

A REPORT OF

THE MINNEAPOLIS CENTRAL BUSINESS DISTRICT

ORIGIN-DESTINATION SURVEY

Conducted By

The Highway Planning Survey MINNESOTA DEPARTMENT OF HIGHWAYS

THE MINNEAPOLIS PLANNING COMMISSION

And

THE OFFICE OF THE MINNEAPOLIS CITY ENGINEER

In Cooperation With

THE U. S. PUBLIC ROADS ADMINISTRATION

-1946-

CONTENTS

Part		Page
I	Introduction and General Discussion	1
II	The Minneapolis Problem	3
III	The Existing Traffic Pattern	4
	Limitations of Survey Data	
	Utilization of Data	
IV	Traffic Volume Trends - 1946-1960	6
v	Summary of Significant Facts	7
VI	Origin and Destination Traffic Data	9
VII	Central Business District Trip Origins Classified by Destination and Purpose	30

ILLUSTRATIONS

Table	Title	Page
I	Central Business District Traffic Summary	13
II	Inter-Area Trip Movement	19
Plate		
I	Field Survey Station Locations - Inbound and Outbound Traffic Volume	11
II	Survey Census Tracts and Study Areas	15
III	1944 Motor Vehicle Registrations by Census Tract	17
IV	Trip Origin and Destination by Census Tract	21
v	Traffic Barriers	23
VI	Area 11 (Central Business District) Desire Lines	25
VII	Central Section Area 11 Desire Lines	27
VIII	Inter-Area Desire Lines	29
IX	Distribution of Trips from Central Business District by Purpose	32



PART I

INTRODUCTION AND GENERAL DISCUSSION

One of the major problems facing city officials throughout the United States today is urban transportation, particularly as it relates to central business district areas. The problem also is of concern to state and federal agencies concerned with public transportation. In most large cities, central business district streets are crowded to capacity. Both on and off street parking facilities are wholly inadequate. Normal development and growth of urban areas and the greatly accelerated use of private vehicles as a supplement to mass transportation facilities are the principal contributing factors.

Certainly the solution to this problem merits a considered, scientific study of all factors involved. High cost of urban rights of way, highway construction and building modification or removal, consideration of the legitimate interests of local business and a properly planned land use in fact make such study mandatory. It is generally recognized that one of the important requisites to proper urban planning is detailed information concerning urban traffic volumes and patterns of movement. Techniques for securing these data have been tested and perfected until the problem of securing necessary detailed information in urban areas is fairly well standardized.

It appears desirable to re-emphasize the importance of considering the proper place of mass transportation facilities in any over-all plan aimed at the alleviation of traffic congestion in central business district areas. It is altogether possible that the development of a series of expressway approaches to downtown districts, tending thereby to encourage additional use of private motor vehicles for trips to and from these areas, may serve to greatly aggravate existing congestion in downtown area streets unless the development of terminal facilities is carried on in conjunction with or prior to the construction of expressway approaches. The problem of adequate terminal facilities should have extremely careful study before the city embarks on an extensive program of expressway approach construction.

- 1 -

In Minneapolis a great deal of study has already been given this problem by interested agencies, both local and state. Up to this time, however, necessary information concerning the actual pattern of traffic movement has not been available. A great many plans and suggestions have been advanced, many of which may have considerable merit. However, until detailed data concerning the pattern of traffic movement can be analyzed and coordinated with other pertinent information, the necessary evaluation of plans already advanced is impossible. Only through the whole-hearted cooperation of all agencies charged with the responsibility for solving this problem can costly errors be avoided and maximum benefits derived from a carefully planned approach to the problem.

PART II

THE MINNEAPOLIS PROBLEM

The steady growth of the Minneapolis-St. Paul metropolitan area and its emergence as the dominant center for the marketing of agricultural products, trade and service in the north-central region of the United States has resulted in an acute area traffic problem. The Mississippi River flowing in close proximity to the Minneapolis central business district, extensive railroad development, the existence of six lakes and an extensive park system within the corporate limits of Minneapolis further complicate the solution to the problem of more efficient traffic service. Terminal facilities in the central business district are far from adequate. With increased industrial and commercial construction in prospect in and near the Minneapolis central business district, many of the existing off-street terminal areas will be lost. So-called fringe industrial areas surrounding the central business district are, in their own right, heavy traffic generators. A relatively large movement of private motor vehicles from residential areas passes through the central business district and terminates in these fringe industrial sections. The limited number of river crossings in close proximity to the central business district area tends to force additional traffic into and through an already congested downtown area. Unless these problems are solved, the inevitable result will be an accelerated trend toward decentralization with a resultant drop in assessed valuation and tax revenue.

