of the subway line with a view to converting them into parking lots to encourage suburban motorists to park their cars at these points and take a bus and the subway to the City centre. We have been prevented from carrying out the scheme by a refusal of the suburban municipality in which the properties are located to change the zoning restrictions to permit their use as parking lots. We are favorable to the idea of promoting fringe parking but believe that it will require a good deal of promotion to get the motorist accustomed to using such facilities. The motorist will not do so unless the scheme offers him some definite advantages in the way of time or money saving or convenience as compared with the alternative of driving his car to the City centre.

VANCOUVER, B.C.: Fringe parking lots are being opened within the next few months by our Downtown Parking Corporation at the north end of our new Granville Bridge, which is between three-quarters of a mile and 1¼ miles from the core of the downtown area. This will be our first experience with fringe lots. Four transit routes pass by these lots and we do not intend to add additional service or provide for special fares.

WASHINGTON, D.C.: Two fringe parking lots have been established within the past year. One is located about 3½ miles from the center of the city and has a capacity of about 460 automobiles. The other is located approximately 4.6 miles from the center of the city and has a capacity of about 700 automobiles. Nonstop bus service is operated between each of these lots and the downtown area in both a.m. and p.m. rush periods for the regular transit fare. Although there is no charge for parking, only between 180 and 200 automobiles are now using each lot.

WHEELING, W.VA.: Fringe parking has been attempted several times but proved unsuccessful. People in a populated area of this size simply will not patronize a combination parking and bus ride.

WILMINGTON, DEL: (1) Perimeter parking being explored with buses to downtown areas. Sponsorship would be by Downtown Merchants Association. (2) Fringe areas plotted and 14 gas stations will be used in a "park and ride" plan. Gas stations are on existing routes. No charge for parking.

YOUNGSTOWN, O.: Fringe parking 3 miles from downtown area tried in 1954. Complete failure.

ADDITIONAL STEPS TAKEN TO EITHER SPEED UP TRANSIT SERVICE AND/OR OTHERWISE MAKE IT MORE ATTRACTIVE (Cont'd)

(A) FRINGE OR PERIMETER PARKING

CLEVELAND, O.: In addition to the usual small fringe parking lots found in most communities, Cleveland has two large parking areas located just outside of the central business area. These two fringe parking areas are served by special downtown loop bus routes, A, B and C, operating between the lots and the main business center, as shown by the map. A special low rate fare of 10 cents cash or six tickets for 55 cents is charged on these downtown loop route buses.

One of the fringe lots is on property owned by the City of Cleveland and parking is free. This lot is located just north of the business area near the shores of Lake Erie. A freeway from both east and west passes this parking area, so that automobile drivers from either direction may get to this lot without passing through the streets of the business area. This is an important factor in giving relief to traffic congestion in the downtown area. This free parking lot is 0.75 of a mile from Euclid Avenue, Cleveland's main street.

The municipal lake front lot started out with a parking area large enough for about 500 cars. Its popularity required that it be expanded to an area which now can accommodate 2,500 automobiles. Two downtown loop bus routes, B and C, serve this area. Route C operates directly south across East 9th Street to smaller lots south of the business center. Route B operates through the Public Square and up Euclid Avenue to a large private parking lot on the eastern fringe of the central business area.

The East 9th Street line, or Route C, provides buses every five minutes during the peak rush hours and every nine minutes in the nonrush hours. Buses on Route B provide service approximately every three minutes, in the rush hours and every six minutes in off-peak hours. Both bus lines operate from about 7 A.M. to 6:15 P.M. This parking lot is used almost entirely by all-day parkers.

The second large fringe parking lot is located at East 22nd Street and Euclid Avenue, just at the eastern fringe of the downtown business area approximately one mile east of Cleveland's famous Pubic Square. It accommodates 1,080 cars at one time and with turnover up to 1,400 during the day. The charge for all-day parking at this lot until recently was 25 cents. A 35-cent fee has been in effect since April 1, for parking from 7 A.M. to 10 P.M.

The downtown loop bus Route B, serving the municipal lake front lots terminates at this privately-owned lot. Another bus line, Route A of the special downtown loop bus service, also starts from this location and operates on Euclid Avenue through Public Square and to the western portion of the downtown business district. The service on the two downtown loop bus lines, A and B, is so scheduled as to give a two-minute frequency on Euclid Avenue.

The owner of this second large fringe parking area has provided a roadway right into his lot specifically reserved for buses and has installed several shelters. Such accommodations makes bus service very convenient for its customers. The popularity of this successfully operated fringe lot is so great that it is often filled by 9 A.M.

RESULTS

The success of fringe parking lots in Cleveland can best be measured by their results. Among them are:

1. These lots are popular and used to capacity. It has been necessary to extend bus service until after 9 P.M. on Monday nights when downtown stores are open. These fringe parking lots are responsible for a substantial number of persons coming downtown to shop who would go elsewhere if they had to fight the traffic congestion in the central area.

