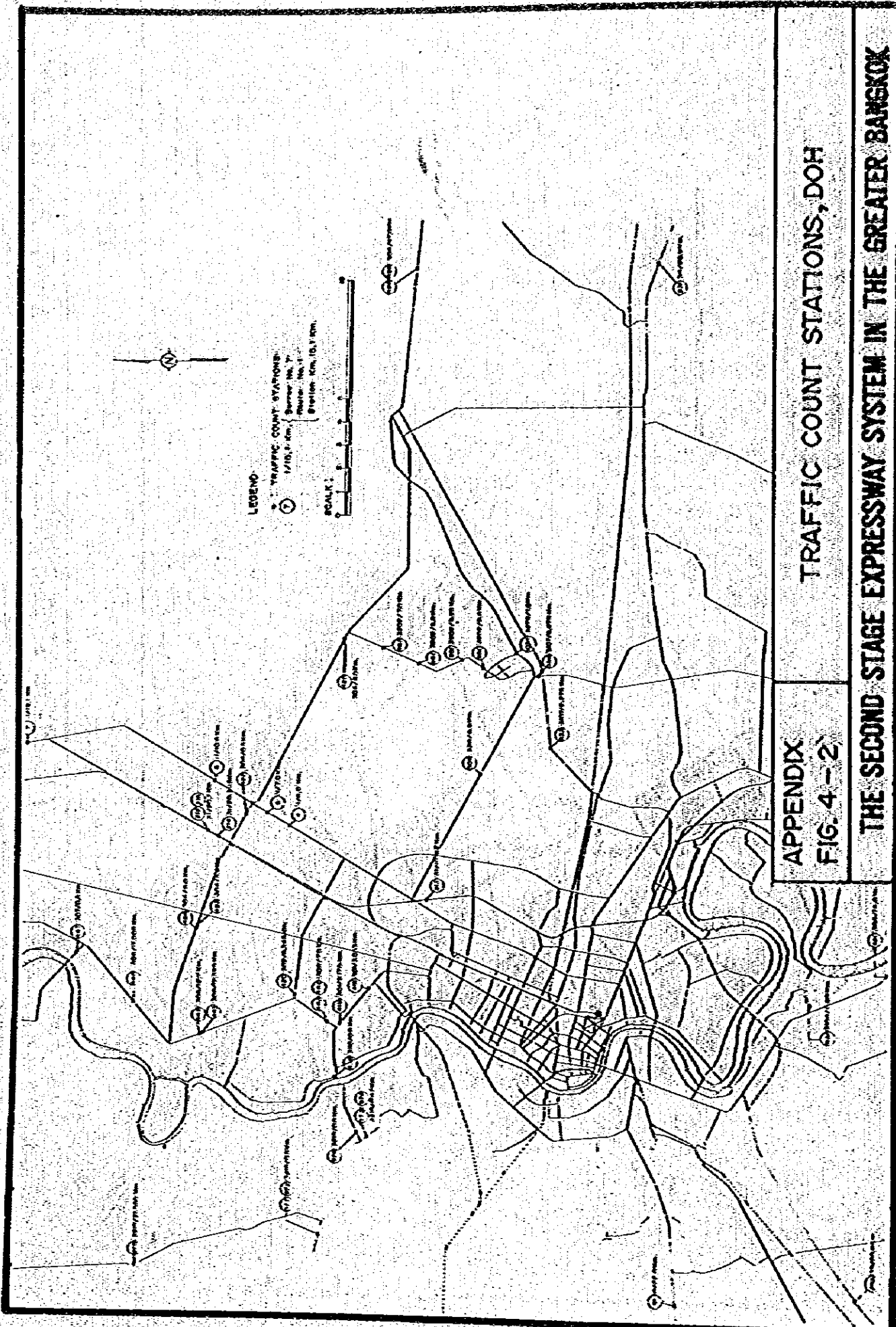


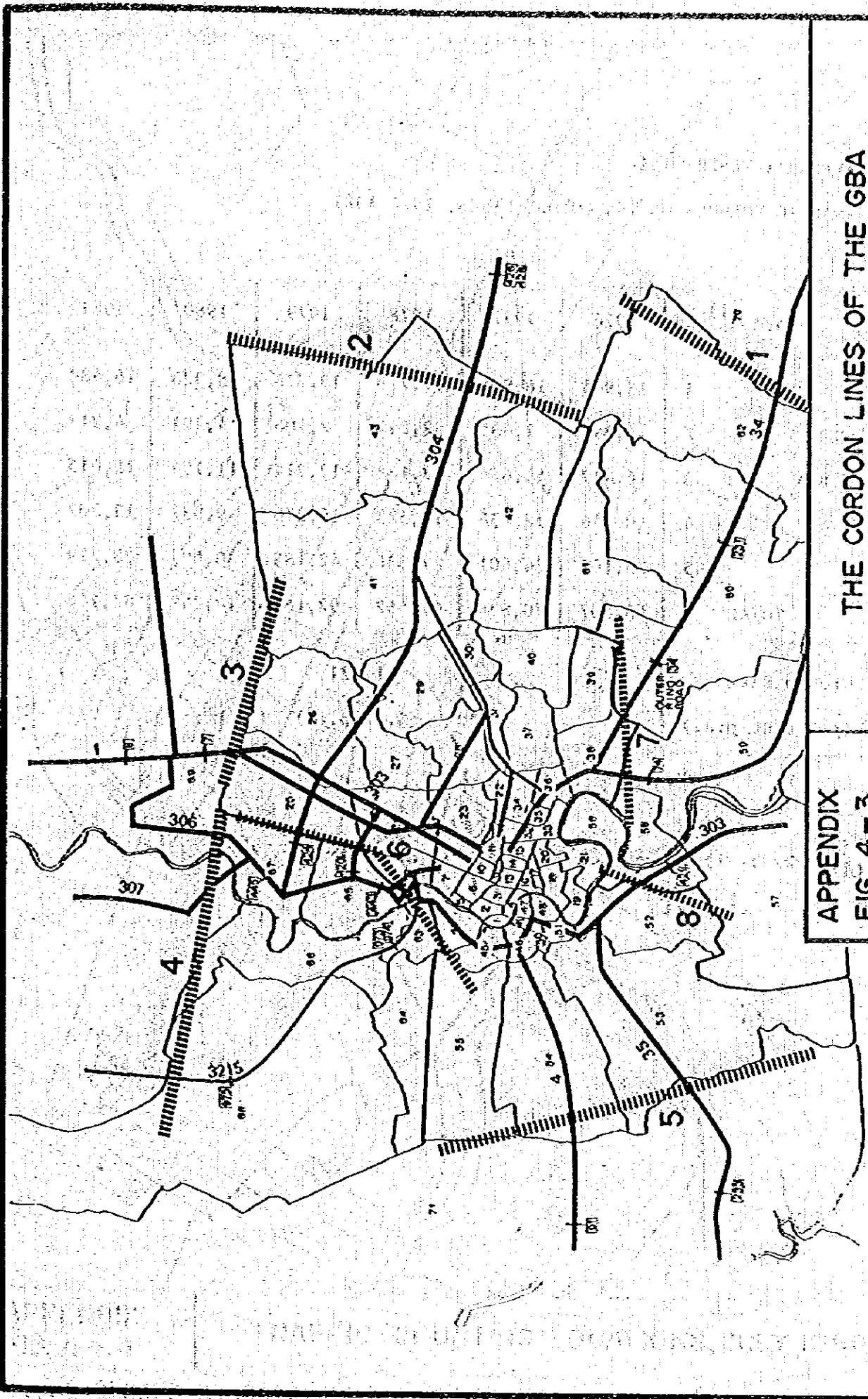
APPENDICES TO CHAPTER 4



TRAFFIC COUNT STATIONS, DOH

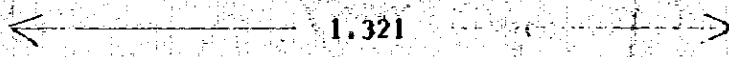
APPENDIX
FIG. 4-2

THE SECOND STAGE EXPRESSWAY SYSTEM IN THE GREATER BANGKOK

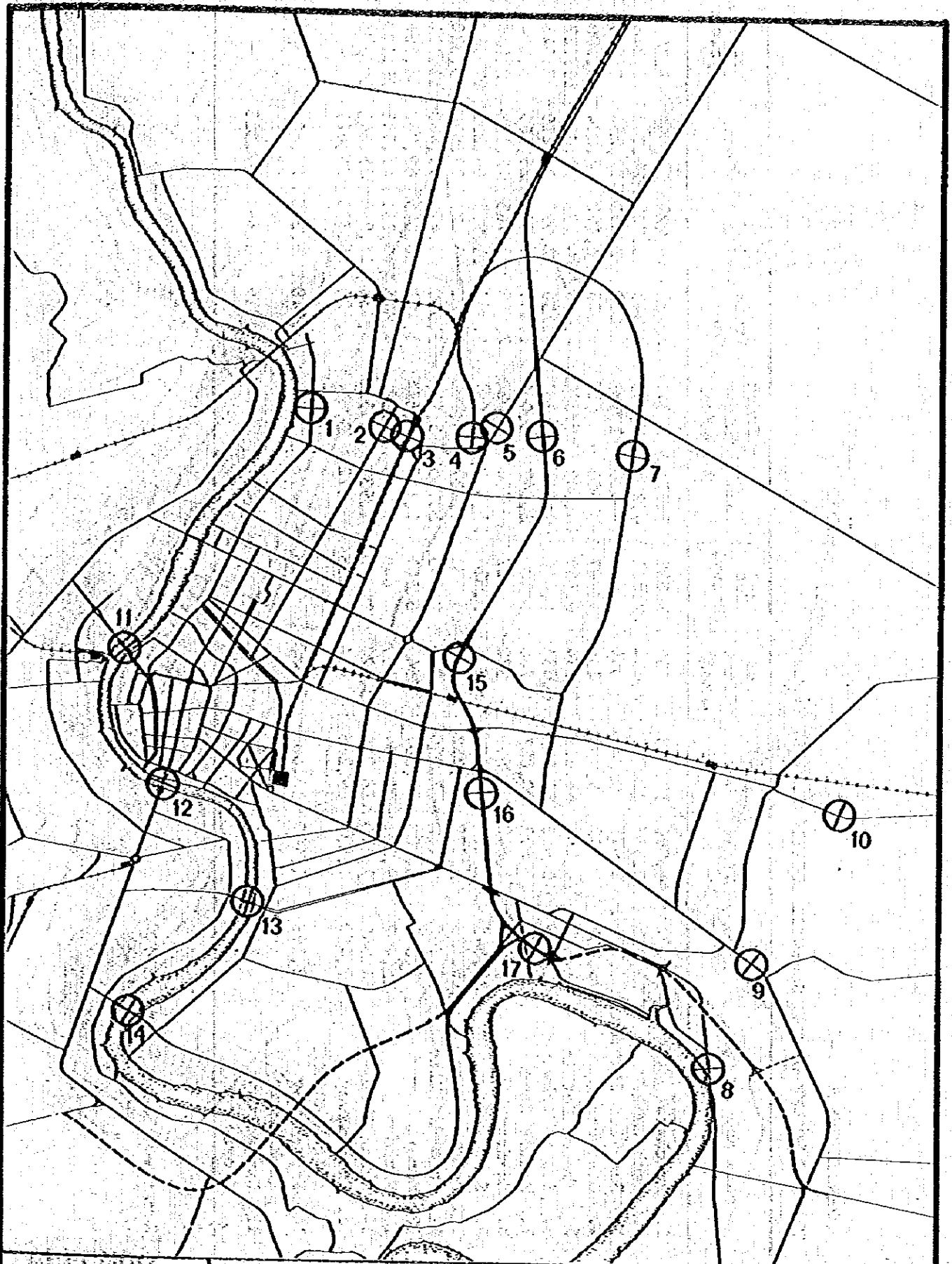


APPENDIX TABLE 4-1

TRAFFIC VOLUMES ON THE CORDON LINES, 1976-1981

Cordon ¹⁾	1976	1977	1978	1979	1980	1981	
G B A	1	12,944	16,906	17,778	19,778	18,323	16,480
	2	1,891	2,435	2,842	2,706	4,291	4,217