- 3 -

PART III

THE EXISTING TRAFFIC PATTERN

In order that there be available information concerning central business district traffic and its relation to the rest of the City and surrounding area, the Highway Planning Surveyof the Minnesota Department of Highways, the Minneapolis Planning Commission and the Minneapolis City Engineer's Office, in cooperation with the U. S. Public Roads Administration, undertook an origin-destination survey of the Minneapolis central business district. Field work was conducted from 2 P.M. to 10 P.M., June 25, and from 6 A.M. to 2 P.M. on June 26, 1946. Data concerning traffic origin, destination, purpose of trip and use of terminal facilities were obtained through the distribution of questionnaire cards to vehicle operators moving out of the central business district. Basic data have been developed in the form of charts and tables presented in the following sections of this report with a brief narrative accompanying each presentation.

Limitations of Survey Data

In analyzing the material presented in this report, it must be remembered that no information is available concerning those traffic movements which did not contact the downtown district. It should also be emphasized that studies based on a single sixteen-hour field operation must be interpreted with some caution. Field work which would provide information concerning the traffic pattern on two or three typical weekdays and a Saturday or Sunday is more desirable. In the questionnaire card type of study, however, field operations of this duration are seldom feasible. The data presented herein have been subjected to standard statistical checks as to adequacy of sample in relation to the restricted study area and, in that respect, have been found satisfactory. It is also pointed out that mass transportation facilities and their over-all relationship to problems in highway-street location and design must be considered.

Utilization of Survey Data

With the above limitations in mind, the data presented in this report form a suitable basis for the projection of traffic estimates to the year 1960 for use in analyzing location and design features in and near the central business district area. On the basis of major trip desire lines, as presented on several charts in this report, the development of several expressway approaches and distribution routes appears desirable. These data will be extremely valuable in the analysis of both location and design of the suggested facilities.

PART IV

TRAFFIC VOLUME TRENDS

1946 to 1960

The Minneapolis Central Business District Survey conducted in June of 1946 found motor vehicle traffic well on its way back to prewar levels. Traffic volumes in the Minneapolis area by 1944 had dropped to approximately 60 percent of the 1941 peak and motor vehicle registrations had decreased about 15 percent from the 1941 level.

In 1944, this Department prepared an estimate of traffic volume trends projected to 1960, which was based on motor vehicle registration and population data and traffic volume information furnished by the Twin City Rapid Transit Company. Historical trend data were available from 1920 to 1943 and trend curves were plotted and projected to 1960. Since the development of that estimate as additional traffic information has become available, the projection has been checked and found to be reliable. From that estimate it has been determined that 1946 traffic values should be expanded by a factor of 1.35 to arrive at 1960 traffic estimates.

It is emphasized that traffic volume projections for urban areas in particular must be made with considerable caution. Traffic patterns as they existed in the spring of 1946 are subject to other factors than normal increases. The development of residential sections now relatively undeveloped, industrial development brought about by improved access due to construction of improved transportation facilities and traffic induced to use improved facilities are factors which must be carefully considered when preparing specific traffic estimates for design purposes. Data contained in this report provide the basis for traffic estimates, but estimating should only be done by qualified people after giving consideration to all pertinent factors.

- 6 -

PART V

SUMMARY OF SIGNIFICANT FACTS

I. A total of 151,894 trips, or 76.2 percent of all trips contacting the central business district during the sixteen-hour period of survey were found to have origin or destination in the downtown study area. This is a clear illustration of the fact that the primary problem in the Minneapolis central business district is largely created by those trips desiring access to the downtown district.

II. A total of 47,426 trips, or 23.8 percent of all trips contacting the central business district, are theoretically bypassable.

III. The study of Plate VI showing central business district traffic desire lines can be interpreted as indicating the need for:

- A controlled access approach to the downtown area from the west-southwest with high priority;
- 2. A controlled access approach to the downtown area from the south or, as an alternate, the designation of additional one-way streets;
- 3. A controlled access approach from the southeast;
- L. A controlled access approach from the northwest;
- 5. The volume of traffic from the northeast does not at this time appear to justify a high priority for the development of a controlled access approach to the central business district.

IV. A study of Plate VIII showing traffic desire lines for trips passing through the central business district indicates the desirability of a circumferential by-pass route for the central business district. It appears that this route would serve most efficiently if located in the vicinity of Washington Avenue, Eighth or Ninth Avenues South, Grant and

- 7 -

Twelfth Streets and Lyndale Avenue. It is desirable that such a circumferential route also serve as a distributor for trips desiring access to the central business district. Such a distributor is a necessary supplement to controlled access approaches.

Preliminary study of central business district traffic indicates that a circumferential route constructed to serve both as a distributor and a by-pass route would be required to handle extremely heavy volumes of traffic, particularly during peak hours. The question of whether ingress and egress points could be provided in sufficient number to permit an efficient distribution function, without interfering with traffic desiring to by-pass the central business district, must yet be answered. Additional study and in all probability additional data will be required before that problem can be properly measured from a traffic service standpoint.

