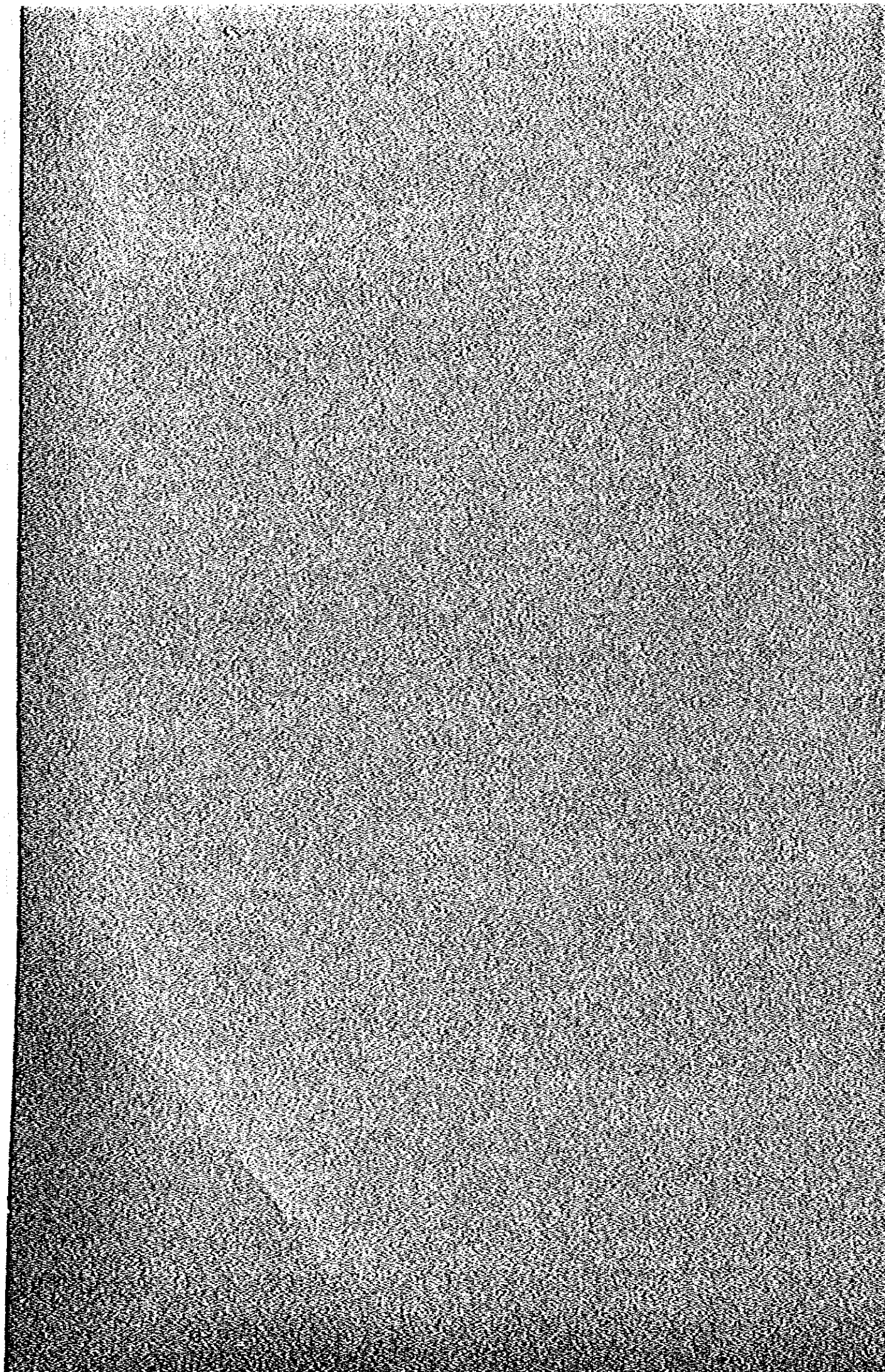


APPENDICES TO CHAPTER 3



LAND USE AREAS BY ZONE, 1980

(In ha)

Zone No.	High Density Residential	Residential Area	Commercial Area	Industrial Area	Government Institution Utility Facility	Religious Area	Agricultural Belt	Others	Total
1.		1.2	11.2		7.3	1.2		143.8	164.7
2.		34.5	129.0	0.8	115.7	33.5		3.4	316.9
3.	17.6		140.7	0.5	16.7	17.6			193.1
4.			96.4		7.8	10.8		98.6	213.6
5.			3.5	12.5	51.2	3.8		36.4	107.4
6.		47.5	12.5		242.5	2.8		125.9	431.2
7.		122.5	30.0	25.0	295.0	7.5		47.2	527.2
8.		537.5	62.5	200.0	45.0		150.0	160.5	1,155.5
9.	68.7	15.8	2.5		4.8				91.8
10.	49.2	22.4	31.3		131.9	4.4			239.2
11.		59.7	107.5	0.5	66.2	1.2		115.2	350.3
12.	20.0	9.0	125.0		270.0	7.5		488.7	920.2
13.	12.5	7.5	112.5		37.5	5.0		95.3	270.3
14.		5.0	37.5		77.5	7.5		90.6	218.1
15.	37.5	25.0	30.0		67.5			188.5	348.5
16.	7.5		122.5		19.0	3.0		112.2	264.2
17.		50.0	80.0		6.3	2.5		150.6	289.4
18.	155.0	25.0	32.5	45.2	24.0	31.2	6.0	439.6	758.5
19.	5.0	157.5	7.5	10.0	7.2	10.0	212.0	452.9	862.1

(In ha)

Zone No.	High Density Residential	Residential Area	Commercial Area	Industrial Area	Government Institution Utility Facility	Religious Area	Agricultural Belt	Others	Total
20.		87.5	12.5		80.0			224.1	404.1
21.	22.5	347.5	37.5	40.0	7.0	5.0	386.0	820.7	1,666.2
22.		130.0	87.5		0.5	0.4	94.0	258.0	570.4
23.		519.6	10.0				279.0	998.2	1,806.8
24.		1,950.0	115.0	15.0	675.0			535.8	3,290.8
25.		1,027.5	35.0	40.0	448.8		2,656.0	1,771.6	5,978.9
26.		1,002.5	51.5	7.5	784.5	23.8	4,156.0	1,635.5	7,661.3
27.		659.2	25.0	3.2	19.4	6.2	1,550.0	784.6	3,047.6
28.		2,409.5	86.3	8.0	11.9		390.0	338.6	3,244.3
29.		1,310.0	42.5	64.0	45.0	5.8	3,300.0	540.8	5,308.1
30.		145.0		1.2	0.8		1,250.0	285.2	1,632.2
31.			55.0	28.8	29.0	1.5	500.0	1,031.8	1,646.1
32.-33.	80.0	312.5	75.0	75.0	14.0	2.5		228.8	787.8
34.-35.	20.1	587.5	72.5	15.0	10.0			128.1	833.2
36.	21.4	461.8	85.9	21.4	28.1	6.4		36.5	661.5
37.		350.0	32.5	7.5	12.5	15.0	725.0	811.4	1,953.9
38.	13.0	712.5	58.8	245.0	127.5	10.5	425.0	3,000.0	4,592.3

3-1-2

(In ha)