	3	16,417	14,656	7,183	17,214	11,194	15,615
	4	10,046	12,236	12,523	10,278	9,837	13,207
	5	25,109	24,601	27,336	42,185	30,697	38,229
TOTAL	66,407	70,834	67,662	92,161	74,342	87,748	
Growth Rate (per cent p.a.)	 1.321 (5.7% p.a.)						

Remarks : 1) The cordon lines are in Appendix Fig. 4-2



APPENDIX
FIG. 4 - 4

TRAFFIC COUNTING LOCATIONS, JULY 1982

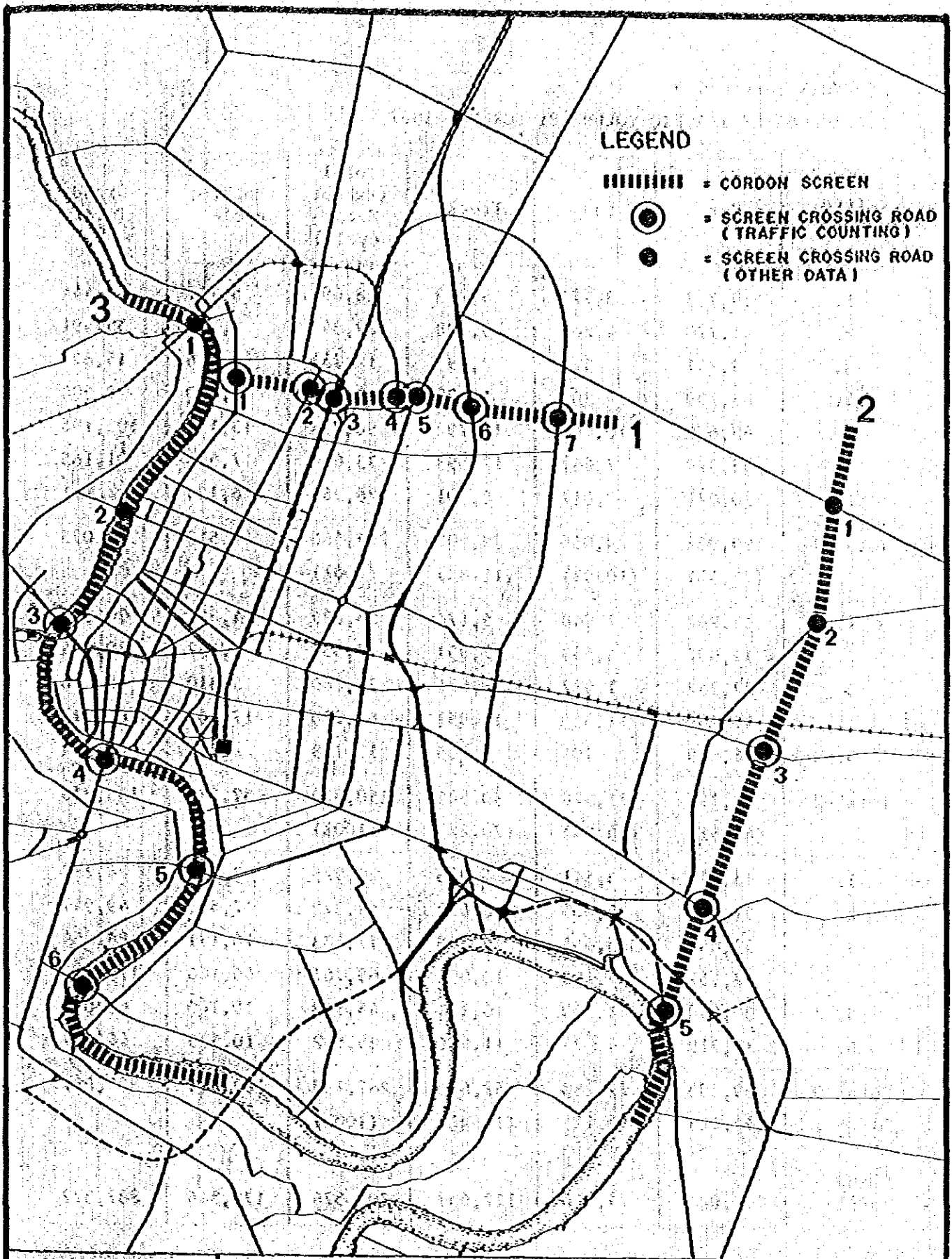
THE SECOND STAGE EXPRESSWAY SYSTEM IN THE GREATER BANGKOK

APPENDIX TABLE 4-2

TRAFFIC VOLUME ON THE SELECTED LOCATIONS, 1982 (ADT)