V. A study of Plates VI and VIII indicates that Minneapolis central business district traffic in itself provides little pertinent information as to the desirable location of a new intercity river crossing.

VI. It is strongly recommended that attention be given the development of additional terminal facilities in the Minneapolis central business district prior to, or in conjunction with, expressway approach development. Unless this is done, the additional motor vehicle traffic induced by the construction of controlled access type approaches will even more seriously congest the downtown area.

- 8 -

PART VI

.

ORIGIN AND DESTINATION TRAFFIC DATA

FIELD STATION LOCATION MAP

Plate I shows the location of field stations together with inbound and outbound traffic volumes at each station during the period of field study. State trunk highway routes passing through the Minneapolis central business district are designated by number and the routings are shown by heavy lines.



PLATE I

MINNEAPOLIS CENTRAL BUSINESS DISTRICT ORIGIN-DESTINATION SURVEY

STATION LOCATIONS

AND

INBOUND AND OUTBOUND TRAFFIC VOLUMES

2:00 P.M. - 10:00 P.M. 6:00 A.M. - 2:00 P.M. JUNE 25,1946 JUNE 26,1946

SUMMARY OF TRAFFIC VOLUMES BY STATION LOCATION AND VEHICLE TYPE

Table I summarizes traffic volumes during the period of field survey by station location and by vehicle type. In addition the table shows the number of questionnaire cards distributed at each location. The total card distribution was 118,069 or 95.6 percent of the outbound traffic. Usable card return was 39,128 or 33.1 percent of the total distribution.

MINNEAPOLIS CENTRAL BUSINESS DISTRICT ORIGIN-DESTINATION SURVEY SUMMARY - ALL STATIONS

16 Hours - June 25, 2 P.M. to 10 P.M. and June 26, 6 A.M. to 2 P.M., 1946

					TRA	FFIC DENSIT	Y				Stan Stan
Sta.	Location	I Exclusi	otal Vehicles	8		In-bound			Out-bound		Cards
NO.		Passenger	Commercial	Total	Pass. Cars	Com. Veh.	Total	Pass. Cars	Com. Veh.	Total	Issued
1 2 3	Third Avenue Bridge	16,549	3,573	20,122	8,142	1,749	9, <mark>891</mark>	8,407	1,824	10,231	9,887
	Hennepin Avenue Bridge	14,071	2,776	16,847	6,989	1,435	8,424	7,082	1,341	8,423	7,897
	First Street N.	1,320	1,286	2,606	495	592	1,087	825	694	1,519	1,506
456	Second Street N.	3,146	1,388	4,534	1,647	732	2,379	1,499	656	2,155	2,146
	Washington Avenue N.	9,533	2,993	12,526	4,896	1,540	6,436	4,637	1,453	6,090	5,8 59
	Third Street N.	2,884	1,024	3,908	1,391	495	1,886	1,493	529	2,022	2,016
7	Fourth Street N.	2,533	480	3,013	1,128	198	1,326	1,405	282	1,687	1,629
8	Fifth Street N.	5,368	1,592	6,910	2,809	797	3,606	2,559	795	3,354	3,175
9	Seventh Street N.	11,030	1,644	12,674	5,746	812	6,558	5,284	832	6,116	5,907
10	Glenwood Avenue	4,580	1,409	5,989	2,219	752	2,971	2,361	657	3,018	2,903
11	Currie Avenue N.	836	408	1,244	316	165	481	520	243	763	687
12	Chestnut Avenue	641	224	865	237	111	3 48	404	113	517	517
13	Linden Avenue	12,518	1,451	13,969	7,119	864	7,983	5,399	587	5,986	5,750
14	Hennepin Avenue	11,650	2,157	13,807	5,246	943	6,189	6,404	1,214	7,618	6,509
15	Harmon Place	11,200	984	12,184	6,445	510	6,955	4,755	474	5,229	5,184
16	La Salle Avenue	5,093	531	5,624	2,084	224	2,308	3,009	307	3,316	3,182
17	Nicollet Avenue	7,926	650	8,576	3,936	296	4,232	3,990	354	4,344	4,309
18	Marquette Avenue	5,451	574	6,025	2,539	287	2,826	2,912	287	3,199	3,180
19	Second Avenue S.	4,148	358	4,506	1,440	122	1,562	2,708	236	2,944	2,944
20	Third Avenue S.	14,026	1,418	15,444	7,398	703	8,101	6,628	715	7,343	6,963
21	Fourth Avenue S.	3,281	423	3,704	1,281	184	1,465	2,000	239	2,239	2,206
22	Fifth Avenue S.	1,713	239	1,952	619	107	726	1,094	132	1,226	1,222
23	Eleventh Street S.	3,326	315	3,641	1,764	155	1,919	1,562	160	1,722	1,562
24	Sixth Avenue S.	7,270	600	7,870	3,642	289	3,931	3,628	311	3,939	3,820
25	Tenth Street S.	5,820	676	6,496	3,214	369	3,583	2,606	307	2,913	2,913
26	Ninth Street S.	2,084	252	2,336	905	101	1,006	1,179	151	1,330	1,330
27	Eighth Street S.	7,945	. 740	8,685	4,666	388	5,054	3,279	352	3,631	3,485
28	Seventh Street S.	4,549	1,037	5,586	1,983	503	2 ,486	2,566	534	3,100	2,676
29	Sixth Street S.	2,535	443	2,978	1,252	197	1,449	1,283	246	1,529	1,434
30	Fifth Street S.	3,022	669	3,691	1,390	362	1,752	1,632	307	1,939	1,807
31	Fourth Street S.	7, <mark>868</mark>	1,508	9,376	4,366	772	5,138	3,502	736	4,238	4,058
32	Third Street S.	3,670	1,107	4,777	1,779	587	2,366	1,891	520	2,411	2,403
33	Washington Avenue S.	13,467	2,287	15,754	7,198	1,161	8,359	6,269	1,126	7,395	7,033
TOTAL	5	211,053	37,216	248,269	106,281	18,502	124,783	104,772	18,714	123,486	118,069