Zone No.	High Density Residential	Residential Area	Commercial Area	Industrial Area	Government Institution Utility Facility	Religious Area	Agricultural Belt	Others	Total
39.		250.0	3.0	11.8	9.5		1,750.0	718.0	2,742.3
40.		218.4	1.1	4.2	34.8		2,450.0	76.3	2,784.8
41.		1,215.2	6.5	42.5	17.6	3.4	16,144.0	4.0	17,433.2
42.		396.0	4.1	40.7	44.6	5.4	11,828.0	67.1	12,385.9
43.		277.7		5.4	5.8	2.6	23,333.0	1.6	23,626.1
44.	10.9	746.6	71.1	5.5	28.0	26.8	222.0	167.9	1,278.8
45.	70.7	303.1	47.4	4.1	100.6	17.3	212.0	296.3	1,051.5
46.	362.5	112.5	61.2	15.0	33.3	30.7		2.8	618.0
47.	73.8		30.0	2.5	18.8	7.2		72.1	204.4
48.	262.5		37.8	18.1	5.5	10.7		66.1	400.7
49.	85.0		14.0		19.3	18.0		11.3	147.6
50.	115.0	5.5	25.0	6.2	5.2	14.0		163.7	334.6
51.	241.2	41.0	43.4	8.2	22.4	9.7		14.5	380.4
52.		446.2	71.3	126.6	45.0	10.9	3,537.0	50.4	4,287.4
53.	57.5	440.5	56.0	87.8	123.3	19.5	14,564.0	2,767.0	18,115.6
54.		966.2	48.2	70.7	358.0	15.8	8,757.0	7.1	10,223.0
55.		39.3	1.1	1.2	1.1	6.1	7,921.0		7,969.8
BKK	1,809.1	18,590.9	2,578.3	1,316.6	4,659.9	424.7	106,797.0	20,665.3	156,841.8

3-1-3

(In ha)

Zone No.	High Density Residential	Residential Area	Commercial Area	Industrial Area	Government Institution Utility Facility	Religious Area	Agricultural Belt	Others	Total
56.		369.5	26.5	136.5	36.0	35.8	2,505.0	976.7	4,086.0
57.	2.5	227.5	20.0	160.0	330.3	15.5	9,318.0	16.2	10,090.0
58.		355.0	20.5	401.3	28.8	20.3	575.0	1,071.1	2,472.0
59.	112.5	1,445.5	80.3	480.5	227.8	75.1	12,053.0	3,617.3	18,092.0
60.		43.8	20.0	7.5	8.0	1.2	24,044.0	993.5	25,118.0
61.		49.9					8,046.0	240.1	8,336.0
62.		187.0	22.5	23.8	35.8	20.8	22,083.0	527.1	22,900.0
Samut prakan	115.0	2,678.2	189.8	1,209.6	666.7	168.7	78,624.0	7,442.0	91,094.0
63.		172.5	2.5	0.4	5.0	10.0	1,114.0	74.6	1,379.0
64.							4,641.0	28.0	4,669.0
65.		1,112.5	32.5	50.0	115.0	30.0	2,417.0	93.0	3,850.0
66.	0.5	132.5		7.5	14.2	11.5	7,999.0	73.8	8,239.0
67.		400.0	25.0	35.0	171.0	12.5	3,836.0	24.5	4,504.0
68.		287.5	5.5	2.8	9.8	1.4	42,513.0		42,820.0
Non thaburi	0.5	2,105.0	65.5	95.7	315.0	65.4	62,520.0	293.9	65,461.0
GSA.	1.924.6	23,374.1	2,833.6	2,621.9	5,641.6	658.8	247,941.0	28,401.2	313,396.8

Source : TCP, 1982

3-1-4

APPENDIX TABLE 3-2

LAND USE AREAS BY ZONE, 2000

(In ha)

Zone No.	High Density Residential	Medium Density Residential	Low Density Residential	Commercial Area	Industrial Area	Government Institution Utility Facility	Religious Area	Park Open Space	Agricultural Belt	Rural Area	Satellite Town	Total
1.						12.9	62.5	89.3				164.7
2.				25.0		127.0	52.5	112.4				316.9
3.				135.5		14.3	2.5	40.8				193.1
4.				116.6		37.9	5.0	54.1				213.6
5.							41.4	66.0				107.4
6.						192.3		238.9				431.2
7.						229.7	10.0	287.5				527.2
8.		280.5	400.0			55.0	20.0	400.0				1,155.5
9.				51.8				40.0				91.8
10.				33.7		180.5		25.0				239.2
11.				104.2		118.4		127.7				350.3
12.	460.2					190.0	10.0	260.0				920.2
13.				132.8		30.0		107.5				270.3
14.				48.1		100.0	7.5	62.5				218.1
15.				193.5		80.0		75.0				348.5
16.				172.8	5.0		2.5	83.9				264.2
17.				284.4		5.0						289.4
18.	345.3	280.0					40.0	93.2				758.5
19.		732.1						130.0				862.1

(In ha)

Zone No.	High Density Residential	Medium Density Residential	Low Density Residential	Commercial Area	Industrial Area	Government Utility Facility	Religious Area	Park Open Space	Agricultural Belt	Rural Area	Satellite Town	Total
20.	314.1					90.0						404.1
21.	488.4	367.8		160.0				650.0				1,666.2
22.		107.9		37.5		25.0		400.0				570.4
23.	304.4	689.9		42.5		70.0		700.0				1,806.8
24.		1,361.3		660.0		525.0		744.5				3,290.8
25.			2,716.4			1,076.0		1,691.5	495.0			5,978.9
26.			1,126.4			496.0	35.0	2,378.5	3,625.4			7,661.3
27.		137.5	1,339.9	130.5		10.7	8.2	1,420.8				3,047.6
28.		407.0	1,714.3	338.5			1.7	782.8				3,244.3
29.			1,825.0				64.1	1,934.0	1,485.0			5,308.1
30.								524.7	1,157.5			1,682.2
31.		139.5	315.0	62.5		44.1		702.5	382.5			1,646.1
32.-33.	212.8			200.0		125.0		250.0				787.8
34.-35.	251.9	265.0		75.0		12.5		228.8				833.2
36.		347.1		157.2		13.8	5.9	137.5				661.5
37.			703.9					1,250.0				1,953.9
38.		187.0	2,136.4					1,705.0	563.9			4,592.3

3-2-2

(In ha)

Zone No.	High Density Residential	Medium Density Residential	Low Density Residential	Commercial Area	Industrial Area	Government Institution Utility Facility	Religious Area	Park Open Space	Agricultural Belt	Rural Area	Satellite Town	Total
39.			942.3					1,275.0	525.0			2,742.3
40.			384.8					525.0	1,875.0			2,784.8
41.					226.9	65.5	15.7	1,351.5	14,952.8		820.8	17,433.2
42.					843.0	50.0	31.4	1,052.5	4,203.8	5,531.5	673.7	12,385.9
43.								250.0		22,801.9	574.2	23,626.1
44.	132.1		481.7	140.0			75.2	281.5	168.3			1,278.8
45.	194.0		160.2			97.6	25.0	331.5	243.2			1,051.5
46.	277.0		190.0				10.0	141.0				618.0
47.	80.0					9.5	5.0	109.9				204.4
48.	279.5							121.2				400.7
49.				69.5			10.0	68.1				147.6
50.		74.8	63.0	89.9			10.0	96.9				334.6
51.		167.5		61.2		27.2	31.4	93.1				380.4
52.			1,000.0		452.0			230.0	2,605.4			4,287.4
53.			1,057.5			30.0		902.2	16,125.9			18,115.6
54.			644.9					824.9	7,169.6		1,583.6	10,223.0
55.			300.0					509.5	7,160.3			7,969.8
BKK	3,339.7	5,544.9	17,501.7	3,522.7	1,526.9	4,140.9	582.5	25,958.2	62,738.6	28,333.4	3,652.3	156,841.8

3-2-3

(In ha)