2. Lower cost to parkers. Fringe lots use land having a much lower value than lots or garages in the central area and therefore permit lower parking rates.

3. Parking space is made available within the central business area for shoppers and businessmen requiring parking for a short interval of time. In some cities the all-day parkers take up most of the available parking space, thereby adding to the inconvenience for the shopper or businessman.

4. Traffic congestion on central business district streets is eased. Traffic in Cleveland, as in all large cities, is bad, but the congestion is nowhere nearly as

bad as in many other cities. As in most cities, the peak of traffic congestion occurs in the half-hour period from 5 to 5:30. A recent check in this half-hour period showed 400 persons riding the buses to the lake front parking lot. Nearly as many ride to the Euclid Avenue fringe lot in the same period. Between 7 A.M. and 6:15 P.M. more than 4,000 persons ride from and to these two lots. If these 4,000 persons using the two fringe lots had parked in the heart of the central business area the added number of automobiles would make traffic on streets in that area intolerable. A recent report on parking prepared by the Cleveland City Planning Commission shows that the peak requirement for the downtown area was 24,215 car spaces. The two fringe parking areas served by downtown loop bus Routes A, B and C provide space for 3,900 cars.

5. Time is saved. The traffic relief given by fringe parking permits buses serving these lots as well as all other buses and automobiles to move faster through the downtown area. Time is therefore saved for all of the thousands of persons driving through or leaving the central business area.

Fringe parking may not be a panacea for today's traffic problems, but it will certainly do a lot to help solve them. Business interests in downtown areas are beginning to realize that the increase in traffic congestion since the rather recent days of gas rationing during World War II, has not been brought about by more people coming downtown. It is merely the result of more persons driving automobiles. It is the result of too many persons trying to push automobiles through streets that were never laid out for such numbers of vehicles.

ADDITIONAL STEPS TAKEN TO EITHER SPEED UP TRANSIT SERVICE AND/OR OTHERWISE MAKE IT MORE ATTRACTIVE
(B) EXPRESS SERVICE ON CITY STREETS

ATLANTA, GA.: On March 14, 1955 the "Medlock Limited" was begun from a suburb known as Medlock Road North of Decatur, Georgia, taking in a 975 home subdivision, with one 30 car and one 100 car parking lot and expressing over city streets to downtown. The distance to the end of the line is 8.2 miles and the schedule speed is 14.9 miles per hour. This line is now carrying some 400 passengers per day at a straight 20-cent fare.

BALTIMORE, MD.: We operate three forms of regularly scheduled express or limited stop service.

Direct Business Service - Operated on one bus line only in the AM peak. Buses leave terminus at 7:55 AM and 8:00 AM, make four designated stops and then operate non-stop off the regular route to a downtown area. Service was also tried on another line but was discontinued for lack of patronage. We plan to try this service on another line, inbound and outbound, on our next schedule change.

Limited Stop Service - Operated on nine bus lines in the AM and PM peaks. These buses operate through a local zone making all stops to a designated point, then in the limited stop zone, stop only at transfer points and from a designated point to scheduled terminus again operate as a local bus making all scheduled stops. A 20-cent fare is charged.

Shoppers' Special Service - Buses are operated on 5 Shoppers' Special routes leaving outlying areas from 9:15 AM to 12 Noon, and leaving the downtown area from 1:45 PM to 3:45 PM. These buses make designated stops to a certain point and then operate non-stop to downtown area; from designated point to terminus all stops are then made. Three of the five routes serve areas in which regular transit service is not readily available. On two of the routes trips are scheduled to leave the shopping area after 9:00 PM on Monday and Thursday when the down-town stores are open. A 20-cent fare is charged.

It is estimated that an average of about 5 minutes per one way trip is saved by the various service listed above.

CHICAGO, ILL.: Express or limited motor bus service is given by fourteen routes. These make a total of 593 trips in the AM and 506 trips in the PM.

DAYTON, O.: Not an answer in Dayton. It is a device that belongs to big city operation--Dayton is just a shade over 30 square miles in area.

DETROIT, MICH.: Now operating eleven express coach lines, whose operation is partially on City streets and partially on expressways.

INDIANAPOLIS, IND.: We are the first city in the country to use a third span of wires for trolley coach express service down the middle of the street. We have such a service on two trolley coach routes - E. Washington and E. 10th Street, and another express trolley coach route on Ill-Capt line, a pair of one-way streets, with the express wires paralleling the local wires on mastarm construction.

We also use off line routings in the opposite direction of traffic to get local buses back to the end of the route, so as to conserve vehicles. This, of course, on bus lines.

We have four express bus lines and three express trolley coach lines.

LOS ANGELES, CAL.: Los Angeles Transit Lines plans to shortly place in service 100 modern air-suspension coaches to replace outdated high-floor level streetcars on four of its present rail lines and portions of two additional rail lines. This will result in an improved, faster and more frequent service to thousands of transit riders. In this connection it is planned to establish rush hour limited stop express service on two of these routes which will result in additional time savings to persons using these services.