Roads and Bridges	Private Car	Taxi	Car	Bus (Light & Med)	Bus (Heavy)	Bus	Truck (Light & Med)	Truck (Heavy)	Truck	Total	Motor Cycle
1. Pracharat	12,707	6,996	19,703	736	3,035	3,771	2,941	2,282	5,223	28,697	5,747
2. Tachawanit	11,233	10,537	21,770	2,434	1,831	4,265	2,365	943	3,308	29,343	6,248
3. Bang Sue Station	5,770	3,971	9,741	354	66	420	1,481	612	2,093	12,254	3,616
4. Chatuchak	4,937	772	5,709	236	67	303	817	375	1,192	7,204	2,100
5. Phahol Yothin	44,418	24,261	68,679	3,744	6,859	10,603	6,597	4,195	10,792	90,074	13,122
6. Super Highway	42,426	10,953	53,379	6,091	1,616	7,647	3,837	8,756	12,593	73,619	7,546
7. Middle Ring	16,144	3,877	20,021	1,766	281	2,047	3,068	1,233	4,301	26,369	6,134
8. Na-Krom	5,027	1,642	6,669	382	322	704	2,030	2,735	4,765	12,138	2,816
9. Sukhumvit	29,345	11,624	40,969	5,706	5,624	11,330	5,994	5,957	11,951	64,250	17,767
10. Phattanakarn	16,173	6,079	22,252	1,211	776	1,987	3,700	1,921	5,621	29,860	5,310
11. Phra Pin Klao	37,868	19,182	57,050	2,210	3,745	5,955	5,978	3,500	9,478	72,483	16,171
12. Memorial	28,944	23,723	52,567	544	6,601	7,145	8,654	1,401	10,055	69,767	46,166
13. Sathorn	25,463	9,231	34,694	457	646	1,103	5,336	4,815	10,151	45,948	19,100
14. Krung Thep	11,549	7,170	18,719	3,227	1,710	4,937	5,555	6,431	11,986	35,642	10,575
15. Expressway (Din-Daeng)	17,450	1,835	19,285	414	158	572	3,150	3,620	6,770	26,627	-
16. Expressway (Sukhumvit)	12,118	1,467	13,585	383	93	476	2,900	3,640	6,540	20,601	-
17. Expressway (Port)	4,841	549	5,390	207	35	242	872	819	1,691	7,323	-

Remarks : Roads - 1-10
Bridges - 11-14



LEGEND

- ▨▨▨▨▨ = CORDON SCREEN
- = SCREEN CROSSING ROAD (TRAFFIC COUNTING)
- = SCREEN CROSSING ROAD (OTHER DATA)

APPENDIX
FIG. 4 - 5

CORDON SCREEN LINES

THE SECOND STAGE EXPRESSWAY SYSTEM IN THE GREATER BANGKOK

APPENDIX TABLE 4-3

AVERAGE DAILY TRAFFIC VOLUME BY SCREEN, 1982

Screen No.	Car	Bus	Truck	Total (Except Motor-cycle)	Motor-cycle	Grand Total
1.	19,703	3,771	5,223	28,697	5,747	34,444
2.	21,770	4,265	3,308	29,343	6,248	35,591
3.	9,741	420	2,093	12,254	3,616	15,870
4.	5,709	303	1,192	7,204	2,100	9,304
5.	68,679	10,603	10,792	90,074	13,122	103,196
6.	53,379	7,647	12,593	73,619	7,546	81,165
7.	20,021	2,047	4,301	26,369	6,134	32,503
Total-1	199,002 (74.3%)	29,056 (10.9%)	39,502 (14.8%)	267,560 (100%)	44,513	312,073
1.	17,907	2,948	5,174	26,029	4,364	30,393
2.	11,002	4,559	2,991	18,552	2,132	20,684
3.	22,252	1,987	5,621	29,860	5,310	35,170
4.	40,969	11,330	11,951	64,250	17,767	82,017
5.	6,669	704	4,765	12,138	2,816	14,954
Total-2	98,799 (65.5%)	21,528 (14.3%)	30,502 (20.2%)	150,829 (100%)	32,389	183,218
1.	15,019	3,541	4,365	22,925	3,357	26,282
2.	31,154	4,605	6,613	42,372	7,575	49,947
3.	57,050	5,955	9,478	72,483	16,171	88,654
4.	52,567	7,145	10,055	69,767	46,166	115,933
5.	34,694	1,103	10,151	45,948	19,100	65,048
6.	18,719	4,937	11,986	35,642	10,575	46,217
Total-3	209,203 (72.4%)	27,286 (9.4%)	52,648 (18.2%)	289,137 (100%)	102,944	392,081
Grand Total	507,004	77,870	122,652	707,526	179,846	887,372

APPENDIX TABLE 4-4
OCCUPANTS SURVEY
A. THE SURVEY IN 1982

Vehicle Type	Peak (7:45-8:45)		Off Peak (12:15-13:15)		Peak and Off Peak	
	No. of Sample	Average of Occupants	No. of Sample	Average of Occupants	No. of Sample	Average of Occupants
Car	1,250 (1,982)	1.59	729 (1,279)	1.75	1,979 (3,261)	1.65
Taxi	108 (165)	1.53	182 (311)	1.71	290 (476)	1.64
Samlor	74 (97)	1.31	119 (188)	1.58	193 (285)	1.48
Taxi and Samlor	182 (262)	1.44	301 (499)	1.66	483 (761)	1.58
Motorcycle	642 (788)	1.23	616 (771)	1.25	1,258 (1,559)	1.24
Car and Taxi (Include Samlor)	1,432 (2,244)	1.57	1,030 (1,778)	1.73	2,462 (4,022)	1.63
Car and Taxi (Exclude Samlor)	1,358 (2,147)	1.58	911 (1,590)	1.75	2,269 (3,737)	1.65

Remarks : The upper line shows total vehicles counted and the lower line in () shows total persons counted.

B. RESULTS OF BTS, 1972

Vehicle Type	Average Occupants per vehicle
Car and Taxi	1.75 persons
Motorcycle	1.27 persons