Zone No.	High Density Residential	Medium Density Residential	Low Density Residential	Commercial Area	Industrial Area	Government Utility Facility	Religious Area	Park Open Space	Agricultural Belt	Rural Area	Satellite Town	Total
56.					191.5		33.8	1,248.8	2,611.9			4,086.0
57.			162.5			275.0		1,138.5	8,514.0			10,090.0
58.		17.5	137.5		562.5		22.5	1,112.0	620.0			2,472.0
59.		1,383.5	2,340.0	294.1	50.0	85.0	132.5	2,957.4	10,849.5			18,092.0
60.								1,526.0	14,177.4	7,851.0	1,563.6	25,118.0
61.						3,759.0		212.5	2,567.5	1,797.0		8,336.0
62.			855.0					1,446.0	936.0	19,663.0		22,900.0
Samut prakan		1,401.0	3,495.0	294.1	804.0	4,119.0	188.8	9,641.2	40,276.3	29,311.0	1,563.6	91,094.0
63.						33.0	25.0	410.0	911.0			1,379.0
64.							7.5	622.5	4,039.0			4,669.0
65.			2,134.5	125.0		172.0	15.5	551.5	851.5			3,850.0
66.			743.0			5.0	22.5	2,269.5	5,199.0			8,239.0
67.			290.5	68.0		214.7	15.0	1,296.5	2,619.3			4,504.0
68.			317.0	100.0		5.0	5.0	3,626.0	16,554.5	22,015.0	197.5	42,820.0
Nontha buri			3,485.0	293.0		429.7	90.5	8,776.0	30,174.3	22,015.0	197.5	65,461.0
GBA.	3,339.7	6,945.9	24,481.7	4,109.8	2,330.9	8,689.6	861.8	44,375.4	133,189.2	79,659.4	5,413.4	313,396.8

Source : TCP in 1982

APPENDIX TABLE 3-3
POPULATION FORECAST

A. POPULATION BY REGION

(In thousand)

Year	1965	1970	1975	1980	1985	1990	1995	2000
Whole-Kingdom	30,568	36,370	41,388	46,455	51,301	55,345	59,580	62,868
Central	5,565	6,319	7,379	8,500	9,588	10,547	11,570	11,966
East	1,841	2,114	2,447	2,891	3,477	4,110	4,849	5,790
West	2,569	2,778	3,021	3,210	3,329	3,385	3,441	3,592
North-East	10,217	12,755	14,606	16,433	18,122	19,453	20,801	21,700
North	6,616	7,894	8,795	9,667	10,449	11,048	11,650	12,222
South	3,760	4,510	5,140	5,754	6,336	6,802	7,269	7,598

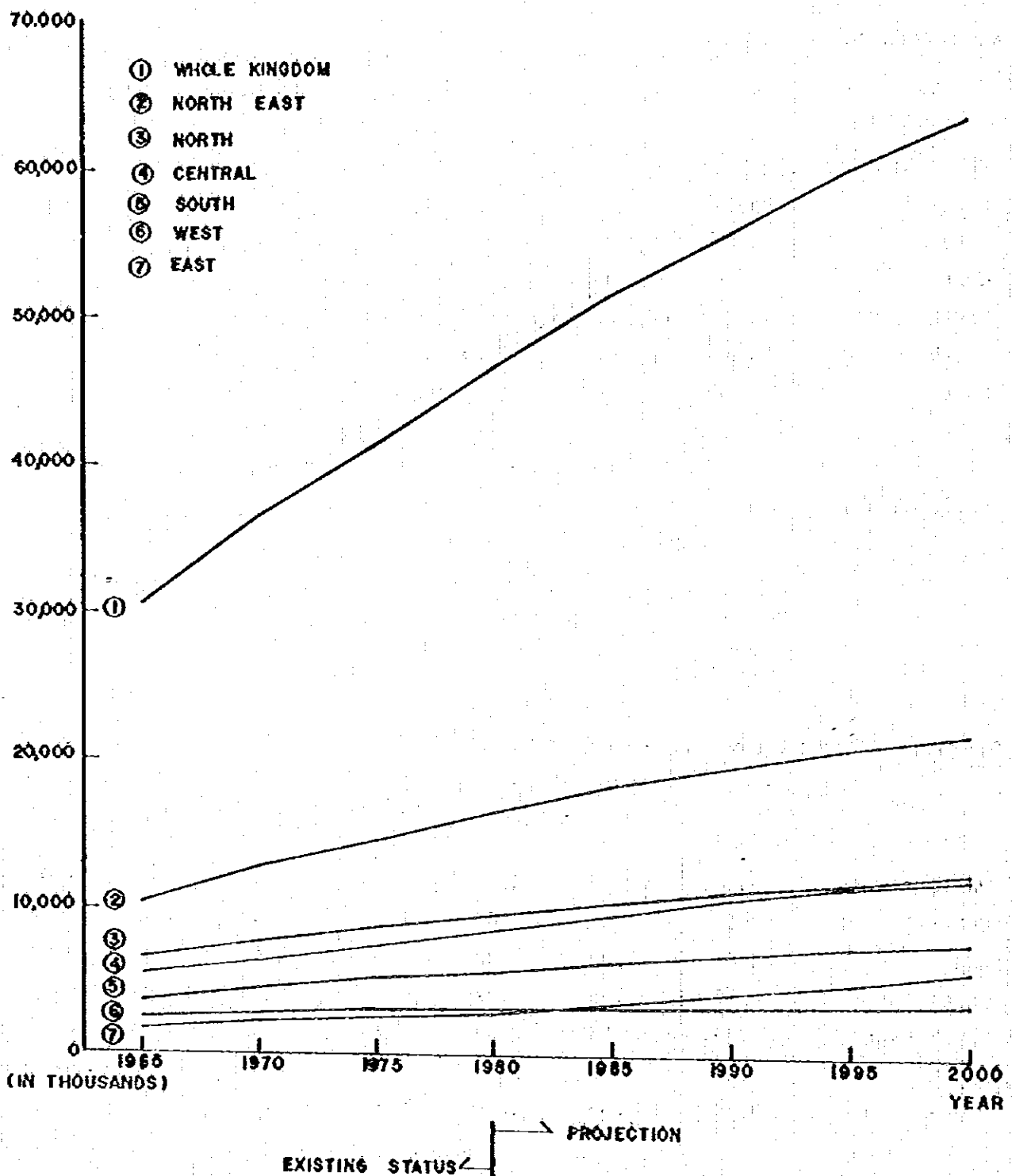
Source : TCP, 1982

B. AVERAGE POPULATION GROWTH RATE BY REGION

(In thousand)

Year	1965- 1970	1970- 1975	1975- 1980	1980- 1985	1985- 1990	1990- 1995	1995- 2000
Whole-Kingdom	3.54	2.62	2.34	2.00	1.53	1.49	1.08
Central	2.57	3.15	2.87	2.44	1.92	1.87	0.68
East	2.80	2.97	3.39	3.76	3.40	3.36	3.61
West	1.58	1.69	1.22	0.73	0.33	0.33	0.86
North-East	4.54	2.75	2.39	1.98	1.43	1.35	0.85
North	3.60	2.19	1.91	1.57	1.12	1.07	0.96
South	3.70	2.65	2.28	1.95	1.43	1.34	0.89