LOUISVILLE, KY.: One line being operated with good results. Others are being considered.

MILWAUKEE, WIS.: An increase of 20% in average speed has been experienced in express service running time as compared to local service running time.

ADDITIONAL STEPS TAKEN TO EITHER SPEED UP TRANSIT SERVICE AND/OR OTHERWISE MAKE IT MORE ATTRACTIVE (Cont'd)
(B) EXPRESS SERVICE ON CITY STREETS

MINNEAPOLIS-ST. PAUL, MINN.: Have 14 lines with several express trips on each line. Operate in rush hours only. Follow same route as local buses. No extra fare. Are not operated unless a like amount of service can be cut out of local schedule. Saves 5 minutes on a 30 minute trip. Average line 5 miles long. About half is express zone. Very satisfactory.

MONTREAL, CAN.: An experiment with express service will be made in June.

NASHVILLE, TENN.: This company operates a number of express buses on regular city service, especially during rush hours.

PHILADELPHIA, PA.: PTC operates rush-hour express service, Monday through Friday, on Bus Route 59b, which serves as a feeder line to the Market-Frankford Subway-Elevated. From the northern terminus of the highspeed line at Bridge Street in the northeastern section of the city, the route extends over nine miles northward to Somerton Hills in Bucks County. The express service is operated from Bridge Street northward to Cottman Street, a distance of two miles over which no stops are made to pick up or discharge. The express buses operate in local service from Cottman Street northward the remaining seven miles to the northern terminus at Somerton Hills.

PITTSBURGH, PA.: Since 1925 the Company has operated "through bus routes," generally over boulevards, between the downtown district and outlying residential districts. While not strictly "limited stop" service, by reason of operating over boulevards with no contiguous population, they approximate express operation. At present, 10 such routes are operated. A slightly higher fare is charged than on other transit routes. Average speeds, excluding layover, range from 15 to 17 mph as compared with 12.25 mph for the system.

PORTLAND, ORE.: We have had express buses for many years. We do not have premium fare express service.

PROVIDENCE, R.I.: Our long suburban lines operate express within city limits but because of traffic congestion they can make no better time than local vehicles during rush hours. At off-peak hours they do save the time required for discharging passengers within the city limits.

RICHMOND, VA.: Where feasible, all bus routes in the rush hours have a portion of their route with express service and a local service operating over the express portion.

ROCHESTER,N.Y.: Express Service is used on most suburban trips during the afternoon rush hour. Recently we have installed non-stop express service from Industrial Plants to the central city area.

ST. LOUIS, MO.: We operate eleven express bus lines in rush hours five days per week.

SAN FRANCISCO, CAL.: Present operation includes five express lines and eight limited stop lines. Five additional express and limited lines planned.

TORONTO, ONT.: For a number of years, we operated four deluxe coach routes from various parts of the City at double the regular fare but at no time were they able to meet their operating expenses although well patronized in rush hours. The reason for this was that they had such unfavorable operating characteristics with mostly rush hour riding in one direction only, producing a very high rush hour production of man power which greatly increased operating expenses. The last of these were discontinued last fall as the subway had attracted most of this traffic. While these were not express routes, they nevertheless did operate at a faster schedule than the regular surface services.

ADDITIONAL STEPS TAKEN TO EITHER SPEED UP TRANSIT SERVICE AND/OR OTHERWISE MAKE IT MORE ATTRACTIVE (Cont'd)
(B) EXPRESS SERVICE ON CITY STREETS

VANCOUVER, B.C.: Our experience with express services to date has been in connection with the conversion of an interurban passenger service which operated on a private right-of-way between New Westminster, Burnaby and Vancouver. The replacement service was introduced on a major radial highway and was made express so as to offer the same or slightly better travelling times compared with the interurban. Because of this, we have no measure as to whether the express service attracted more passengers. We are planning on introducing our second express service on Hastings East to serve North Burnaby Municipality. We expect to have this in operation by the end of the year, and it will give us some direct comparisons as to the attractiveness of this service compared to the regular service.

WASHINGTON, D.C.: Seven premium fare express routes are operated between suburban areas and the central business area in both rush hour periods over city streets. The buses are operated without any stops except at transfer points within the city boundaries. In the suburban areas outside of the city boundary line the buses pick up and discharge interstate passengers only at local bus stops. This express operation has proven attractive to the public, and there has been a gradual increase in number of trips operated since started.

WHEELING, W.VA.: Express service on certain divisions in the evening rush hour is necessary and successful. The service is well patronized and popular with long riders who heretofore had to compete with short riders for seats.

YOUNGSTOWN, O.: Two express routes operated - Decrease in patronage same portion as balance of system.