Sources : BTS, 1975

APPENDIX TABLE 4-5 PEAK HOUR RATIO, HEAVY VEHICLE RATIO AND RATE OF DIRECTION

LOCATION NO.		TOTAL EXCEPT MOTORCYCLE	HEAVY VEHICLE (BUS+TRUCK)	HEAVY VEHICLE RATIO (%)	PEAK HOUR (BOTH DIRECTIONS)	PEAK VOLUME	PEAK RATIO (%)	RATE OF DIRECTION (%)
1	W. 1st Ave. Station → S. 1st Ave. Station	⊙ 14,021	2,789	19.8	7:00-8:00	789	5.6	32.0
	W. 1st Ave. Station ← S. 1st Ave. Station	⊙ 15,225	2,840	17.3		1,680	11.0	68.0
	TOTAL	29,246	5,629	18.5		2,469	8.4	100.0
2	W. 1st Ave. Station → S. 1st Ave. Station	⊙ 15,821	1,476	9.3	7:00-8:00	1,734	10.9	73.1
	W. 1st Ave. Station ← S. 1st Ave. Station	⊙ 14,076	1,357	9.6		837	4.5	26.9
	TOTAL	29,897	2,833	9.5		2,571	7.9	100.0
3	W. 1st Ave. Station → S. 1st Ave. Station	⊙ 6,183	327	5.3	7:00-8:00	417	6.7	33.0
	W. 1st Ave. Station ← S. 1st Ave. Station	⊙ 6,331	365	5.8		546	13.4	77.0
	TOTAL	12,514	692	5.5		1,263	10.0	100.0
4	W. 1st Ave. Station → S. 1st Ave. Station	⊙ 6,283	355	5.7	17:00-18:00	261	12.1	92.0
	W. 1st Ave. Station ← S. 1st Ave. Station	⊙ 1,073	56	5.9		66	6.2	3.0
	TOTAL	7,356	411	6.1		827	11.2	100.0
5	W. 1st Ave. Station → S. 1st Ave. Station	⊙ 43,200	5,816	13.5	17:00-18:00	2,325	5.4	34.7
	W. 1st Ave. Station ← S. 1st Ave. Station	⊙ 48,758	5,473	11.2		4,378	8.9	65.3
	TOTAL	91,958	11,289	12.3		6,703	7.3	100.0
6	W. 1st Ave. Station → S. 1st Ave. Station	⊙ 37,454	5,213	13.9	7:00-8:00	2,285	6.1	35.4
	W. 1st Ave. Station ← S. 1st Ave. Station	⊙ 37,719	5,373	14.2		4,165	11.0	64.6
	TOTAL	75,173	10,586	14.1		6,450	8.6	100.0
7	W. 1st Ave. Station → S. 1st Ave. Station	⊙ 15,012	777	5.2	17:00-18:00	1,247	8.3	61.0
	W. 1st Ave. Station ← S. 1st Ave. Station	⊙ 11,917	769	6.5		797	6.7	39.0
	TOTAL	26,929	1,546	5.7		2,044	7.6	100.0
8	W. 1st Ave. Station → S. 1st Ave. Station	⊙ 5,841	1,504	25.7	17:00-18:00	560	9.9	56.0
	W. 1st Ave. Station ← S. 1st Ave. Station	⊙ 6,830	1,630	24.7		454	6.6	44.0
	TOTAL	12,671	3,134	25.2		1,014	8.2	100.0
9	W. 1st Ave. Station → S. 1st Ave. Station	⊙ 33,678	6,040	17.9	7:00-8:00	1,706	5.0	40.3
	W. 1st Ave. Station ← S. 1st Ave. Station	⊙ 33,402	6,054	18.1		2,526	7.6	59.7
	TOTAL	67,080	12,094	18.0		4,232	6.3	100.0
10	W. 1st Ave. Station → S. 1st Ave. Station	⊙ 15,621	1,432	9.2	16:00-17:00	653	5.6	41.9
	W. 1st Ave. Station ← S. 1st Ave. Station	⊙ 15,555	1,384	8.9		1,256	7.8	58.1
	TOTAL	31,176	2,816	9.0		2,075	6.7	100.0
11	W. 1st Ave. Station → S. 1st Ave. Station	⊙ 36,360	3,656	10.0	7:00-8:00	1,545	4.3	27.7
	W. 1st Ave. Station ← S. 1st Ave. Station	⊙ 37,662	3,753	10.0		4,034	10.7	72.3
	TOTAL	74,022	7,409	10.0		5,582	7.5	100.0
12	W. 1st Ave. Station → S. 1st Ave. Station	⊙ 35,863	4,090	11.4	7:00-8:00	1,518	4.2	35.1
	W. 1st Ave. Station ← S. 1st Ave. Station	⊙ 35,367	4,082	11.5		3,069	8.7	66.9
	TOTAL	71,230	8,172	11.5		4,587	6.4	100.0
13	W. 1st Ave. Station → S. 1st Ave. Station	⊙ 22,068	2,443	11.1	7:00-8:00	755	3.4	26.1
	W. 1st Ave. Station ← S. 1st Ave. Station	⊙ 24,556	3,132	12.6		2,143	8.6	73.9
	TOTAL	46,624	5,575	11.9		2,898	6.2	100.0
14	W. 1st Ave. Station → S. 1st Ave. Station	⊙ 18,000	4,375	24.3	10:00-11:00	1,253	7.0	47.3
	W. 1st Ave. Station ← S. 1st Ave. Station	⊙ 18,333	3,939	21.4		1,397	7.6	52.7
	TOTAL	36,333	8,314	22.8		2,650	7.3	100.0
15	W. 1st Ave. Station → S. 1st Ave. Station	⊙ 14,004	1,832	13.1	7:00-8:00	2,033	14.5	75.9
	W. 1st Ave. Station ← S. 1st Ave. Station	⊙ 13,799	2,052	14.9		659	4.8	24.5
	TOTAL	27,803	3,884	14.2		2,692	9.7	100.0
16	W. 1st Ave. Station → S. 1st Ave. Station	⊙ 11,233	2,064	18.4	17:00-18:00	1,232	11.0	62.5
	W. 1st Ave. Station ← S. 1st Ave. Station	⊙ 10,270	1,853	18.0		739	7.2	37.5
	TOTAL	21,503	3,917	18.1		1,971	9.2	100.0
17	W. 1st Ave. Station → S. 1st Ave. Station	⊙ 3,650	453	12.4	8:00-9:00	453	13.3	35.9
	W. 1st Ave. Station ← S. 1st Ave. Station	⊙ 3,937	439	11.0		358	9.2	43.1
	TOTAL	7,587	892	11.6		811	11.2	100.0
TOTAL	INBOUND	309,104	40,281	13.0	—	28,158	9.1	62.3
TOTAL	OUTBOUND	303,564	40,111	13.2	—	17,027	5.6	37.7
TOTAL	TOTAL	612,768	80,392	13.1	—	45,185	7.4	100.0
TOTAL	INBOUND	28,890	4,393	15.2	—	3,750	13.0	68.0
TOTAL	OUTBOUND	28,066	4,344	15.5	—	1,766	6.3	32.0
TOTAL	TOTAL	56,956	8,737	15.3	—	5,516	9.7	100.0
TOTAL	INBOUND	337,991	44,570	13.2	—	31,908	9.4	62.9
TOTAL	OUTBOUND	331,750	44,455	13.4	—	18,793	5.8	37.1
TOTAL	TOTAL	669,741	89,025	13.3	—	50,701	7.6	100.0

⊙ INBOUND
⊙ OUTBOUND

APPENDIX TABLE 4-6

TRAVEL SPEED SURVEY RESULTS, 1982

Road	Time	(km/hr)		
		Peak	Off Peak	Peak & Off Peak
1. Phahol Yothin Road		17.8	23.1	20.1
2. Petchaburi Road		23.4	29.5	26.1
3. Sukhumvit Road		18.2	17.1	17.6
4. Phet Kasem Road		15.5	13.2	14.3
Overall average		18.5	19.1	18.8

APPENDIX 4.1 HOME INTERVIEW SURVEY

(1) Blocks

Ten blocks were selected : 2 in the core area, 6 in urban area, and 2 in suburban area. Each block covers two Tambon areas. These blocks are shown in Appendix Table 4-7 and Appendix Fig. 4-6.

(2) Families

In each block, 225 families were selected. It was found that each Amphoe office had a file of registered households. However, it was not possible to use the file for random sampling method as stated previously. There was also a problem concerning household number and persons per household because the Team could not confirm them. (Appendix Tables 4-7 and 4-8). Accordingly, the samples were not expanded in this study. The selection of household was done by a supervisor who visited the block with the student interviewers.

(3) Questionnaire

The questionnaire concerning household and individuals covered the items as below :

Household — To give the information about their own age, sex, job and monthly income.

Individual — (more than 7 years old)

— To give the information about the trips of a designated weekday together with the purpose, trip modes, and origin-destination.

Questionnaire sheets for the family and an individual which were used in the home interview survey are shown in Appendix Table 4-9 and 4-10, respectively.

(4) Returns

The student interviewers visited the designated households and explained the purpose and content of the survey and asked to fill in the questionnaires. In a few days, they revisited the household in order to get these questionnaires. The return rate is shown in Appendix Table 4-11. Approximately 77% of the households were recovered.