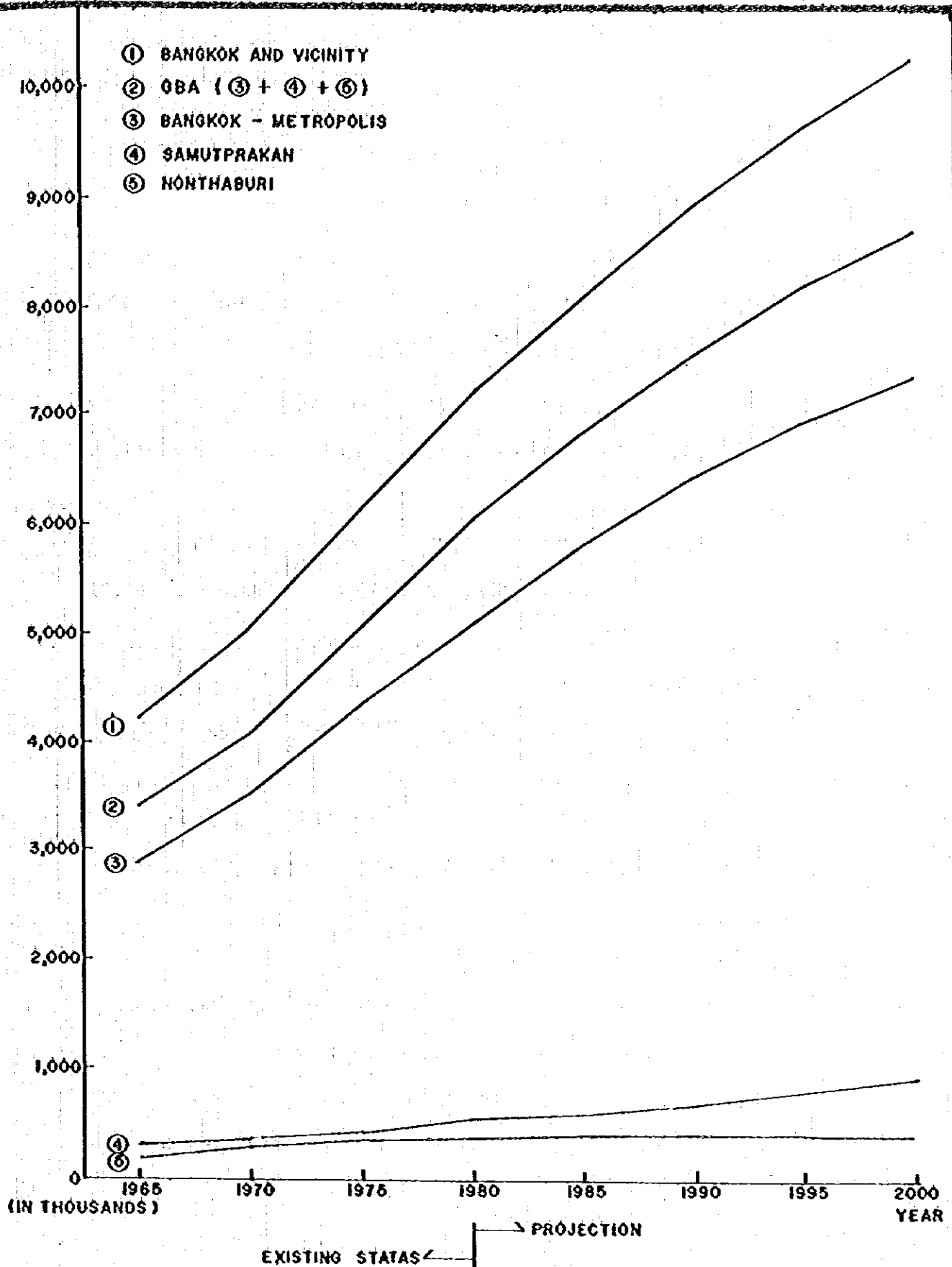
Source : TCP, 1982



APPENDIX
FIG. 3 - I

POPULATION BY REGION

THE SECOND STAGE EXPRESSWAY SYSTEM IN THE GREATER BANGKOK



APPENDIX
FIG. 3-2

POPULATION IN THE GBA

THE SECOND STAGE EXPRESSWAY SYSTEM IN THE GREATER BANGKOK

APPENDIX TABLE 3-4 HOUSEHOLDS AND HOUSEHOLD SIZE

	1976	1977	1978	1979	1980	1981
Bangkok	7.04 646,013	6.87 691,550	6.71 725,918	6.46 774,082	6.28 821,299	6.26 851,290
Samut Prakan	6.82 65,761	6.90 67,473	6.74 72,487	6.54 78,199	6.45 83,039	6.25 89,214
Nonthaburi	6.92 50,270	6.80 52,307	6.47 55,941	6.50 57,389	6.45 59,951	6.43 62,783
Total	7.01 762,044	6.86 811,330	6.70 854,348	6.47 909,670	6.30 964,289	6.29 1,003,287

Source : Administration & Registration Div. of BMA, Samut Prakan and Nonthaburi, respectively.

Remarks : Upper line is for average number of persons in a household and lower line for the total household number.

EMPLOYED PERSONS BY INDUSTRY IN THE WHOLE KINGDOM

(In thousand)

	1976		1977		1978		1979		1980	
		%		%		%		%		%
1. Agriculture, Fishing and Forestry Hunting	5,773.6 (0.3)	(60.0)	6,104.0 (0.4)	(57.4)	6,291.9 (0.2)	(56.6)	6,301.0 (0.3)	(54.2)	6,333.8 (0.3)	(52.8)
2. Mining and Quarrying	26.1 (0.3)		47.1 (0.4)		17.0 (0.2)		38.0 (0.3)		32.6 (0.3)	
3. Manufacturing	1,023.1 (10.6)	(13.3)	1,128.6 (10.6)	(14.1)	1,270.3 (11.4)	(14.3)	1,514.2 (13.0)	(16.7)	1,565.4 (13.1)	(16.9)
4. Construction, Repair and Demolition	232.2 (2.4)		327.4 (3.1)		307.9 (2.8)		398.3 (3.4)		427.0 (3.6)	
5. Electricity, Gas, Water and Sanitary Services	44.6 (0.5)		48.5 (0.5)		58.2 (0.5)		53.9 (0.5)		59.9 (0.5)	
6. Commerce	942.6 (9.8)		1,164.4 (11.0)		1,164.1 (10.4)		1,247.8 (10.7)		1,375.2 (11.5)	
7. Transport, Storage and Communication	318.3 (3.3)	(26.7)	367.6 (3.5)	(28.4)	375.6 (3.4)	(29.2)	414.4 (3.6)	(29.1)	445.9 (3.7)	(30.3)
8. Services	1,269.8 (13.2)		1,443.0 (13.6)		1,655.7 (14.9)		1,668.1 (14.3)		1,746.6 (14.6)	
9. Activities not adequately described	-		0.7 (0.0)		-		-		0.5 (0.0)	
10. Total ¹⁾	9,630.3 (100.0)	(100.0)	10,631.3 (100.0)	(100.0)	11,140.7 (100.0)	(100.0)	11,635.7 (100.0)	(100.0)	11,986.3 (100.0)	(100.0)
11. Total including unpaid family workers	18,410.9 (42.6)		20,308.1 (45.9)	(45.9)	21,738.1 (48.1)	(48.1)	21,229.5 (46.0)	(46.0)	22,523.9 (48.0)	(48.0)
12. Population	43,213.7 (100.0)	(100.0)	44,272.7 (100.0)	(100.0)	45,221.6 (100.0)	(100.0)	46,113.8 (100.0)	(100.0)	46,961.3 (100.0)	(100.0)
13. Employment Rate (10/12)		(22.3)		(24.0)		(24.6)		(25.2)		(25.5)

Source : NSQ, Reports of the Labour Force Survey Round 2, 1976-1980, respectively.

Note : 1) Excluding unpaid family workers.

APPENDIX TABLE 3-6

EMPLOYED PERSONS BY INDUSTRY IN CENTRAL REGION¹⁾

(In thousand)

	1976		1977		1978		1979		1980	
		%		%		%		%		%
1. Agriculture, Fishing and Forestry Hunting	1,183.1	(54.9)	1,223.2	(51.1)	1,321.4	(52.3)	1,182.2	(45.7)	1,220.3	(46.4)
2. Mining and Quarrying	9.6 (0.4)		11.2 (0.5)		1.0 (0.0)		5.3 (0.2)		10.0 (0.4)	
3. Manufacturing	264.7 (12.3)	(15.4)	305.2 (12.8)	(17.8)	323.6 (12.8)	(16.5)	480.5 (18.6)	(23.2)	440.4 (16.8)	(22.2)
4. Construction, Repair and Demolition	58.2 (2.7)		108.3 (4.5)		91.9 (3.6)		114.2 (4.4)		131.2 (5.0)	
5. Electricity, Gas, Water and Sanitary Services	9.5 (0.4)		12.3 (0.5)		13.8 (0.5)		7.8 (0.3)		13.9 (0.5)	
6. Commerce	210.6 (9.8)		278.6 (11.6)		238.5 (9.4)		260.6 (10.1)		296.9 (11.3)	
7. Transport, Storage and Communication	84.8 (3.9)	(29.6)	102.1 (4.3)	(31.1)	85.7 (3.4)	(31.2)	120.3 (4.6)	(31.1)	115.1 (4.4)	(31.4)
8. Services	332.7 (15.5)		350.6 (14.7)		449.0 (17.8)		417.4 (16.1)		399.8 (15.2)	
9. Activities not adequately described	-		-		-		-		-	
10. Total ²⁾	2,153.2	(100.0)	2,391.5	(100.0)	2,524.9	(100.0)	2,588.3	(100.0)	2,627.6	(100.0)
11. Total including unpaid family workers	3,893.0	(40.0)	4,271.7	(42.9)	4,418.2	(43.5)	4,206.6	(40.6)	4,433.4	(42.2)
12. Population	9,730.1	(100.0)	9,964.2	(100.0)	10,163.9	(100.0)	10,367.1	(100.0)	10,508.3	(100.0)
13. Employment Rate (10/12)		(22.1)		(24.0)		(24.8)		(25.0)		(25.0)