CLEVELAND, O.: Clue to Effective Methods

It takes something more than modern vehicles, frequent service, or lower fares to get people to voluntarily choose to use public transit. Experience in Cleveland with Express service is a clue to what we think it takes. In Cleveland, there is a premium charge of 5¢ for express service. The inauguration of every express line developed increased riding. We continually get requests to put additional stops on express lines at corners where local stops already exist. Riders seem quite willing to pay the extra nickel for a faster ride. Our distinctive express stop markers are silent salesmen in themselves.

For some time the Cleveland Transit System has believed that speed of transit service was the number one consideration in meeting the competition of the automobile and thereby minimizing growing traffic congestion. Express bus service was considerably expanded following World War II. Express routes now radiate from the central business area in every direction other than toward Lake Erie. Our route map shows thirteen express routes with branches on several of the routes. Express service, therefore, is provided to eighteen distinct areas in Cleveland and its suburbs. In six years express service in Cleveland has been increased from 4,392,000 to 13,700,000 vehicle miles per annum.

The Cleveland express service has been established by making two routes of the former long lines. The inner portion is served by a relatively short route giving local service. The outer portion of the former line is served by buses making local stops for about half the length of the route and then running express to downtown, stopping only at transfer intersections. Passengers riding wholly within the local stop area of an express route pay a local fare. Anyone boarding or alighting within the express area pays a 5¢ premium regardless of the length of his ride. We have partially achieved the effect of a zone fare by zoning our service.

A free transfer is permitted between the two services at the outer terminal of the local line. This makes it possible for persons living in the local zone at the outer end of an express route to ride to the central business area without paying the premium fare. It is most significant that only a few riders exercise their option of transferring to the local route and thereby saving five cents. It clearly indicates the importance of saving in travel time, even though the time saving is small on some routes.

ADDITIONAL STEPS TAKEN TO EITHER SPEED UP TRANSIT SERVICE AND/OR OTHERWISE MAKE IT MORE ATTRACTIVE (Cont'd)

(B) EXPRESS SERVICE ON CITY STREETS

The results achieved by our express service have definitely proved to us that it is possible to persuade people to use public transit instead of their automobiles.

ADDITIONAL STEPS TAKEN TO EITHER SPEED UP TRANSIT SERVICE AND/OR OTHERWISE MAKE IT MORE ATTRACTIVE
(C) EXTENSION OF DISTANCE BETWEEN STOPS

BALTIMORE, MD.: On two previous occasions skip-stop operation was affected in Baltimore and in each instance proved so unpopular that the operation was discontinued by order of regulatory authority. However, the following criticism is quoted from the Majority Report by the Maryland Commission to Study and Report on the Transportation System Operated by The Baltimore Transit Company dated November 27, 1951:

Skip Stops

"In view of the demonstrated public resistance to a general Skip-Stop Plan in the several instances where it has been in effect heretofore, the Commission makes no strong recommendation on the point but feels that here again there is 'one best way' which should be adopted and, therefore, recommends that studies by the Company and the Public Service Commission resolve this point and make recommendations to the appropriate authority for their adoption. Whether or not any general skip-stop plan is adopted, certain stops very close to each other, such as in the Govanstown section on York Road, Pleasant Street on Charles and elsewhere, ought plainly, in the interest of both economy and quicker service, be eliminated."

Therefore, while we have in no sense of the word a skip-stop program, we are continually surveying our passenger stops and since June 1952, have eliminated 413 line stops at 345 locations. Any stop 300 feet or less from an adjacent stop is carefully scrutinized.

CHICAGO, ILL.: Other than express or limited service we have made only minor adjustments of stops. Our surface system local stops for years have been spaced at about 8 per mile.

DETROIT, MICH.: During the war, under O.D.T. direction, the distance between stops was lengthened to a minimum of 660 feet except in the downtown area. After the war this was maintained.

HONOLULU, T.H.: On a certain few streets where traffic checks indicate light patronage at particular bus stops, the distance has been extended between stops, or the stop has been eliminated to provide faster travel for both auto and bus traffic.

INDIANAPOLIS, IND.: We did inaugurate a selective stop program sometime ago, but most of the stops have been put back.

LOS ANGELES, CAL.: For many years it has been the practice for both of the principal transit operators, namely Metropolitan Coach Lines and Los Angeles Transit Lines, to use common passenger stops when operating over common routes. It was found that on certain operations, Metropolitan's more complicated fare collection problem due to its interurban type operation required longer loading time than did Los Angeles Transit Lines' principally local or urban type operation. In order to eliminate delay to the local service, separate stops were established along Hill Street in the Central Business District with the trend of originating travel with Metropolitan's coaches stopping near side and Los Angeles Transit Lines' coaches stopping far side. This has reduced congestion on Hill Street and has speeded up transit operation.

Efforts have been made to hold to what is considered to be a reasonable stop pattern. With routes spaced one-half mile apart, stops in residential areas are spaced as close to a quarter-mile maximum as conditions permit. A closer spacing is common in business districts.

MINNEAPOLIS-ST.PAUL, MINN.: Extension of distance between stops has been mildly advocated ever since wide use of skip stops in first worldwar was abolished. Very unpopular. May be able to eliminate a few stops in loop as aid to traffic speed up when and if mid-block stops become established.