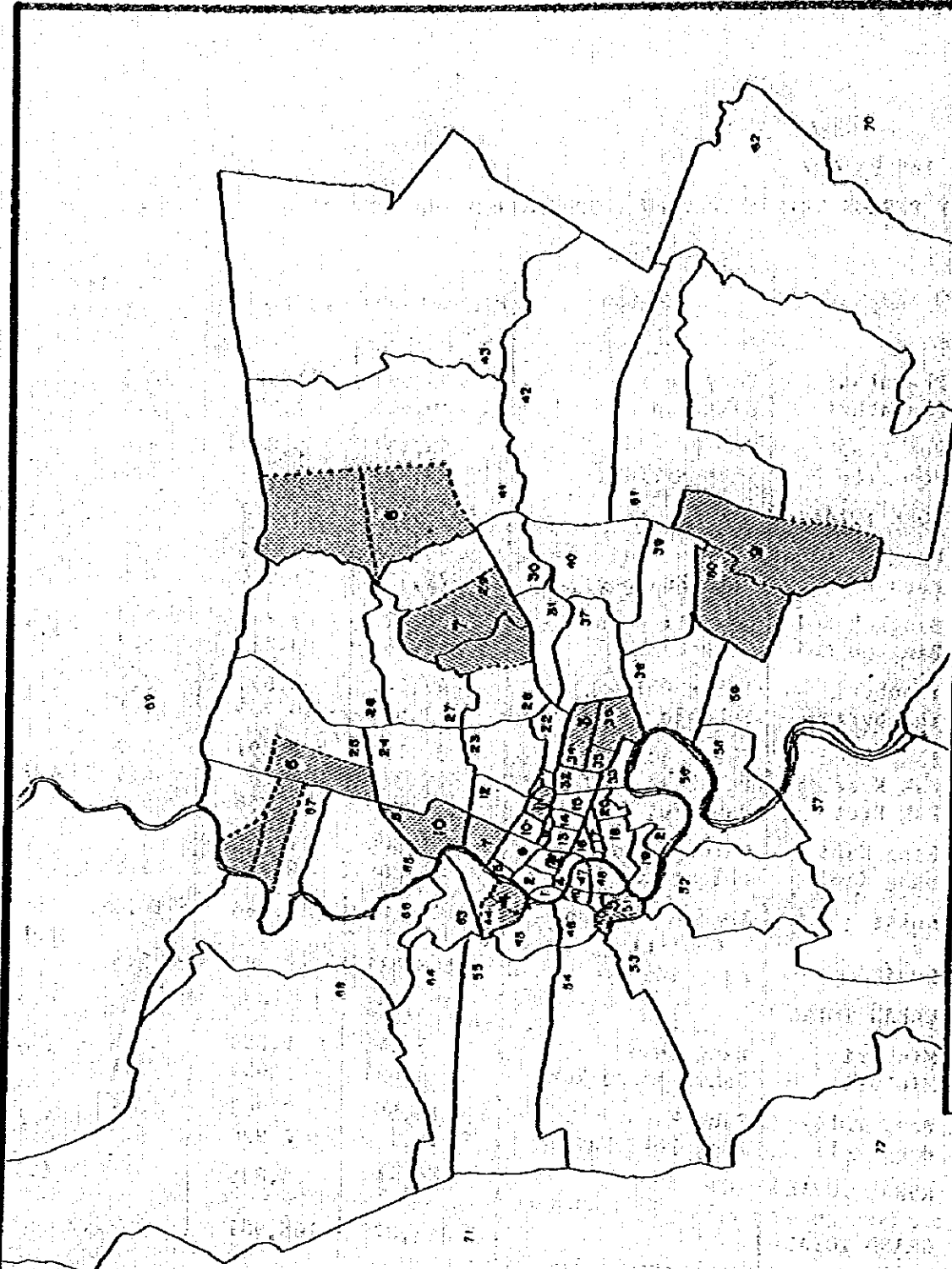
APPENDIX TABLE 4-7

BLOCKS OF PERSON TRIP INTERVIEW : POPULATION AND HOUSEHOLD

Block No.	Amphoe	Tam bon	Population	Households	Families (size)	
1.	Phayathai	Phayathai	245,993	11,921	20.6	13.4
	Phayathai	Makkasan	20,605	7,995	2.6	
2.	Pom Prap	Pom Prap	50,132	5,863	8.6	7.4
	Pom Prap	Thep Sirin	18,253	3,333	5.5	
	CORE TOTAL		334,983	29,112	-	8.1
3.	Phra Khanong	Khlong Tan	94,365	16,339	5.8	6.2
	Phra Khanong	Phra Khanong	79,255	11,954	6.6	
4.	Bangkok Noi	Bang Yi Khan	38,692	7,744	5.0	5.2
	Bangkok Noi	Bang Bamru	18,487	3,232	5.7	
5.	Thonburi	Talat Phlu	47,267	6,674	7.1	7.1
	Thonburi	Bukhalo	111,693	15,755	7.1	
6.	Bang Khen	Thung Song Hong	30,124	6,397	4.7	4.7
	Pak Kret	Pak Kret	12,324	2,782	4.4	
	Pak Kret	Bang Put	6,830	1,356	5.0	
7.	Bang Kapi	Khlong Chan	55,804	11,498	4.9	5.1
	Bang Kapi	Khlong Kum	46,268	8,322	5.6	
10.	Dusit	Thanon Nakhorn-Chaisri	124,105	11,688	10.6	7.1
	Dusit	Bang Sue	168,811	29,293	5.8	
	URBAN TOTAL		834,525	133,034	-	
8.	Minburi	Bang Chan	7,245	1,058	6.9	6.9
	Minburi	Samwa Tawan Tok	4,644	654	7.1	
9.	Bang Phli	Bang Kaeo	13,503	2,203	6.1	6.2
	Bang Phli	Bang Phli Yai	18,170	2,920	6.2	
	RURAL TOTAL		43,562	6,835	-	6.4
	GRAND TOTAL		1,213,070	168,981	7.2	

Sources : Each Amphoe Office, 1982. Figures are for May-June 1982

Notes : 1) Since the study team could not use the file in Amphoe Offices, the reasons of some deviated figures were not identified. It was said that two or three families registered as a unit of households even if they live separately.



APPENDIX
FIG. 4-6

BLOCKS OF PERSON-TRIP INTERVIEW
THE SECOND STAGE EXPRESSWAY SYSTEM IN THE GREATER BANGKOK

APPENDIX TABLE 4-8 HOUSEHOLD SIZE DISTRIBUTION

Persons per Household	Core	Urban	Rural	Total	%
1.	19	64	11	94	5.4
2.	23	120	44	187	10.8
3.	36	160	40	236	13.6
4.	49	180	59	294	17.0
5.	45	230	43	318	18.4
6.	37	135	40	212	12.2
7.	29	108	25	162	9.4
8.	19	50	16	85	4.9
9.	12	43	9	64	3.7
10.	12	38	10	60	3.5
11-15	2	12	5	19	1.1
TOTAL	283	1,146	302	1,731	100
Average ¹⁾	5.0	4.8	4.8	4.9	-

Remark : Some confused data were deleted

Note : 1) Average persons per family

APPENDIX TABLE 4-9 July, 1982
 HOME INTERVIEW SURVEY SHEET FOR HOUSEHOLD

Dear, all Bangkok's people :

This questionnaire you're holding was distributed by the Expressway and Rapid Transit Authority of Thailand. The purpose of this questionnaire are to collect the travelling data of the members in household located in various districts of Bangkok Metropolis. This will result to the important data for Bangkok transportation improvement planning project.

You and your household members are selected to answer this questionnaire by statistical sampling method. Confidentially, the Expressway and Rapid Transit Authority of Thailand will use the answers for transportation planning project only.

Please fill your complete answers and return this questionnaire to the students who will come and appraise you later on. If you have problem in filling the questionnaire, our students will help you appreciately.

Thank you very much for your highly cooperations.

The Expressway and Rapid Transit
 Authority of Thailand

Questionnaire No. 1 : For Head of Family

1. Residential Area

Name of Place Soi/Trok
 Road/Khlong Sub-district
 District Province

2. No. of all member in family persons.

No.	Male	Female	Age	Occupation				Income/ Month
				Government Officer	Employee	Merchant	Others	
1.								
2.								
3.								
4.								
5.								
6.								
7.								
8.								
9.								
10.								

3. Owns of Vehicles :

- Private Car
 - Motorcycle
 - Tricycle
 - Taxi
 - Light Truck 4-6 wheel
 - Boat

APPENDIX TABLE 4-10
HOME INTERVIEW SURVEY SHEET FOR INDIVIDUAL

Questionnaire No. 2 : For Household member age over 7 years.
 (Trip done by walking or bicycle not include)

1. Male Female Age Year
2. Did you make trip on yesterday? (Date) Counted from 0000-2400 hrs.
 Yes (Please continue No. 3 and 4)
 No (Please don't ask the rest question.)
3. For yesterday trip made.