EMPLOYED PERSONS BY INDUSTRY IN BANGKOK

	1976		1977		1978		1979		1980	
		%		%		%		%		%
1. Agriculture, Fishing and Forestry Hunting	69.0	(5.5)	78.2	(4.9)	106.0	(5.9)	88.4	(4.7)	75.7	(3.8)
2. Mining and Quarrying	0.6	(0.0)	1.0	(0.1)	1.1	(0.1)	1.2	(0.1)	0.5	(0.0)
3. Manufacturing	337.6	(31.8)	423.0	(31.6)	558.7	(35.7)	554.5	(35.2)	593.4	(35.2)
4. Construction, Repair and Demolition	59.0	(4.7)	80.4	(5.4)	85.4	(4.7)	103.8	(5.5)	108.8	(5.5)
5. Electricity, Gas, Water and Sanitary Services	22.1	(1.6)	21.4	(1.4)	20.9	(1.2)	25.7	(1.4)	25.1	(1.3)
6. Commerce	313.8	(25.1)	405.6	(27.1)	441.6	(24.4)	455.5	(24.3)	497.9	(25.0)
7. Transport, Storage and Communication	87.6	(62.7)	111.7	(63.5)	116.1	(58.5)	128.1	(60.1)	126.0	(61.0)
8. Services	361.3	(28.9)	474.4	(31.7)	478.2	(26.4)	515.0	(27.5)	566.3	(28.4)
9. Activities not adequately described	0.0	(0.0)	0.1	(0.0)	0.0	(0.0)	0.0	(0.0)	0.4	(0.0)
10. Total ¹⁾	1,251.0	(100.0)	1,595.8	(100.0)	1,808.0	(100.0)	1,872.2	(100.0)	1,994.1	(100.0)
11. Total including unpaid family workers	1,449.3	(31.9)	1,934.4	(40.6)	2,138.9	(43.9)	2,194.7	(43.9)	2,330.6	(45.2)
12. Population	4,545.6	(100.0)	4,742.8	(100.0)	4,870.5	(100.0)	4,999.5	(100.0)	5,153.9	(100.0)
13. Employment Rate (10/12)		(27.5)		(33.6)		(37.1)		(37.4)		(38.7)

Source : NSO, Report of the Labour Force Survey Round 2, 1976-1980, respectively

Note : 1) Excluding unpaid family worker.

APPENDIX TABLE 3-8

EMPLOYED PERSONS IN THE GBA, 1982

(In thousand)

	Employed Persons at Residential Places			Employed Persons at Work Places		
Bangkok Metropolis	2,128.6 (39.0%)	A 1)	75.7 (3.6%)	2,148.4 (100.9%)	A	75.7 (3.5%)
		B 2)	2,052.9 (96.4%)		B	2,072.7 (96.5%)
Nonthaburi	101.5 (25.0%)	A	44.3 (43.6%)	96.3 (94.9%)	A	44.3 (46.0%)
		B	57.2 (56.4%)		B	52.0 (54.0%)
Samut Prakan	170.4 (30.0%)	A	55.8 (32.7%)	166.3 (97.6%)	A	55.8 (33.6%)
		B	114.6 (67.3%)		B	110.5 (66.4%)
Total-Area	2,400.5 (37.3%)	A	175.8 (7.3%)	2,411.0 (100.0%)	A	175.8 (7.3%)
		B	2,224.7 (92.7%)		B	2,235.2 (92.7%)

Source : Estimated by the Team

Remarks : () percent in the population

(()) a ratio of those at work places/residential places

- 1) A is agriculture and others in the primary sector. The persons in 1982 were assumed to be equal to those in 1980. Those in 2000 were estimated by the average area per employed person of the sector in 1980 and the agricultural area approximated by studying the new Structural Plan 2000.
- 2) B is other sectors excluding A above. The ratio of employed persons at work places over those at residential places in 2000 was assumed to be equal to that in 1980 (excluding agriculture and others in the primary sector)

APPENDIX TABLE 3-9

EMPLOYED PERSONS IN THE GBA, 2000

(In thousand)

	Employed Persons at Residential Places		Employed Persons at Work Places		
Bangkok Metropolis	3,034.4 (41.2%)	A	64.6 (2.1%)	A	64.6 (2.1%)
		B	2,969.8 (97.9%)	B	2,998.4 (97.9%)
Nonthaburi	112.9 (26.5%)	A	37.0 (32.8%)	A	37.0 (34.9%)
		B	75.9 (67.2%)	B	69.0 (65.1%)
Samut Prakan	317.0 (33.9%)	A	49.4 (15.6%)	A	49.4 (16.1%)
		B	267.6 (84.4%)	B	258.0 (83.9%)
Total Area	3,464.3 (39.7%)	A	151.0 (4.4%)	A	151.0 (4.3%)
		B	3,313.3 (95.6%)	B	3,325.4 (95.7%)

Source and Notes : See Appendix Table 3-8

APPENDIX TABLE 3-10 POPULATION AND EMPLOYED PERSONS BY ZONE 1982 AND 2000

Zone No.	Zone Name	Area (ha)	1982			2000		
			Residential Population	Population Density (persons/Ha)	Employed Persons at Work Places	Residential Population	Population Density (Persons/Ha)	Employed Persons at Work Places
1.		165	9,260	56	30,730	12,850	78	30,730
2.		317	89,250	282	154,580	123,820	391	154,580
3.		193	188,500	977	175,370	235,760	1,222	175,370
4.		214	98,780	462	158,190	131,870	616	158,190
5.		107	140,280	1,311	6,710	140,280	1,311	6,710
6.		431	102,490	238	14,260	174,240	404	14,260
7.		527	123,070	234	23,910	200,660	381	23,910
8.		1,156	167,490	145	31,340	347,490	301	31,340
9.		92	42,540	462	16,860	64,200	698	31,710
10.		239	247,370	1,035	36,430	247,370	1,035	36,430
11.		351	49,400	141	53,230	74,560	212	62,910
12.		920	186,210	202	56,890	281,070	306	61,470
13.		270	90,750	336	55,260	111,950	415	80,530
14.		218	129,130	592	28,360	159,270	731	30,920
15.		349	16,630	48	68,620	20,510	59	115,150
16.		264	60,500	229	91,170	74,260	281	103,840
17.		289	80,760	279	162,360	99,120	343	170,280
18.		759	169,270	223	46,180	169,270	223	62,960
19.		862	98,260	114	14,690	98,260	114	47,040
20.		404	40,100	99	15,530	63,460	157	40,060
21.		1,666	82,480	50	44,560	155,620	93	109,750
22.		570	25,140	44	49,890	36,750	64	49,890
23.		1,807	190,940	106	9,020	266,250	147	99,480
24.		3,291	169,330	51	79,410	246,730	75	186,250
25.		5,979	116,490	19	16,030	190,180	32	54,180
26.		7,661	147,210	19	17,280	178,370	23	22,480
27.		3,048	66,590	22	6,010	113,810	37	50,460
28.		3,244	120,240	37	27,810	179,480	55	104,880
29.		5,308	58,830	11	10,570	122,580	23	31,140
30.		1,682	15,180	9	1,740	15,180	9	1,740
31.		1,646	32,020	19	25,400	47,090	29	25,400
32.		413	50,080	121	34,650	50,080	121	4,650
33.		375	48,120	128	47,850	48,120	128	47,850
34.		627	74,870	119	20,280	96,130	153	38,290