ADDITIONAL STEPS TAKEN TO EITHER SPEED UP TRANSIT SERVICE AND/OR OTHERWISE MAKE IT MORE ATTRACTIVE (Cont'd)
(C) EXTENSION OF DISTANCE BETWEEN STOPS

NASHVILLE, TENN.: The company operated on a skip-stop basis during the war but as soon as ODT restrictions were removed, the company was required by the regulatory authority to restore most of the stops which had been eliminated.

PITTSBURGH, PA.: The company is continuously reviewing location of stops and has over the years eliminated or relocated a number of stops.

PORTLAND, ORE.: We installed skip stops during the war and they are still used.

RICHMOND, VA.: Selected bus stop locations are the policy in Richmond to allow between 500 and 800 feet between bus stops.

ROCHESTER, N.Y.: Bus stops are being replaced from a distance of 300 to 400 feet to 500 to 700 feet. Along with this we eliminate certain outbound stops in the afternoon rush hour in a sort of skip stop arrangement.

ST. LOUIS, MO.: Years ago we adopted skip stops where blocks are short, so that stopping places average about eight per mile. There has been no particular change in this lately, although stops are moved, added or eliminated from time to time to meet conditions that arise.

SAN FRANCISCO, CAL.: Skip Stops in effect on many lines. Street car stops on Market Street average 850 feet (Max. 1700 feet). Coach stops on Market Street average 650 feet (Max. 1060 feet).

TORONTO, ONT.: During the war we eliminated approximately 10% of the car stops on principal routes in the interest of a faster and more efficient service. Our present stop spacing is about 6 stops per mile or an average of 880 feet on Central services and an average spacing on feeder routes of 7 stops per mile.

VANCOUVER, B.C.: We follow the usual selective stop policy in which we stop at every second block in a given direction. Our block lengths vary between 250 ft. and about 500 ft. Our routes run across the short blocks so that usually the distance between two stops would average out at about 600 to 700 ft. We do not think there is an overall saving in making further reductions in stops unless the move is to an express operation with stops only at say the major transfer points. In the downtown area, we continue the selective stop policy to the fringe of the central district. Within the central district, we stop at every block. We think we make a net gain by stopping at every block because it divides the loads and offers greater convenience to our passengers.

WASHINGTON, D.C.: Distances between stops were extended during the war, but since then there has been no change.

WHEELING, W.VA.: Other than downtown stops eliminated by the City Traffic Commission, we do not favor extension of distance between stops. Passengers are too precious today to be exposed to a friendly auto pickup while walking toward an extended bus stop.

YOUNGSTOWN, O.: Stops under jurisdiction of City. Politicians object to extension of distances between stops.

CLEVELAND, O.: Location of stops carefully controlled so that distance between stops will not be less than approximately 700 feet on an average.

ADDITIONAL STEPS TAKEN TO EITHER SPEED UP TRANSIT SERVICE AND/OR OTHERWISE MAKE IT MORE ATTRACTIVE

(D) SPECIAL SERVICES ("CLUB BUS," MORE SEATS PER PASSENGERS, ETC.)

BALTIMORE, MD.: In April 1954, we inaugurated "Baseball Express Service," operating over 14 routes from outlying sections around the perimeter of the City. Service was operated for all Saturday, Sunday, holiday and night home games played by the Baltimore Orioles. This fast, attractive service at 30¢ per one-way ride (children and adults), proved so popular that it was continued through the Colt football season. After elimination of two routes, which were not properly patronized, we will resume operation of this service over twelve routes on April 18, 1955, and will continue it through the current baseball season.

DAYTON, O.: Nothing - here again we feel toward this as we do express service, Dayton is not big enough to support such operation.

DETROIT, MICH.: Surveys made to detemine the advisability of operating proposed "Club Coaches" did not produce sufficient potential riders to warrant the operation.

LOUISVILLE, KY.: Attempted to organize one "Club Bus," failed due to lack of interest on part of prospective riders.

MINNEAPOLIS-ST. PAUL, MINN.: Have made extensive studies on extensions and relocation of present routes since completion of conversion from rail operation. Schedules are made to provide maximum in transfer connections. Individual service has been arranged for breaks at plants where a substantial number of employees are served. Express service, as part of each major line, is being expanded.

NASHVILLE, TENN.: The company is operating one "Club Bus" type operation at a premium fare and is planning the inauguration of a second bus of this type operation.

PITTSBURGH, PA.: Because of Company policy to maintain frequent headways, service has not been reduced in proportion to the decrease in riding. In 1946 7.86 passengers per vehicle mile were carried and this number has steadily decreased to 5.11 in 1954.

PROVIDENCE, R.I.: We believe we proposed and ran first Club Bus in our deluxe vehicle at Governor Francis Farms in February 1953. In all deference to Cincinnati, who received national recognition through United Press for their Club Bus plan a few months ago, we have been running a Club Bus for ladies steadily since this 1953 date. It still runs - now at Pilgrim park and Sandy Lane. The difference is one of scope, since Cincinnati runs every weekday and for men, but we have had a regular Club Bus Shoppers' Special once weekly for a long, long time.