<p style="text-align: center;">Origin</p> <p>Name of Place</p> <p>Soi or Trok</p> <p>Road or Khlong</p> <p>Sub-district</p> <p>District</p>	<p style="text-align: center;">Trip Purpose</p> <p><input type="checkbox"/> to work</p> <p><input type="checkbox"/> to school</p> <p><input type="checkbox"/> Business</p> <p><input type="checkbox"/> private matter</p> <p><input type="checkbox"/> go home</p>	<p style="text-align: center;">Vehicle use in this trip</p> <p><input type="checkbox"/> Private Car <input type="checkbox"/> Taxi</p> <p><input type="checkbox"/> Motorcycle <input type="checkbox"/> School Bus</p> <p><input type="checkbox"/> Tricycle <input type="checkbox"/> Truck</p> <p><input type="checkbox"/> Small-bus <input type="checkbox"/> Train</p> <p><input type="checkbox"/> Bus <input type="checkbox"/> Boat</p>
↓		
<p style="text-align: center;">Destination = Next Origin</p> <p>Name of Place</p> <p>Soi or Trok</p> <p>Road or Khlong</p> <p>Sub-district</p> <p>District</p>	<p style="text-align: center;">Trip Purpose</p> <p><input type="checkbox"/> to work</p> <p><input type="checkbox"/> to school</p> <p><input type="checkbox"/> Business</p> <p><input type="checkbox"/> private matter</p> <p><input type="checkbox"/> go home</p>	<p style="text-align: center;">Vehicle use in this trip</p> <p><input type="checkbox"/> Private Car <input type="checkbox"/> Taxi</p> <p><input type="checkbox"/> Motorcycle <input type="checkbox"/> School Bus</p> <p><input type="checkbox"/> Tricycle <input type="checkbox"/> Truck</p> <p><input type="checkbox"/> Small-bus <input type="checkbox"/> Train</p> <p><input type="checkbox"/> Bus <input type="checkbox"/> Boat</p>
↓		
<p style="text-align: center;">Destination = Next Origin</p> <p>Name of Place</p> <p>Soi or Trok</p> <p>Road or Khlong</p> <p>Sub-district</p> <p>District</p>	<p style="text-align: center;">Trip Purpose</p> <p><input type="checkbox"/> to work</p> <p><input type="checkbox"/> to school</p> <p><input type="checkbox"/> Business</p> <p><input type="checkbox"/> private matter</p> <p><input type="checkbox"/> go home</p>	<p style="text-align: center;">Vehicle use in this trip</p> <p><input type="checkbox"/> Private Car <input type="checkbox"/> Taxi</p> <p><input type="checkbox"/> Motorcycle <input type="checkbox"/> School Bus</p> <p><input type="checkbox"/> Tricycle <input type="checkbox"/> Truck</p> <p><input type="checkbox"/> Small-bus <input type="checkbox"/> Train</p> <p><input type="checkbox"/> Bus <input type="checkbox"/> Boat</p>
↓		
<p style="text-align: center;">Destination = Next Origin</p> <p>Name of Place</p> <p>Soi or Trok</p> <p>Road or Khlong</p> <p>Sub-district</p> <p>District</p>	<p style="text-align: center;">Trip Purpose</p> <p><input type="checkbox"/> to work</p> <p><input type="checkbox"/> to school</p> <p><input type="checkbox"/> Business</p> <p><input type="checkbox"/> private matter</p> <p><input type="checkbox"/> go home</p>	<p style="text-align: center;">Vehicle use in this trip</p> <p><input type="checkbox"/> Private Car <input type="checkbox"/> Taxi</p> <p><input type="checkbox"/> Motorcycle <input type="checkbox"/> School Bus</p> <p><input type="checkbox"/> Tricycle <input type="checkbox"/> Truck</p> <p><input type="checkbox"/> Small-bus <input type="checkbox"/> Train</p> <p><input type="checkbox"/> Bus <input type="checkbox"/> Boat</p>
↓		
<p style="text-align: center;">Destination = Next Origin</p> <p>Name of Place</p> <p>Soi or Trok</p> <p>Road or Khlong</p> <p>Sub-district</p> <p>District</p>	<p style="text-align: center;">Trip Purpose</p> <p><input type="checkbox"/> to work</p> <p><input type="checkbox"/> to school</p> <p><input type="checkbox"/> Business</p> <p><input type="checkbox"/> private matter</p> <p><input type="checkbox"/> go home</p>	<p style="text-align: center;">Vehicle use in this trip</p> <p><input type="checkbox"/> Private Car <input type="checkbox"/> Taxi</p> <p><input type="checkbox"/> Motorcycle <input type="checkbox"/> School Bus</p> <p><input type="checkbox"/> Tricycle <input type="checkbox"/> Truck</p> <p><input type="checkbox"/> Small-bus <input type="checkbox"/> Train</p> <p><input type="checkbox"/> Bus <input type="checkbox"/> Boat</p>

4. If you have done more than 4 lines as describe in Question No. 3 please tell that total of your trip was

APPENDIX TABLE 4-11 INTERVIEWED HOUSEHOLDS

Block	Amphoe	Interviewed	Returned	Return Rate %
1	Phaya Thai	225	182	80.9
2	Pom Prap	225	152	67.6
3	Phra Khanong	225	161	71.6
4	Bangkok Noi	225	190	84.4
5	Thonburi	225	160	71.1
6	Pak Kret	225	176	78.2
7	Bang Kapi	225	175	77.8
8	Minburi	225	184	81.8
9	Bang Phli	225	180	80.0
10	Dusit	225	171	76.0
	TOTAL	2,250	1,731	76.9

Remarks : In each block the supervisor determined to select the interviewing households, with an intension not to concentrate in specific area or class.

APPENDIX TABLE 4-12
SUMMARY FIGURES OF TRIPS

A. PERSONS

Items	Moved persons, more than 7 years old	Not moved persons, more than 7 years old	Total persons, more than 7 years old	Persons, less than 6 years old	Total persons, all ages
Men	2,167	1,081	3,248	1,151	3,961
Women	1,701	1,432	3,133	1,139	3,854
Unknown	53	26	79	-	79
TOTAL	3,921	2,539	6,460	2,290	7,894

B. TRIPS AND TRIP RATE

Items	Total Trips	Trips/person
Men	5,851	1.48
Women	4,517	1.17
Unknown	131	1.66
TOTAL	10,499	1.33

APPENDIX TABLE 4-13

TOTAL TRIPS BY BLOCK

Block	Not moved persons	Moved Persons	Total aged 7 years~	Total persons 0 years~	Total trips	Trip rate per person
1.	214	365	579	708	957	1.35
2.	227	276	503	614	762	1.24
3.	194	252	446	545	676	1.24
4.	240	403	643	786	1,054	1.34
5.	66	112	178	218	297	1.36
6.	218	446	664	811	1,177	1.45
7.	255	466	721	881	1,248	1.42
8.	258	377	635	776	984	1.27
9.	279	244	523	639	703	1.10
10.	210	459	669	817	1,226	1.50
-	378	521	899	1,099	1,413	1.29
TOTAL	2,539	3,921	6,460	7,894	10,499	1.33

APPENDIX TABLE 4-14

TRANSPORT MEANS AND TRIP PURPOSES.

	To Work	To School	Business	Private	Go Home	Total ¹⁾	
A Private means							
1. Car	464	242	178	282	687	1853	(21.7)
2. MC	149	30	94	82	198	(65.8)	(6.4)
3. Smlor	7	13	10	20	26	(19.6)	(0.9)
4. Taxi	10	4	11	20	26	(2.7)	(0.8)
5. School Bus	6	100	1	1	93	(7.1)	(2.3)
6. Truck	5	1	26	8	25	(2.3)	(0.8)
Total	641	390	320	413	1055	2819	
	(22.7)	(13.8)	(11.4)	(14.7)	(37.4)	(100.0)	(32.9) ²⁾
	(34.8)	(24.9)	(61.8)	(38.9)	(29.5)		
B Public means							
1. S Bus	148	108	22	66	188	532	(6.2)
2. H Bus	1033	1057	176	577	2299	(9.3)	(60.1)
3. Train	7	5	0	3	10	(89.6)	(0.3)
4. Boat	15	9	0	3	15	(0.0)	(0.5)
						42	(0.1)
Total	1203	1179	198	649	2512	5741	
	(21.0)	(20.5)	(3.4)	(11.3)	(43.8)	(100.0)	(67.1) ²⁾
	(65.2)	(75.1)	(38.2)	(61.1)	(70.5)		
(Total¹⁾	1844	1569	518	1062	3567	8560	
	(21.5)	(18.3)	(6.1)	(12.4)	(41.7)	(100.0)	(100.0)
	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)	

Notes : 1) No answers were deleted.

2) If school bus, truck and boat are not included the share is 31% and 69%, respectively.