Zone No.	Zone Name	Area (ha)	1982			2000		
			Residential Population	Population Density (persons/Ha)	Employed Persons at Work Places	Residential Population	Population Density (Persons/Ha)	Employed Persons at Work Places
35.	Bangkok	203	22,370	110	11,910	28,710	141	22,480
36.		662	81,380	123	31,730	81,380	123	46,090
37.		1,954	67,390	34	4,350	67,400	34	11,920
38.		4,592	151,090	33	55,800	205,350	45	55,800
39.		2,742	29,660	11	7,070	86,600	32	16,270
40.		2,785	37,910	14	2,750	45,420	16	7,810
41.		17,433	60,560	3	16,170	88,230	5	33,450
42.		12,386	45,960	4	18,380	60,980	5	54,670
43.		23,625	53,210	2	18,300	66,800	3	24,180
44.		1,279	142,580	111	33,340	189,090	148	75,530
45.		1,052	252,630	240	17,870	288,910	275	30,880
46.		618	104,720	169	20,980	134,710	218	39,470
47.		204	65,770	322	20,060	65,770	322	20,060
48.		401	72,690	181	16,640	125,060	312	36,600
49.		148	53,330	360	10,210	61,930	418	25,030
50.		335	107,150	320	22,110	144,030	430	38,920
51.		380	112,730	297	17,080	170,180	448	34,200
52.		4,287	125,410	29	57,240	190,530	44	57,240
53.		18,116	222,630	12	54,010	281,350	16	54,010
54.		10,223	247,520	24	73,010	309,330	30	73,010
55.		7,970	73,720	9	8,220	96,630	12	10,550
		156,842	5,457,970	35	2,148,400	7,365,030	47	3,063,000
56.		4,086	91,740	22	14,370	190,150	47	14,370
57.		10,090	53,050	5	23,880	78,280	8	23,880
58.		2,472	57,110	23	19,070	145,600	59	29,630
59.		18,092	215,210	12	61,900	430,350	24	165,290
60.		25,118	68,160	3	18,720	58,080	2	36,360
61.		8,336	16,320	2	6,920	12,640	2	12,260
62.		22,900	66,440	3	21,440	20,390	1	25,560
	Samut Prakan	91,094	568,030	6	166,300	935,490	10	307,350
63.		1,379	28,510	21	4,380	13,320	10	4,380

Zone No.	Zone Name	Area (ha)	1982			2000		
			Residential Population	Population Density (persons/Ha)	Employed Persons at Work Places	Residential Population	Population Density (Persons/Ha)	Employed Persons at Work Places
64.		4,669	26,980	6	3,800	26,980	6	3,800
65.		3,850	138,880	36	27,970	193,390	50	32,400
66.		8,239	57,060	7	8,790	86,650	11	8,790
67.		4,504	50,010	11	15,060	50,010	11	15,060
68.		42,820	104,410	2	36,300	55,190	1	41,580
	Nonthaburi	65,461	405,850	6	96,300	425,540	7	106,010
	The GBA	313,397	6,431,850	21	2,411,000	8,726,060	28	3,476,360

APPENDIX 3.1 POPULATION AND EMPLOYMENT IN THE GBA AND THE ZONES

3.1.1 Population

TCP provided Tambon-wise population forecast for 1986, which was used for the 5th 5-Year Plan. Using the data together with the population in 1980, the annual average growth rate from 1980 to 1986 in each Tambon is calculated. It is used to determine the population in 1982 which in turn is reclassified into the population of traffic zones. The zonal population in 1982 is shown in Appendix Table 3-10.

The population forecast by Amphoe in 2000 was provided by TCP likewise. The zones designated as the core district were assumed not to change its percent share to the population of the total zones. The percent shares of these zones in 1982 were used to estimate those in 2000.

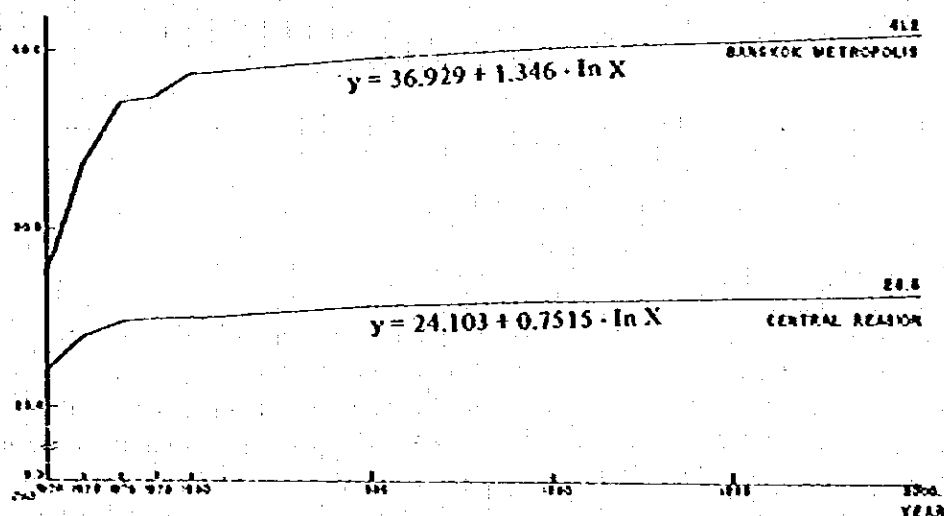
In the zones outside the core area, different population density was assumed for each unit area of classified land uses. They were determined by studying the available data. The assumed densities are shown in Appendix Table 3-11. These densities, classified areas (Appendix Table 3-2) and Amphoe-wise population in 2000 were used to determine the zonal population in 2000. The resultant population figures are shown in Appendix Table 3-10. Figs. 3-4 and 3-5 of the main report indicate the population density by zone in 1982 and 2000, respectively.

3.1.2 Employed Persons

(1) Workers at Residential Places

In order to distribute the employment figures among the zones in 2000, for following forecasts were undertaken: firstly, those in residential places were determined for Bangkok, Nonthaburi and Samut Prakan by using the forecasted trends in Bangkok and Central Region.

- Bangkok; A regression analysis and its extrapolation were applied as in Appendix Fig. 3-3. The parameters were estimated as follows:



Appendix Fig. 3-3 PROJECTION OF EMPLOYMENT RATE

APPENDIX TABLE 3-11 POPULATION DENSITY BY LAND UTILIZATION, 2000

	(Persons/ha)		
	Inner Urban District	Suburban District	Rural District
Residential High Density	800	240	-
Residential Medium	400	120	-
Residential Low	200	60	40
Commercial	400	120	80
Industrial	200	60	40
Government Institutes Utilities	50	10	5
Religions	50	10	5
Park & Open	50	10	1
Agricultural Belt & Rural	10	5	1
Satellite Town	-	120	80

Central Region

$$Y = 24.103 + 0.7515 \ln X ; (r = 0.949)$$

Bangkok

$$Y = 36.929 + 1.346 \ln X ; (r = 0.879)$$

where Y : Employed persons living
X : Years in number : 1977 = 0, 1978 = 1, etc.
r : Relative coefficient

- Nonthaburi; The percent share of employed persons to the population of the Central Region was considered applicable to the Nonthaburi case by reviewing the data in the period of 1976-1980.
- Samut Prakan; The percent share of employed persons to the population in 2000 was assumed at the midpoint between the Central Region and the Metropolis after reviewing the data in the period of 1976-1980.