RICHMOND, VA.: The "Club Bus" riding plan circularized in an area in Richmond which we deemed most logical received insufficient support.

ROCHESTER, N.Y.: We have no Club Bus plan or similar arrangement. However, we have operated buses for years directly from various factories to different areas of the city and suburbs. Such buses are operated off route and provide a direct service from a factory to a worker's home route.

ST. LOUIS, MO.: We operate special express service to the Municipal (open air) Opera on summer evenings. We also operate special "Red Bird" express lines to Busch Stadium when the Cardinals are at home.

SAN ANTONIO, TEX.: Two "Shoppers' Special" lines operating in shopping and business loop - 10 A.M. - 4 P.M. daily, at 5¢ fare.

SAN FRANCISCO, CAL.: Club Bus Service under consideration for Parkmerced District.

SPRINGFIELD, ILL.: Currently instigating a program in cooperation with auto service stations for free parking at stations and using bus for trips to central district.

ADDITIONAL STEPS TAKEN TO EITHER SPEED UP TRANSIT SERVICE AND/OR OTHERWISE MAKE IT MORE ATTRACTIVE (Cont'd)

(D) SPECIAL SERVICES ("CLUB BUS," MORE SEATS PER PASSENGER, ETC.)

TORONTO, ONT.: We have not considered special services of the type described as the "Club Bus" just recently inaugurated in several U.S. cities but we do operate a number of special services for individual industries, schools and the like, located in areas which are not readily accessible by regular transportation services. Those involved are mostly rush-hour services on top of the regular service peak.

WASHINGTON, D.C.: Surveys have been made for the establishment of "club bus" operation. As yet there has not been any decision to experiment with such service.

WHEELING, W.VA.: We have recently replaced 12 buses with 39 passenger GMC's, having single seats on one side. The wider aisle makes for more standees, and is popular with package carrying passengers.

YOUNGSTOWN, O.: Special weekly passes for off-route school trips.

CLEVELAND, O.: Since 1950 we have been operating Baseball and Football specials over 14 routes covering the Cleveland Metropolitan area. This service, while not profitable, has proven to be a very good public relations builder and has reduced traffic congestion in the Stadium area when a large attendance is realized.

ADDITIONAL STEPS TAKEN TO EITHER SPEED UP TRANSIT SERVICE AND/OR OTHERWISE MAKE IT MORE ATTRACTIVE

(E) OTHER MEASURES

ATLANTA, GA.: On March 14, 1955 a new suburban line was bought from a company which, while not competing directly with our company, did present the last obstacle to a completely unified system. This line is known as the Dixie Hills Line and serves an almost 100% negro community. Response to lower fares and transfer privilege resulted in a 55% increase in riders almost at once.

BALTIMORE, MD.: We have participated in several merchandising plans in conjunction with local merchants providing for a 10% credit on purchases made at designated stores or subsidizing the shoppers' return trip by giving free tokens, 50% of this latter cost being borne by this Company. All results from such programs have been negligible and rather disappointing.

To summarize all the information relating to traffic congestion and the efforts directed to relief therefrom, there have been some encouraging results. On some lines, conversion from rail to bus operation, highway improvements and the Department of Traffic Engineering's program in general have combined to reduce the maximum one-way running time as much as 9 minutes. We estimate that in the period between November 1952 and March 1955 the miles per hour speed for our system has been increased by .3 miles per hour; this in spite of the additional number of motor vehicles which have flooded our streets.

We can, with great conviction, say that the action of Mr. Henry A. Barnes in appointing a Transit Coordinator as a member of his Staff, has been of decided advantage to this Company and all other interested agencies and we would recommend, with equal conviction, the creation of a similar office wherever feasible.

BOSTON, MASS.: The advertising program seeking to acquaint the public with the convenience and the economy of using MTA service as compared with driving their automobiles in and out of Boston each day to reach their jobs or for the conduct of individual activities was continued during 1954. Surveys have shown that this program attracted some new riders to the MTA.

CHICAGO, ILL.: Extensive use of ekip stops for rapid transit service.

DALLAS, TEX.: We have recently combined some short bus stops in the downtown area on one of our major east-west streets. In fact, three stops were combined with three other stops. It has resulted in a slight increase in a concentration of passengers at stops, but it has saved from twenty to thirty seconds per stop per vehicle.

The City Traffic Control Department and Police have been extensively using rubber cones in order to create three lanes of traffic on four lane major thoroughfares and approaches to viaducts in order to handle more rush hour traffic in the prevailing direction of traffic flow. This has benefited transit and automobiles immensely, saving four and five minute delays on heavy travelled routes.

Again they are setting up portable temporary "No left turn" signs at certain intersections to keep down left turn conflicts. In some cases transit coaches in the rush hours are the only ones allowed to make left turns.