APPENDIX TABLE 4-15

MONTHLY FAMILY INCOME AND VEHICLE OWNERSHIP

Income ('000)	1.0	3.1	5.1	7.1	9.1	11.1	16.1	21.1	31.1	51.1	Total	Monthly Average B
	-	-	-	-	-	-	-	-	-	-		
A) Households No.												
1. With C	28	38	38	42	46	64	46	33	16	8	359	13,724
2. With C & MC	4	12	6	12	11	9	11	7	5	5	82	15,951
3. = 1. + 2.	32	50	44	54	57	73	57	40	21	13	441	14,138
4. With MC	37	41	32	22	13	15	-	2	-	1	163	6,331
5. None	176	140	100	64	39	35	11	4	2	-	571	5,583
6. Total	245	231	176	140	109	123	68	46	23	14	1,175	8,898
B) Percent distribution in income class												
1. With C	7.8	10.6	10.6	11.7	12.8	17.8	12.8	9.2	4.5	2.2	100	
2. With C & MC	4.9	14.6	7.3	14.6	13.5	11.0	13.4	8.5	6.1	6.1	100	
3. = 1. + 2.	7.3	11.3	10.0	12.2	12.9	16.6	12.9	9.1	4.8	2.9	100	
4. With MC	22.7	25.2	19.6	13.5	8.0	9.2	-	1.2	-	0.6	100	
5. None	30.9	24.5	17.5	11.2	6.8	6.1	1.9	0.7	0.4	-	100	
6. Total	20.8	19.7	15.0	11.9	9.3	10.5	5.8	3.9	2.0	1.1	100	
C) Percent distribution in car ownership												
1. With C	11	16	22	30	42	52	68	72	70	57	30	
2. With C & MC	2	5	3	9	10	7	16	15	22	36	7	
3. = 1. + 2.	13	21	25	39	52	59	84	87	92	93	37	
4. With MC	15	18	18	15	12	12	-	4	-	7	14	
5. None	72	61	57	46	36	28	16	9	8	-	49	
6. Total	100	100	100	100	100	100	100	100	100	100	100	

Remarks : No answers were deleted. Income was in net income.
C : car and MC : motorcycle

APPENDIX TABLE 4-16

MONTHLY INCOME PER INCOME EARNERS AND VEHICLE OWNERSHIP

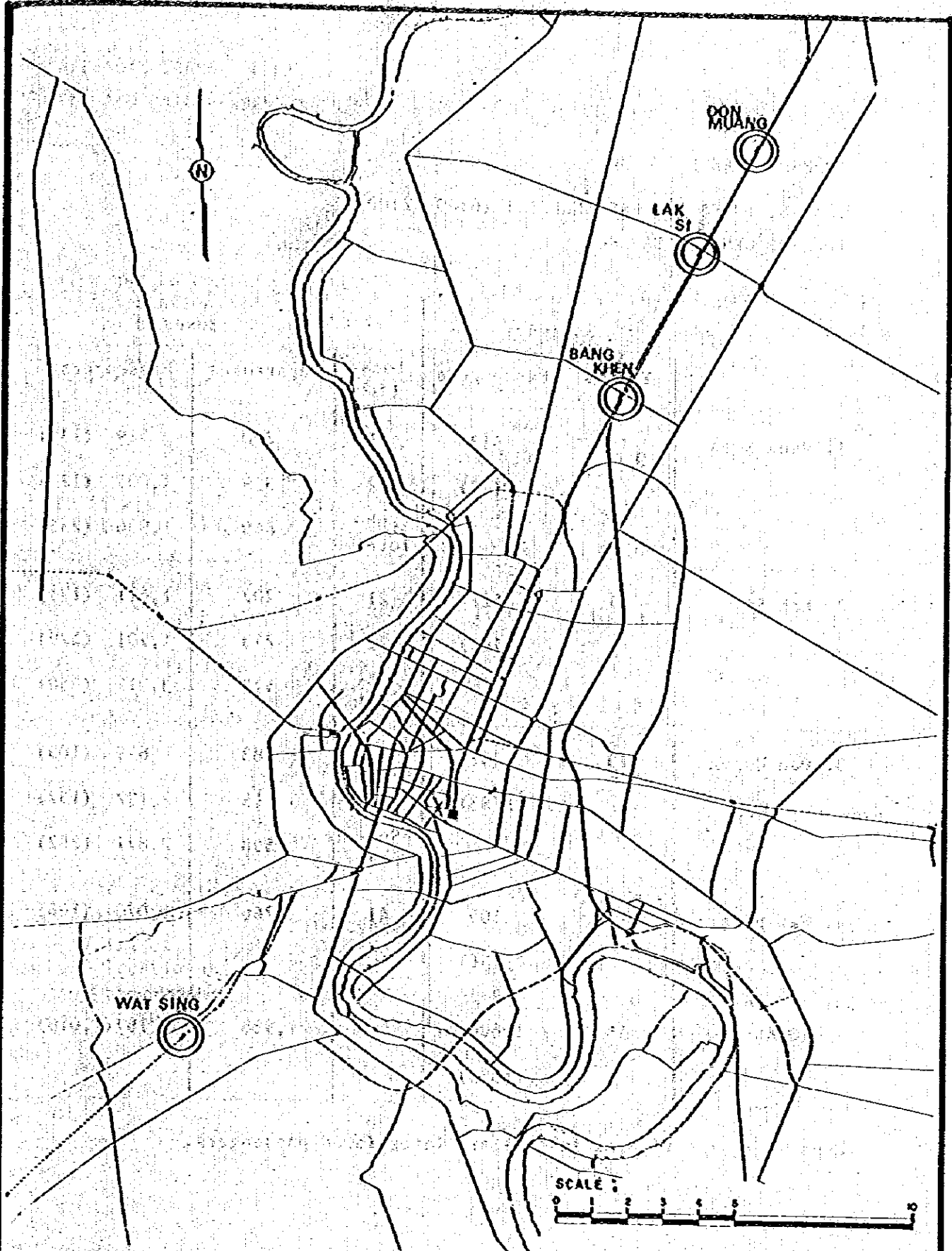
Income ('000)	1.0	3.1	5.1	7.1	9.1	11.1	16.1	21.1	31.1	51.1	Total	Monthly Average B
	3.0	5.0	7.0	9.0	11.0	16.0	21.0	31.0	51.0			
A) Persons												
1. With car	241	256	123	60	59	29	19	10	2	8	807	5,897
2. With C & MC	91	83	19	11	13	2	5	1	0	4	229	5,179
3. = 1. + 2.	332	339	142	71	72	31	24	11	2	12	1,036	5,738
4. With MC	243	63	16	9	2	1	1	0	0	1	336	2,668
5. None	874	228	52	6	10	7	3	0	1	0	1,181	2,450
6. Total	1,449	630	210	86	84	39	28	11	3	13	2,553	3,824
B) Percent distribution in income classes												
1. With car	29.9	31.7	15.2	7.4	7.3	3.6	2.4	1.2	0.3	1.0	100	
2. With C & MC	39.7	36.3	8.3	4.8	5.7	0.9	2.2	0.4	0.0	1.7	100	
3. = 1. + 2.	32.0	32.7	13.7	6.9	6.9	3.0	2.3	1.1	0.2	1.2	100	
4. With MC	72.2	18.3	4.8	2.7	0.6	0.3	0.3	-	-	0.3	100	
5. None	74.0	19.3	4.4	0.5	0.8	0.6	0.3	-	0.1	-	100	
6. Total	56.5	24.7	8.2	3.4	3.4	1.5	1.1	0.6	0.1	0.5	100	
C) Percent distribution in car ownership												
1. With car	16.6	40.6	58.6	69.8	70.2	74.4	67.9	90.9	66.7	61.5	31.6	
2. With C & MC	6.3	13.2	9.0	12.8	15.5	5.1	17.9	9.1	-	30.8	9.0	
3. = 1. + 2.	22.9	53.8	67.6	82.6	85.7	79.5	85.8	100	66.7	92.3	40.6	
4. With MC	16.8	10.0	7.6	10.5	2.4	2.6	3.6	-	-	7.7	13.2	
5. None	60.3	36.2	24.8	6.9	11.9	17.9	10.6	-	33.3	-	46.2	
6. Total	100	100	100	100	100	100	100	100	100	100	100	