- 13 -

ANALYSIS PROCEDURE

After carefully editing questionnaire card returns, pertinent data were transcribed on mark sensing tabulating cards and all traffic movements analyzed using Federal Census Tracts as the basic study unit. Traffic frequencies between tracts were statistically expanded to equal the trip total. Because census tracts in themselves were too small to insure a completely stable sample in all cases, study areas comprising several tracts were delimited on the basis of similarity in land use and other related characteristics. Recommendations of the office of the Minneapolis Planning Engineer were followed in this matter. Plate II shows Federal Census Tracts in the City of Minneapolis and study areas developed and used for the purpose of presentation.



-15-

MOTOR VEHICLE REGISTRATIONS BY CENSUS TRACT

CITY OF MINNEAPOLIS

Plate III shows the distribution of motor vehicle registrations by census tract in Minneapolis for the year 1944. From biennial reports prepared by the office of the Secretary of State, it has been determined that Minneapolis motor vehicle registrations in 1940 were 138,681; in 1942, 140,537; and in 1944, 118,247. Readjustment to peacetime economy since V-J Day, particularly as it pertains to production of new motor vehicles, has not fulfilled expectations. The time at which production will equal demand is somewhat difficult to forecast. Assuming the not too distant solution of production problems and studying motor vehicle registration trends since 1920, it is estimated that by the year 1960 motor vehicle registrations will be 38 percent in excess of the 1944 total. Thus the City of Minneapolis may logically expect a motor vehicle registration of approximately 163,000 by 1960. Reference to Plate III will immediately indicate that increases in registrations will be greatest in those sections of the city not yet fully developed, particularly from the residential standpoint. It is reasonable to expect Areas 1, 6, 7, 25 and 26 to show greater than normal increase in motor vehicle registration. For some years suburban areas lying south and west of the corporate limits of Minneapolis have been developing rapidly. Those sections will undoubtedly show a greater increase in motor vehicle registrations than other parts of Minneapolis or Hennepin County. It is pointed out that motor vehicle registrations to some extent point to potential traffic origin and destinations. Careful study should be given motor vehicle registration trends in the development of the complete picture of traffic movement.

- 16 -



-17-

INTER-AREA TRIP MOVEMENTS

Table II provides a ready means of determining trips occuring between the various areas in the City of Minneapolis, between Minneapolis and St. Paul and between Minneapolis and suburban and remote sections. Areas outside the corporate limits of Minneapolis are designated by letter and are described as to location in the table footnote.

To illustrate the use of Table II, the number of trips between any two areas is readily obtainable by following the horizontal line denoting one area to the point where it intersects the vertical column for the other area. The total number of trips between these two areas can then be read directly. Total trips to and from Area 11 (central business district and study area) were 151,894. The total trips passing through Area 11 having both origin and destination in other areas totaled 47,426 trips. The total number of trips studied was 199,320. MINUMAPOLIS CRITICAL BUSINESS DISTRICT O.D. SUBWER