These results are shown in Appendix Tables 3-8 and 3-9. Appendix Fig. 3-3 presents the forecasted long range trends of the percent share of employment to the population of Bangkok and Central Region.

(2) Workers at Work Places

Secondly, the number of employed persons at work places was estimated by adding net inflow workers from the outside of Bangkok Metropolis since major work opportunities for them would be given in the Metropolis. In order to determine the net inflow workers, traffic counting data of DOH on the roads crossing the boundary and the passenger statistics of railways were studied likewise. Those at work places in the GBA were estimated at 2.41 million in 1982 and 3.48 million in 2000, as shown in

Appendix Tables 3-8 and 3-9. These overall employment opportunities were divided into major categories of industries. In the agriculture sector, employed persons were determined by the unit figure of 1.41 ha per worker (0.71 persons per ha), which was taken from the classified land area of Bangkok in 1980 (Table 3-1) and from the labour statistics of 1980.

By deducting the workers in agriculture from the total workers in each province, those in the secondary and tertiary workers could be estimated. They are shown in Appendix Table 3-12.

(3) Zonal Employment at Work Place in 1982

Zonal distribution of workers at work place in 1982 was estimated by the classified areas in ha (Appendix Table 3-1) and the Tambon-wise result of labour survey in 1978¹⁾

The surveys indicated that a half of government officers were within the Pranakorn District in 1978. The same percentage was used for 1982. The remaining half was assumed to be distributed among the zones in proportion to that of population in 1982.

The workers except the government officers were assumed to be located among the zones at the same percentage with that of 1978. The workers in agriculture was estimated by using 1.41 ha per person.

(4) Zonal Employment at Work Place in 2000

The classified areas in ha (Appendix Table 3-2) and unit figures in the following statement were used to estimate the workers at work places by zone in 2000.

- Agriculture; Area in ha and 0.71 persons per ha were applied. (same as in 1982)
- Manufacturing; Employees in the manufacturing industry were determined at 200 m² per worker for 2000 by reviewing the plans of three industrial estates (Bang Chan, Lat Krabang and Bang Poo). The figure was assumed to cover those in the secondary and service sectors on the classified land use.
- Service Sectors; Employed persons in commercial areas for 2000 were determined by applying the figures in Appendix Table 3-13 to the area classified. They were assumed empirically and by field observation.

APPENDIX TABLE 3-12 EMPLOYMENT AT WORK PLACES IN
MAJOR INDUSTRIES : 2000

('000)			
Item	Agriculture	Secondary & Tertiary	Total
Bangkok	64.6	2,998.4	3,063.0
Samut Prakan	49.4	258.0	307.4
Nonthaburi	37.0	69.0	106.0
Total	151.0	3,325.4	3,476.4

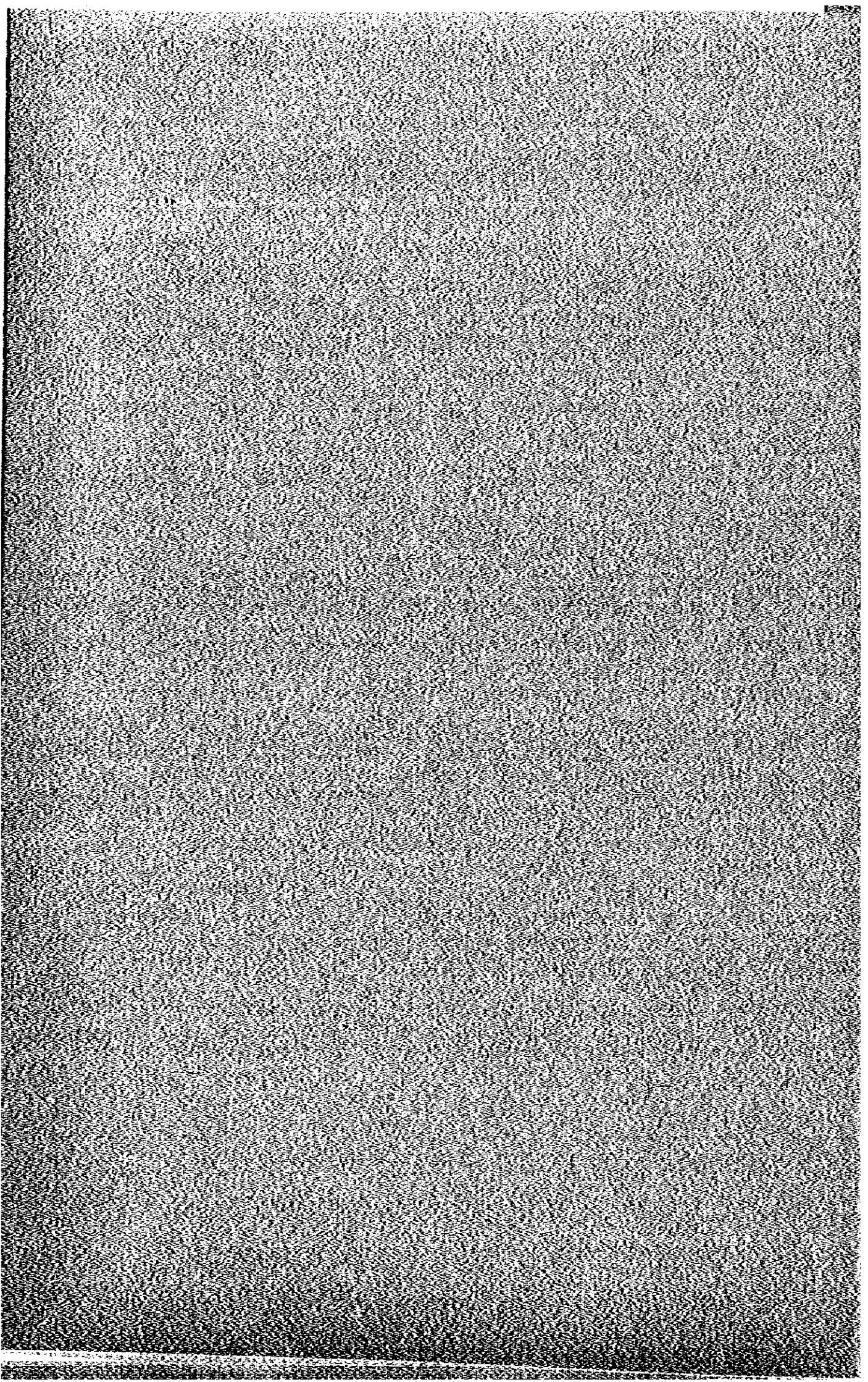
1) Tech. Planning Div. Labor Dept., Industrial Labor Survey 1978.