In another P.M. rush hour case transit must follow the general traffic pattern by detouring one block off the regular routes to keep down conflicts at an approach to a viaduct. This also saves delay time.

One of the greatest difficulties which is now beginning to off-set some of the traffic gains made by transit is the tremendous mush-rooming of public garages and parking lots in the Central District. Many of these lots and garages are requiring extra officers during rush hours to move cars in and out of parking facilities. Some of these garages and lots are being opened up next to or right on long established bus loading zones, causing congestion at these points. Data below shows growth of parking facilities.

ADDITIONAL STEPS TAKEN TO EITHER SPEED UP TRANSIT SERVICE AND/OR OTHERWISE MAKE IT MORE ATTRACTIVE (Cont'd)

(E) OTHER MEASURES

	(As of Sept. 1950)			(As of Oct. 1, 1953 Survey)		
	Public	Private	Total	Public	Private	Total
Lots	7,035	2,008	9,043	8,716	2,133	10,849
Garages	5,820	57	5,877	8,093	81	8,174
Curb			3,003			2,588
TOTAL	12,855	2,065	17,923	16,809	2,214	21,611

	(As of Nov. 15, 1954		
	Public	Private	Total
Lots	9,769	2,150	11,919
Garages	9,136	81	9,217
Curb			2,857
TOTAL	18,905	2,231	23,993

DAYTON, O.: We have conducted promotions centering on "It Helps You---Let Buses Thru"; also on accident handling ---an education program telling people they can move their automobiles out of the way of traffic after an accident. We have been on radio and television and have received good coverage as well as editorial support from our local newspapers. We are on important Chamber of Commerce committees and get the support from our Chamber on things that would help, but city officials pay little or no attention to the requests. Not too long ago we presented two ordinance proposals; one that would give some preferential consideration for people using public conveyances and the other designed to straighten out our present muddled ordinance covering deliveries. Out of weeks of planning and presentation we came out with nothing except they made it illegal "to willfully impede the movement of a bus."

We are now planning a program whereby passengers are asked to check their waiting time at stops (by their watch) and return about a week's notations to the operator. This has a dual purpose: To draw attention to the minutes shown by the passenger's watch instead of his judgement of how long he waits, and to try to draw the passengers more into the transportation job.

HONOLULU. T.H.: Special services are offered in the form of chartered buses to lunch clubs, field trips, etc., with success.

INDIANAPOLIS, IND.: We put in special schedules for Christmas, Thursday nights, pre-Easter, and of course, have express services operate to Butler Fieldhouse, a distance of 4 miles from town, and use 100 buses on Memorial Day on a special private route to the 500 mile Race.

KANSAS CITY, MO.: The Company has had a short but favorable experience with "Athletics Express" special service to the Municipal Stadium for baseball games both day and night (this is the first season of major league baseball in Kansas City).

MILWAUKEE, WIS.: Staggered hours which were effective during the war in leveling out riding peaks also have an effect in reducing peak vehicle congestion. A re-inauguration of staggered hours at this time could have the two-fold effect of eliminating delays caused by traffic congestion as well as reducing vehicle requirements through leveling out of the riding demand.

MONTREAL, CAN.: Extensive program of re-routing in conjunction with the bus substitution program.

Better utilization of existing thoroughfares and use of new thoroughfares by transit vehicles.

NASHVILLE, TENN.: Newspaper dispensing racks have been installed on all vehicles operated by the company.

The company carries on a continuous and vigorous advertising campaign emphasizing such themes as "Give the Bus Rider his Fair Share of the Street," in order to give a faster ride.

The president of the company discussed transit problems with all operators, meeting in small groups. At these meetings he emphasized that it is to the vested interest of the bus driver to make bus riding more attractive to hold present passengers and to get new

ADDITIONAL STEPS TAKEN TO EITHER SPEED UP TRANSIT SERVICE AND/OR OTHERWISE MAKE IT MORE ATTRACTIVE (Cont'd)

(E) OTHER MEASURES

passengers, by courteous, attentive and safe handling of passengers - approximately 60% of every gross dollar goes to wages and salaries.

An all-out effort is being made to modernize the present fleet and establish a long range orderly fleet replacement program.

The company has also adopted the policy of letting the bus rider and the potential bus rider have a voice in the changing of existing routes and the establishment of new routes. For the past 18 months each proposed change has been preceded by questionnaires on the buses and in the neighborhood which the proposed change would affect. A striking example of the efficacy of this plan is the incident in which the company felt confident that the large majority of passengers would prefer that a bus operate on a different downtown street, but nonetheless followed the questionnaire p1an -- to its surprise the company found that the overwhelming majority wanted the bus to stay where it was.