INTER-AREA MOVEMENT

		OTHER AREAS NUMBERANCI A AREAS																																											
			٨	3	C	6 8	D	R	7	0		X	I	J	J	5	L	1	2	3	4	5		6	7	8	9	10	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	n	TRINS
	24		0	0		0	43	0	0		0	0	0	8	0	3	6	4	0	7		7 3	14	0	0	0	c		6	0	0	0	0	16	42	19	16	9	0	0	7	3	18	406	710
	23		0	0		0	3	0	0		0	0	0	1		D	0	4	0	3	r	7 1	17	0	0	0	c	0		0	0	0	o	12	22	8	13	0	0	7	0	0	7	264	385
	20		4	0		0	29	0	0		0	0	0	1	4 1	D	o	4	4	7	19	,	3	0	0	0	c	0	3	0	4	0	0	8	40	3	4	3	0	0	0	0	0	171	310
	34		n	11		7	33	0	0		4	0	0	4	5 1	D	16	ш	40	32	220	5 7	79	7	7	0	6	3	28	3	0	0	3	53	89	21	12	6	3	3	3	7	7	1101	1877
	328		3	0		0	9	0	0		0	0	0		7 (b	o	3	ш	3	6	2 2	26	0	o	0	c	0	10	3	3	0	0	18	42	0	9	4	0	0	0	0	5	531	749
	30		0	0		0	19	0	0		0	0	0	2'	7 (D	0	0	0	0		7 3	13	0	4	0	c	- h	4	0	0	0	0	4	7	15	10	0	0	0	3	0	0	276	393
•	44		0	14		6	34	0	0		0	0	0	3	1 (D	6	18	38	20	15		63	0	o	3	18	0	20	3	3	0	3	25	60	17	20	3	0	0	3	7	3	1052	1624
St. Paul	Areas 4B		4	3	1	5	48	0	0		0	0	0	1	1 0	D	7	ш	3	16	7		56	0	6	0	c	0	0	4	0	0	3	28	57	7	3	4	0	3	3	7	15	949	1342
	54		3	0		0	12	0	0		3	0	o		3 (D	0	0	4	19	5		20	7	3	0	10	0	7	0	0	0	0	3	14	3	ш	0	0	0	0	0	0	870	1051
	58		0	0		0	0	0	0		0	0	0	(0 0	0	o	0	3	10	34		4	4	6	7	4	0	10	0	0	0	0	13	50	3	3	0	0	0	0	0	0	702	889
	638		20	16		4	59	0	0		0	0	o	2	5 (b	0	10	20	65	16	0 10	01	0	0	0	c	0	27	0	0	0	0	37	99	22	21	3	3	0	0	9	13	1974	2688
	60		0	4		0	3	0	0		0	0	0	10	0 (о	4	0	9	- 44	8	9	0	3	0	7	0	0	0	0	0	0	11	15	0	0	3	3	0	0	0	0	382	511
	74		0	8		0	4	0	4	(0	0	0	3	3 (0	0	4	7	13	4	3 3	30	4	4	3	10	0	3	0	0	0	0	7	28	0	4	3	0	0	0	0	0	549	731
	78		13	30		3	10	0	0		0	0	0	1	3 (0	0	18	14	31	5	7 3	je	0	7	0	29	0	0	0	o	0	0	9	40	7	7	0	0	0	0	3	0	532	855
	70		0	0		0	4	0	0		0	0	0	(0 (0	0	0	0	0	Ľ	2	7	0	0	0	c	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	149	175
	A		0	0		0	4	0	0		0 1	LO	20		3 10	5	8	0	0	0	1	. 1	LO	0	0	3	25	55	150	46	46	3	29	58	38	10	4	6	7	13	6	5	15	888	1492
	в		-	0		0	0	0	0	3	3	4	7	1			13	4	3	0		5	0	0	0	36	45	129	289	44	85	14	51	86	48	0	7	9	7	13	34	10	7	2362	3324
	c		-	-		0	0	0	0	1	1	15	20	13	3 21		6	0	0	0	2	5	3	0	7	36	27	68	132	27	12	15	9	30	43	4	15	9	3	6	13	3	6	861	1439
	D		-			-	0	0	10	25	5 3	38	34	(0 10	,	6	3	0	3	11.	1 2	4	10	58	166	213	403	481	22	63	6	36	88	51	4	22	12	12	6	17	7	9	5313	7269
	E	1	-	-		-	-	0	0	(D	0	0	-	3 3	3	0	0	0	0	1	3	3	0	0	0	C	3	29	3	ł,	ų	0	32	24	0	6	23	9	3	0	10	6	255	433
	7		-	-		-	-	-	0		0	0	0	2	5 10	,	27	0	0	3	4	5 2	8	0	0	0	c	14	194	14	20	14	55	184	141	14	79	36	25	16	18	26	29	1264	2281
Other Ar	G		-	-		-	-	-	-	(D	0	4	91	7	7	16	3	0	55	84	• 6	5	0	0	0	C	4	74	21	0	9	31	135	257	37	94	19	6	13	4	21	62	1717	2802
	H		-	-		-	-	-	-		-	0	15	17	7 (,	0	0	0	0	3:	5 3	3	0	3	3	c	0	14	0	0	0	0	16	21	6	7	3	0	0	0	0	7	376	536
	I		-	-		-	-	-	-			-	0	IJ	LO	,	4	о	0	4	23		3	0	o	0	o	0	10	0	0	0	0	3	9	0	0	0	0	0	0	0	.0	310	385
	J		-	۰.		-	-	-	-		-	-	-	(3	0	0	7	12	32	5 2	9	44	169	363	375	702	706	h	12	0	14	51	38	o	4	4	12	7	0	0	0	10336	13217
	ĸ	-	-	-		-	-	-				-	-		- ()	0	28	42	33	51		9	3	14	7	16	7	9	0	0	0	0	0	18	0	0	0	0	0	0	0	0	821	1068