Remarks : No answers were deleted

APPENDIX TABLE 4-17
INCOME RAISING PERSONS PER FAMILY

Persons 1)	1	2	3	4	5	6	7	8	9	10	Tot. 3)	Average
C 1) Car	18	29	25	17	10	5	2	0	2	0	108	3.06
2) CAMC	7	11	4	9	3	2	1	0	0	0	37	3.00
3) MC	9	8	8	6	2	0	1	1	0	0	35	2.80
4) None	27	31	15	8	7	1	0	0	1	2	92	2.57
5) Total	61	79	52	40	22	8	4	1	3	2	272	2.85
U 1) Car	53	143	77	38	28	13	10	3	3	1	369	2.90
2) CAMC	12	25	9	14	11	7	4	3	1	0	86	3.52
3) MC	24	50	26	21	15	2	6	2	0	3	149	3.09
4) None	138	215	108	63	54	27	8	4	6	2	625	2.78
5) Total	227	493	220	136	108	49	28	12	10	6	1229	2.91
R 1) Car	6	14	3	3	2	0	1	0	1	0	30	2.70
2) CAMC	0	2	0	0	0	0	0	0	0	0	2	2.00
3) MC	5	8	4	5	4	3	2	0	0	0	31	3.39
4) None	29	37	16	13	8	3	6	3	0	0	115	2.84
5) Total	40	61	23	21	14	6	9	3	1	0	178	2.90
T 1) Car	77	186	105	58	40	18	13	3	6	1	507	2.93
2) CAMC	19	38	13	23	14	9	5	3	1	0	125	3.34
3) MC	38	66	38	32	21	5	9	3	0	3	215	3.09
4) None	194	283	139	84	69	31	14	7	7	4	832	2.77
5) Total	328	573	295	197	144	63	41	16	14	8	1679	2.90

Notes: 1) Income raising persons per family.
2) C: core blocks, U: urban blocks, R: rural blocks, T: Total.
3) Incomplete data were deleted.



APPENDIX
FIG. 4 - 7

BUS AND RAIL PASSENGER INTERVIEW LOCATIONS

THE SECOND STAGE EXPRESSWAY SYSTEM IN THE GREATER BANGKOK

APPENDIX TABLE 4-18

TRAINS, BUSES AND PASSENGERS : (6:00-12:00)
TOWARDS CENTRAL BANGKOK

	Railways		Buses		
	Trains	Passengers	Location	Departures	Passengers
1. Bang Khen	13	613	11	290	929 (133)
		(77)	12	359	1,005 (123)
			Sub- Total	649	1,934 (256)
2. Lak Si	11	522	21	202	1,611 (171)
		(162)	22	273	1,701 (179)
			Sub- Total	475	3,312 (350)
3. Don Muang	13	362	31	183	679 (105)
		(83)	32	415	2,192 (157)
			Sub- Total	598	2,871 (262)
4. Wat Sing	9	109 (56)	41	266	1,070 (148)
TOTAL	46	1,606 (378)		1,988	9,187(1,016)

Remarks : The figures in () are interviewed passengers.

APPENDIX TABLE 4-19

BUS AND RAIL PASSENGER INTERVIEW (SELECTED RESULTS)

		Railways		Buses	
		Passengers	%	Passengers	%
1. Means to Coming the Station and the Stop Total of 4 locations	By buses	1,187	73.9	5,390	58.8
	By cars	106	6.6	78	0.8
	By walk	296	18.4	3,491	38.0
	By train	-	-	181	2.0
	By others	17	1.1	49	0.4
	Total	1,606	100.0	9,187	100.0
2. Ticket Classification Total of 4 locations	Daily	872	55.0	9,045	98.8
	Monthly	714	45.0	113	1.2
	Other	20	-	29	-
	Total	1,606	100.0	9,187	100.0
3. Trip Purposes Total of 4 locations	To work	886	55.1	3,408	37.2
	To school	629	39.2	3,317	36.2
	To home	6	0.4	526	5.7
	On business	68	4.2	1,663	18.1
	Others	17	1.1	273	2.8
	Total	1,606	100.0	9,187	100.0
4. Car and Motor- cycle Ownership Total of 4 locations	Car	288	17.9	1,281	13.9
	Motorcycle	90	5.6	150	1.6
	None	1,229	76.5	7,755	84.5
	Total	1,606	100.0	9,187	100.0

APPENDIX TABLE 4-20
REGISTERED VEHICLES IN GBA, 1978-1981

		Bangkok	Nonthaburi	Samut Prakan	Total
Private Cars	1978	248,846	7,858	5,488	262,192
	1979	268,882	7,909	6,346	283,137
	1980	297,807	12,602	5,270	315,679
	1981	331,793	10,986	7,957	350,726
Taxis & Smlors	1978	21,292	229	78	21,599
	1979	21,299	237	61	21,597
	1980	21,410	281	45	21,736
	1981	21,410	375	41	21,826
Total Cars	1978	270,138	8,087	5,566	283,791
	1979	290,181	8,146	6,407	304,734
	1980	319,217	12,883	5,315	337,415
	1981	353,203	11,361	7,988	372,552
Motorcycles	1978	149,078	1,732	4,531	155,341
	1979	146,473	2,014	5,093	153,580
	1980	172,008	2,895	5,309	180,212
	1981	289,702 ³⁾	3,984	7,482	301,168
Small Trucks	1978	66,152	b 1)	2,933	69,085
	1979	37,931	2,833	3,283	44,097
	1980	55,377	642	689	56,708
	1981	63,984	1,751	2,509	68,244
Large Trucks	1978	-	b 1)	2)	-
	1979	23,300	b	-	23,300
	1980	30,646	b	1,576	32,222
	1981	30,051	3,028	2,391	35,470
Total Trucks	1978	66,152	b	2,933	69,085
	1979	61,231	2,833	3,283	67,397
	1980	86,023	642	2,265	88,930
	1981	94,035	4,779	4,900	103,714
Buses	1978	7,065	b 1)	2)	7,065
	1979	7,896	b	-	7,896
	1980	8,223	b	322	8,545
	1981	18,359 ³⁾	245	416	19,020

Sources : Cars, taxis and smlors, motorcycles and small trucks - Bangkok Vehicle Registration Section and Provincial Vehicle Registration Section in Vehicle Registration Division, Police Department, July 1982

Large trucks and buses - Statistics Section and Provincial Land Transport Offices in Nonthaburi, Samut Prakan, Land Transport Department, July 1982

Remarks : - Private cars including tax exempted cars but not including diplomatic cars
- Taxis, inter city taxis, specific taxis and smlors
- Motorcycles including tax exempted and side unit motorcycle
- Small trucks less than 1,600 kg vehicle weight including tax exempted trucks
- Large trucks more than 1,600 kg vehicle weight including trailers and tax exempted trucks
- Buses include regular, charter, private and truck-buses

Notes : 1) "b" : vehicles are included in the Bangkok figures

2) - : unknown

3) Provisional

Due to changes in registration from Police Department to DLT in 1979, it appears the figures in buses and trucks are provisional.

APPENDIX 4.2 NUMBER OF PERSON TRIPS

The PVT/PT rate in 1982 shown in 2 of Table 4-3 was calculated based on the number of registered vehicles as follows :

In this calculation, the number of trips per vehicle was assumed to decrease a little from the 1972 BTS result, and the passenger occupancy rate per vehicle was changed with the surveyed figures of this study. The number of person trips is calculated by vehicle through the following formula :

$$P = N \times B \times T \times O$$

- where P : number of person trips (trips/day)
 N : number of vehicles registered (vehicles)
 B : working efficiency (percent)
 T : number of trips (trips/day)
 O : number of persons on one vehicle (persons/vehicle)

Applying the existing number of vehicles to the formula, the number of person trips by PVT and PT is calculated as follows :

PVT :	Passenger car	:	$380,300 \times 0.90 \times 3.5 \times 1.65 = 1,977,000$
	Taxi	:	$22,000 \times 0.95 \times 28 \times 1.58 = 925,000$
	Motorcycle	:	$218,000 \times 1.00 \times 3.5 \times 1.24 = 946,000$
			TOTAL 3,848,000 (41%)
PT :	BMTA bus	:	$5,574 \times 0.73 \times 10 \times 2.0^* \times 47 = 3,825,000$
	Mini bus	:	$2,410 \times 0.73 \times 10 \times 1.4 \times 20 = 493,000$
	Mini soi bus	:	$2,500 \times 0.73 \times 10 \times 1.4 \times 10 = 256,500$
	Sight-seeing bus	:	$1,640 \times 0.90 \times 7 \times 1.0 \times 40 = 414,000$
	Other bus	:	$7,890 \times 0.90 \times 3 \times 1.0 \times 40 = 852,000$
			TOTAL 5,614,000 (59%)
			TOTAL (PVT + PT) 9,462,000 (100%)

* Average turn ratio of users of the bus

The above figures of 41% and 59% are considered not appropriate by studying other informations (See Table 4-3). The percentages used for 1982 are shown in Fig. 11-4 and Table 5-7.