PHILADELPHIA, PA.: Philadelphia's central-city will benefit greatly this year, since a considerable part of PTC's $10,000,000 improvement program for 1955 will be concentrated on lines serving the downtown area. Almost two-thirds of the Company's 300 new 50-passenger buses will be used to equip three major center-city bus lines and to convert two center-city streetcar lines to bus operation. In addition, travel time to the central business section from West Philadelphia will materially be reduced by the new surface-car subway now being completed by the City and in which PTC will operate fast, modern Company-owned cars.

New buses will be used to equip bus routes A, C and D. Route A operates between Broad & Delancey Streets and Barren Hill, connecting large areas in Northwest Philadelphia with the center-city. Route C cuts through the heart of the central business area as it makes its run over the entire 12-mile length of Broad Street between City Line on the north and the Naval Base on the south. Route D connects downtown Philadelphia with West Philadelphia and Upper Darby.

New buses also will be used to convert streetcar routes 7 and 38 to bus operation. Route 7 passes through the central-city on 22d and 23d streets. Route 38, which is now a subway-surface line, terminates at 48th Street & Parkside Avenue. Route 38 buses will operate from that point to 30th & Market Streets largely over the present route, then will continue on the surface of Market Street, looping via 18th Street, Pennsylvania Boulevard, 15th Street and Market Street. They will connect the new Penn Center with the growing section along Market Street west of the Schuylkill River, serving the Pennsylvania Railroad Station, the Post Office, and Drexel Institute.

Extension of the surface-car subway as far west as 40th Street & Woodland Avenue will afford users of heavily-traveled subway-surface routes relief from traffic bottlenecks along Market Street, 36th Street and Woodland Avenue, and the faster, more modern cars that will be substituted for present equipment will give West Philadelphians bound for the center-city full advantage of the time-saving features of the new subway.

PITTSBURGH, PA.:

1) All service is operated with modern vehicles.
2) Extra service is operated to and from special events to maintain regularity and comfort to regular service.
3) The Company cooperates with merchants in downtown and other business centers to promote riding.
4) The Company has representation on traffic planning bodies to speed flow of traffic and maintains close liaison with traffic enforcement authorities.
5) Service has been extended to newly-developed residential areas.
6) New routes have been established to provide more direct connection between communities and reduce walking distance to existing transit lines.

ADDITIONAL STEPS TAKEN TO EITHER SPEED UP TRANSIT SERVICE AND/OR OTHERWISE MAKE IT MORE ATTRACTIVE (Cont'd)

(E) OTHER MEASURES

PORTLAND, ORE.: We conducted an experiment a few years ago on our Barbur Boulevard Line, in which we doubled service, made house-to-house calls leaving schedules, and generally publicized the better service. The results in revenue were disappointing. We were forced to stop the experiment.

ROCHESTER, N. Y.: To help speed up the movement of buses in the central business area, we use bus loaders at heavy loading points. We have installed change booths near heavy loading points to enable passengers to obtain the correct fare before boarding their buses. These measures have speeded up the loading and movement of buses in the central area.

To help maintain better schedules we have adopted a system whereby operators must report by telephone to the dispatcher at the ends of the lines. We are thereby enabled to break gaps and fill holes in lines caused by delays. We have a constant check on maintenance of schedules.

SAN ANTONIO, TEX.: Other measures include wide distribution of schedule cards to patrons, and emphasis on maintenance of schedules, achieved through close supervision and telephone-radio dispatching system. Schedule maintenance is achieved 94% of time.

SAN FRANCISCO, CAl.: Current effort is in progress to

- --eliminate unwarranted stop signs,
- --establish "through" and "secondary" arteries (facilitating transit movement where practicable)
- --legalize "yield" signs (for use where warranted instead of stop signs)
- --obtain provision for bus turnouts on freeways from highway funds
- --obtain adjustments in signals and parking regulations at certain points as determined from time to time.

SEATTLE, WASH.: Third wire trolley coach for bypasses at intersections. Proposed toll road, proposed street widening, bridges, interchanges.

SPRINGFIELD, ILL.: Intensive campaign on our property to stress safety, courtesy, and cleanliness of vehicles and personnel.

WASHINGTON, D.C.: "Staggering hours of employment" was quite effective during the war in providing better service to passengers and in making more effective use of equipment. In general the staggering of hours has continued, but there have been some adverse changes involving rather large groups. Recently another survey has been made with the objective of shifting the hours of employment for several groups to reduce peak hour transit and automotive use in the central business district.

WHEELING, W. VA.: Extra service is dispatched to Football games, race track, and other public outdoor events when occurring. Adequate vehicles are on hand to carry away these spectators. Sometimes it is not profitable, but we keep trying.

WILMINGTON, DEL.: Merchants and Company inaugurated Downtown Day. Free rides to downtown only between 9:00 and 11:00 a.m. Subsidized by merchants and Company (Very successful).

YONKERS, N. Y.: Besides the conversion from streetcars to buses, no major step has been taken to provide a faster transit service. Our system does not lend itself to any fringe or perimeter parking; and, because of the comparatively short routes, no express service is being rendered.

YOUNGSTOWN, O.: Publish all schedules for passenger use.