	L		-			-	-	-	-			-	-				ο	11	12	6	19	5 2	9	11	66	56	80	52	132	0	0	0	0	0	8	0	0	0	0	0	0	0	0	1987	2645
	1		-	-		-	-	-	-			-	-				-	ο	o	0	48	3	7	0	4	21	38	186	432	36	74	29	48	148	105	6	40	24	38	46	29	12	ш	2665	4047
	2		-	-		-	-	-	-			-	-				-	-	0	0	35	5	9	0	10	32	67	200	580	78	115	32	94	180	80	15	41	25	31	32	67	21	7	3560	5311
	-3		-	-		-	-	-	-			-	-				-	-	-	0	35		2	3	7	25	89	196	665	57	150	36	107	209	135	28	67	41	62	24	64	22	16	3903	5957
	4		-	-		-	-	-	-			-	-				-	-	-	-	14:	5 10	3	31	146	242	495	389	1381	330	403	184	283	1041	694	178	401	244	271	221	213	213	324	7473	15405
	5		-	-		-	-	-	-			-	-				-	-	-	-			0	28	64	167	244	509	757	94	152	62	90	213	156	6	55	74	57	77	59	39	42	5609	8554
	6		-	-		-	-	-	-		-	-	-				-	-	-	-		•	-	0	0	0	0	25	175	8	3	37	46	225	146	30	80	41	42	39	18	37	35	1308	2295
	7		-	-		-	-	-	-			-	-				-	-	-				-	-	0	0	4	21	428	26	46	13	166	559	618	103	484	178	74	35	25	77	222	4525	7604
	8		-	-		-	-	-	-		•	-	-				-	-	-				-	-	-	0	0	3	177	19	39	22	31	344	637	126	358	113	56	18	16	58	185	2953	5155
	9		-	-		-	-	-	-			-	•			•	-	-	-				-	-	-	-	0	16	539	77	83	59	124	611	723	250	498	197	134	67	76	150	422	4377	8403
	10		-	-		-	-	-	-		٢.	-	-				-	-	-				-	-	-	-	-	0	147	ų	7	7	13	433	880	330	408	114	16	6	15	117	307	5639	8443
M-1- 41	12		-	-		-	-	-	•			-	-	-			-	-	-				-	-	-	-	-	-	173	hh	26	19	64	499	838	259	361	145	60	33	44	75	297	8534	11471
Mp18. A	13		-	-		-	-	-	-			-	-				-	-	-				-	-	-	-	-	-	-	0	0	0	0	15	46	0	0	0	0	0	0	0	0	2876	2937
	14		-	-		-	-	-	-	-		-	-				-	-	-				-	-	-	-	-	-	-	-	0	0	0	ш	20	0	0	0	0	0	0	0	0	2203	2234
	15		-	-		-	-	-	-	15	•	-	-	•	•		-	2	-				-	-	-	-	- 1	-	-	-	-	0	0	5	19	0	0	0	0	0	0	0	0	1120	1144
	16		-	-		-	-	-	-		•	-		-			•	-	-			-	•	•	-	•	-	-	-	-	•	-	0	6	45	3	0	0	0	0	0	0	0	2405	2459
	17		-	-		-	-	-	-	10		-	•				-	-	•				-	•	-	1	-	-	-	-	-	-	•	10	102	0	3	0	6	9	8	0	3	9393	9534
	18		-	-		-	-	-	-	-	•	-	-				•	-	-		• •		-	-	-	-	-	-	-	-	-	-	-	-	22	21	31	33	32	15	40	21	18	13933	14166
	19		-	-		-	-	-	-	2		-	-	-			-	-	-		•		-	-	-	-	-	-	-	-	•	-	-	-	-	0	0	с	0	0	0	0	0	5005	5005
	20		-	-		-	-	-	-			-	•				-	-	-		• •		-	•	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	7385	7385
	21		-	-		-	-	-	-		•	-					-	-	-				-	-	-	•	-	-	-	-	· -	-		-	-	-	-	0	0	0	0	0	0	3174	3174
	22		-	-		-		-	-			-	•		1		-	-	-		• •		-	•	-	-	-	-	-	- 1	-		-	-	-	-	-	-	0	0	0	0	* 0	2458	2458
	23	1	-	-		•	-	-	-	1		-	-				-	-	•				•	•	-	•	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0	0	1491	1491
	24		-	-		•	-	-	-	1		-	-		-		-	-	-				-	-	-	-	-	-	-	-		-	-	•	-	-	-	-	-	-	0	0	0	2501	2501
	25		-	-		-	-	-	-	-		-	-	-		6	-	-	-				-	-	-	•	-	-	•	-	-		-	-	-	•	•	-	-		-	0	0	3612	3612
	26		-	-		•	-	-	-		-	-	-	-		i.	-	-	-				-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	0	7394	7394
Trips		F	58	86	3	5	314	0	14	4	2 6	7	100	436	80	, ,	15	140	208	31	3 217	8 88	1 1	52	588	1170	1802	2003	7700	967	1350	565	1300	5436	6567	1555	3108	1388	060	719	785	960	2098	151804	100320

- a pe

A T.H. 152, U.S. 169, Brooklyn Center, and Beyond.

B T.H. 55, Robbinsdale, Crystal, and Beyond.

- C T.H. 218 and U.S. 52, Northwest.
- D S.A.R. 5, 6th Ave. N., 19th Ave. N., U.S. 12, Golden Velley, and Beyond

E T.H. 56, North.

F T.H. 65, Columbia Heights, and Beyond.

G T.H. 36, 49, 51, U.S. 8, 10, 61, Rural Ramsey County, and Beyond.

H T.H. 212 and U.S. 12, Northeast and East.

I T.H. 56, 88, 100, 218, U.S. 10, 52, South St. Paul, West St. Paul, Newport, St. Paul Park, and Beyond.

- J T.H. 7, 100, U.S. 169, 212, Edina, Hopkins, St. Louis Park, and Beyond.
- K T.H. 5, 13, 55, Fort Snelling, Mendota, and Beyond.

L T.H. 36, U.S. 65, Richfield, and Beyond.

TABLE II

DISTRIBUTION OF TRIP ORIGINS AND DESTINATIONS BY CENSUS TRACT

Plate IV shows the distribution of trip origins and destinations studied during the sixteen hours of field operation. The following brief table shows the number of trips by major classification and percentages of the total number studied.

Trin Distribution by Area

Trip Siburioution by Mea		
	Trips	Percent
Trip Origin and Destination in Minneapolis	148,139	74.3
Trip Origin or Destination in Minneapolis	49,834	25.0
Minneapolis - St. Paul 13,489		
Minneapolis - Suburbs or remote 36,345		
Trip Origin and Destination Outside Minneapolis	1,347	0.7
St. Paul - Suburbs or remote 801		
Suburbs and remote - Suburbs or remote 546		
Total Trips Studied	199,320	100.0

It is significant that 148,139 trips, or 74.3 percent of all trips studied, had both origin and destination wholly within the City of Minneapolis. Approximately 14,000 trips moved between Minneapolis and St. Paul during the period of field survey.



-21-

BARRIERS TO MOTOR VEHICLE TRAFFIC

Plate V shows the situation in Minneapolis from the standpoint of physical barriers to traffic movement. The lake and park areas, the Mississippi River, railroad terminal facilities and Minnehaha Creek near the south corporate limits of the City combine to form what may be termed a circumferential traffic barrier. Existing gaps in the barrier created by bridges and other facilities are indicated as to location by breaks in the solid black lines.



AREA 11 DESIRE LINES

Plate VI shows desire lines for trips having origin or destination in Area 11, the Minneapolis central business district. All traffic frequencies between Area 11 and outlying areas in excess of 299 are shown to scale. Trip frequencies between Area 11 and areas outside the corporate limits of Minneapolis cross the corporate limit line at a point between the geographical center of Area 11 and the geographical center of the particular outlying area. A total of 151,640 trips are shown graphically on Plate VI. The total number of trips between Areas 11 and other areas as shown on Table II is 151,894. A study of Plate VI serves to emphasize the fact that major trip frequencies between the Minneapolis central business district and the areas lying to the south and southwest far exceed other significant movements. It is pointed out that trips between Area 11 and Area J totaling 10,336, representing trips principally between Excelsior, Hopkins, St. Louis Park and the Minneapolis central business district, exceed all but one other movement from the central business district. The fact that 151,894 motor vehicles desire access to and from some part of the central business district emphasizes the need for an efficient distribution route around the central business district, thus providing a means whereby these drivers can approach that section of the central business district to which they are destined by using a distributing type facility and, as a result, utilize the shortest span of the central business district street system possible. The central business district of Minneapolis has been divided into fourteen sections, permitting analysis of trip origins and destinations within the area in considerable detail. Reference to Plates VI and VIII graphically illustrates the reasons for much of the congestion now existing in the Minneapolis central business district. The number of trips now forced to pass through the central business district, vying with trips bound to or from the central business district, to a large extent are responsible for existing conditions.

- 24 -



DESIRE LINES FOR CENTRAL SECTION, AREA 11

Plate VII is presented as an illustration of a more detailed analysis of the Minneapolis central business district. The so-called central section of Area 11 is bounded by First Avenue North, Fourth Street South, Second Avenue South and Tenth Street South and comprises roughly 20 percent of the land area in the central business district. 56,936 trips or 37.5 percent of the total trips to and from the central business district had origin or destination in the central section of Area 11. Plate VII presents desire lines for this section and shows trip frequencies to scale in excess of 299. A marked similarity in the desire lines pattern exists between Plate VI and Plate VII. Vehicles bound to and from the central section are now competing with vehicles passing through the central business district and with vehicles having origin or destination in other portions of the central business district for use of the existing street system. It seems reasonable to assume that a distribution facility from the central business district would reduce to some considerable degree the use of the street system by those vehicles bound to and from the central section.



INTER-AREA DESIRE LINES SHOWING FREQUENCIES FOR TRIPS PASSING THROUGH THE CENTRAL BUSINESS DISTRICT

Plate VIII presents desire line movements of trips now forced to pass through the central business district. This plate graphically illustrates the effect that so-called fringe industrial and commercial areas have on central business district traffic. A total of 47,426 trips pass completely through the downtown area in traveling between a point of destination wholly outside the central business district. Trips between areas 7, 8, 9 and 10 and other areas in Minneapolis require the use of a river crossing. Because these vehicles were contacted in the central business district, it is obvious that the major portion of them used the existing Hennepin Avenue and Third Avenue Bridges. It was found that trips between Area 8 and other Minneapolis areas seldom used the Tenth Avenue Bridge. A study of Plate VIII suggests that distribution routes around the Minneapolis central business district could well serve as by-pass routes for practically all of the trips now forced to use downtown area streets.





PART VII

MINNEAPOLIS CENTRAL BUSINESS DISTRICT TRIP ORIGINS CLASSIFIED BY DESTINATION AND PURPOSE OF TRIP

Questionnaire cards distributed during the period of field operations provided information as to trip purpose. The classifications were as follows: (1) for the purpose of work, (2) transacting business, (3) shopping, (4) delivery service, (5) classification designated as "other" which included trips for recreational purposes, etc., (6) not designated. In order that ready comparisons be made between trips for various purposes and their distribution throughout the twenty-five Minneapolis areas, there has been developed a bar chart which appears as Plate IX. A brief summary tabulation appears below showing total trips for each purpose broken down into three general categories—first, those trips from the central business district to other Minneapolis areas; second, trips from the central business district to St. Paul; and, third, trips from the central business district to suburbs or remote areas.

	1	2	3	4	5	6 No Purpose	Total
en out	Work	Business	Shopping	Delivery	Other	Given	
Area"ll" to Minneapolis	20,055 34.7%	21,711 37.6%	4,913 8.5%	4,941 8.6%	5,846 10.1%	282 •5%	57,748 100.0%
Area"ll" to St. Paul	1,569 31.7%	2,361 47.7%	329 6.5%	311 6.3%	370 7.5%	14 •3%	4,954 100.0%
Area"11" to Suburbs and Remote	6,068 45.8%	3,784 28.6%	1,404 10.6%	421 3.2%	1,506 11.4%	62 . L%	13,245 100.0%
Totals	27,692 36.4%	27,856 36.7%	6,646 8.7%	5,673 7.5%	7,722 10.2%	358 •5%	75,947 100.0%

Central Business District Trip by Purpose

The table and bar chart are based on one-way outbound trips only, which is desirable in classifying trips by purpose. Of considerable interest is the fact that shopping counts were only 8.7 percent of all trips from the central business district. Trips for the purpose of work and transacting business together account for 73.1 percent of all central business district trip origins. For the purpose of this study, the term "business" was defined as a transaction involving medical service, legal service, dealings with public utilities and other general service transactions. "Shopping" was defined as a transaction involving a commodity at the retail level. The classification "not designated" accounts for those questionnaire cards which were returned unanswered as to that feature. It is quite apparent that the vast majority of shoppers in the Minneapolis central business district utilize mass transportation facilities rather than private motor vehicles. 27,692 vehicles in the central business district for the purpose of transporting workers explains to a considerable degree the congestion of both off and on street parking facilities in the central business district and vicinity. Presumably, trips of that nature involve the need of parking facilities over an extended period of time and will materially reduce parking space turn-over.

- 31 -