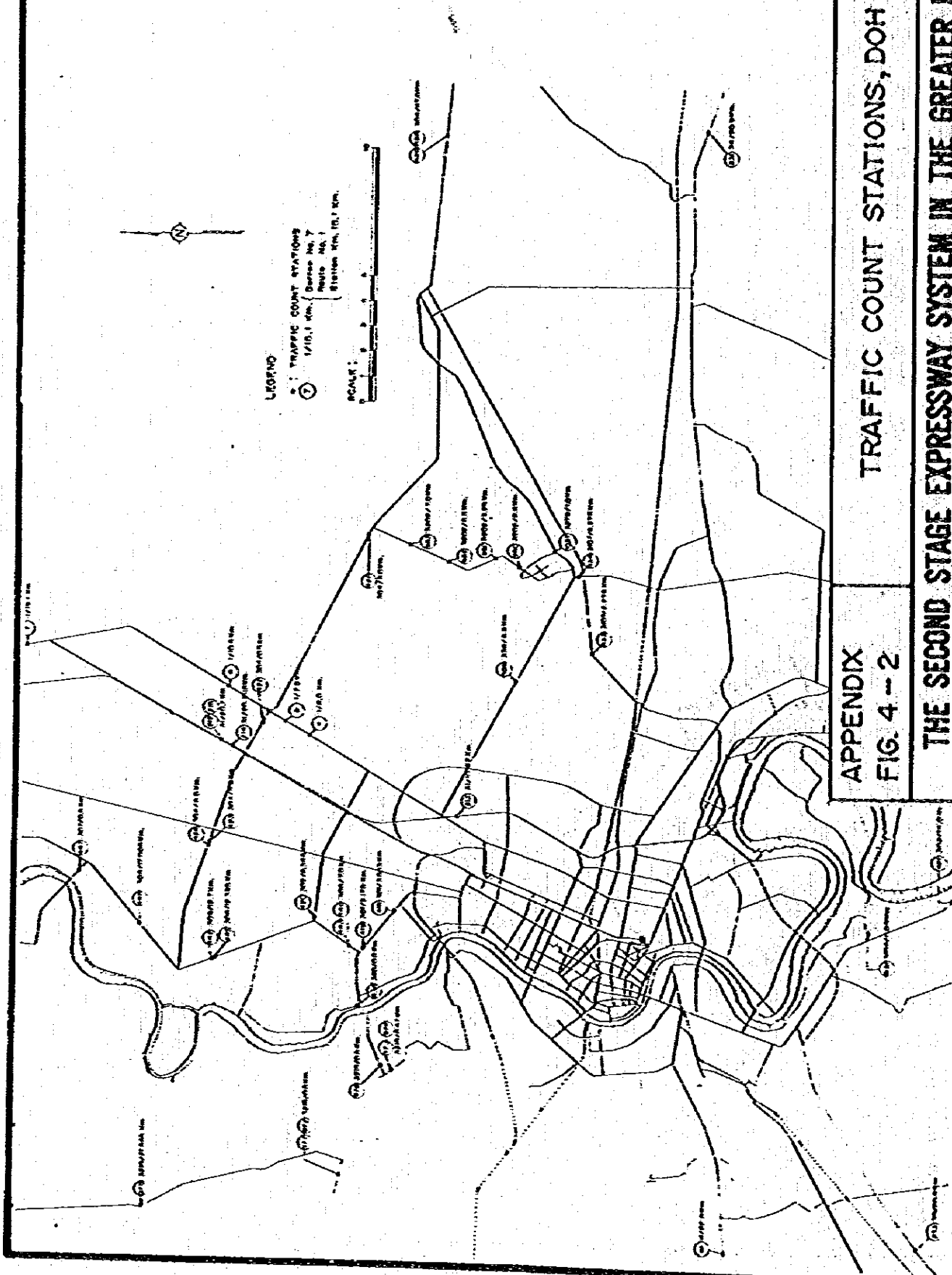
APPENDIX TABLE 3-13 EMPLOYED PERSONS ON COMMERCIAL AREAS

Item	Net Com & Buss. area %	Building coverage %	No. of floors f	Com & Bus floor %	Building floor per person m ²	Employed persons per ha
Inner core	60	80	4	80	15	1,024
Core area	60	80	2	70	15	672
Inner urban	60	70	2	70	15	392
Suburban	60	60	1	70	15	168
Rural	60	50	1	70	15	140

- Residential Areas; Employed persons in residential areas were distributed among the zones by the area in ha of residential uses. In the high density residential area 8 persons per ha were assumed, while 4 persons in the medium density area and 1 person in the low density and in satellite town areas.
- Government Officers; They were assumed to increase at the same rate with the population (a ratio of 1.357 from 1982 to 2000) and distributed among the zones in accordance with the growth of population.
- Don Muang Airport; Total employment opportunities are said at 10,000 persons currently. This figure was applied also to the year 2000 and to the new international airport in 2000 either in the process of construction or completion.
- Other Specific Locations; Ports, industrial zones, transport terminals, etc. were assumed to be included in the estimate of workers in the respective zones.

APPENDICES TO CHAPTER 4

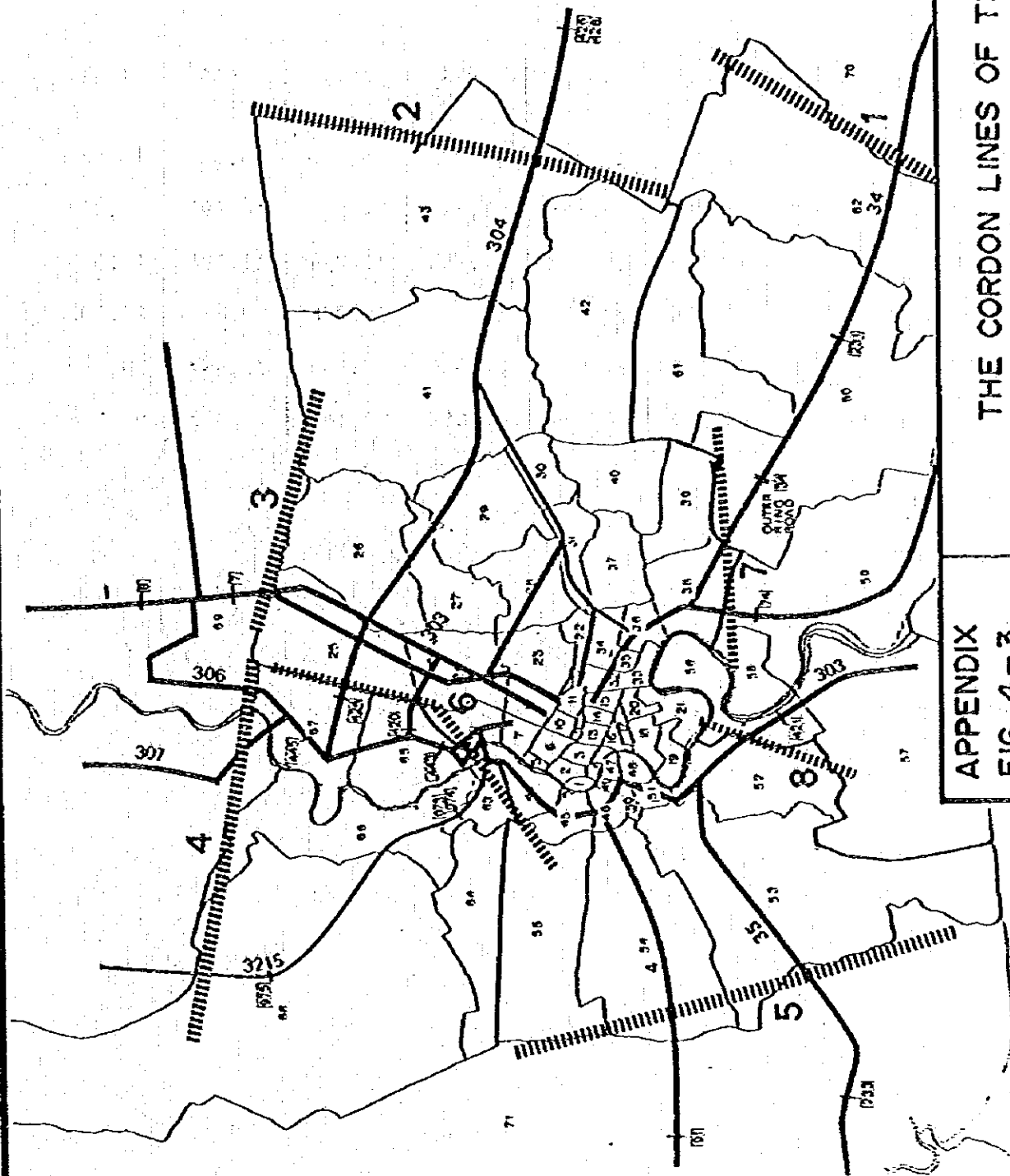




TRAFFIC COUNT STATIONS, DOH

APPENDIX
FIG. 4 - 2

THE SECOND STAGE EXPRESSWAY SYSTEM IN THE GREATER BANGKOK



APPENDIX
FIG. 4-3

THE CORDON LINES OF THE GBA

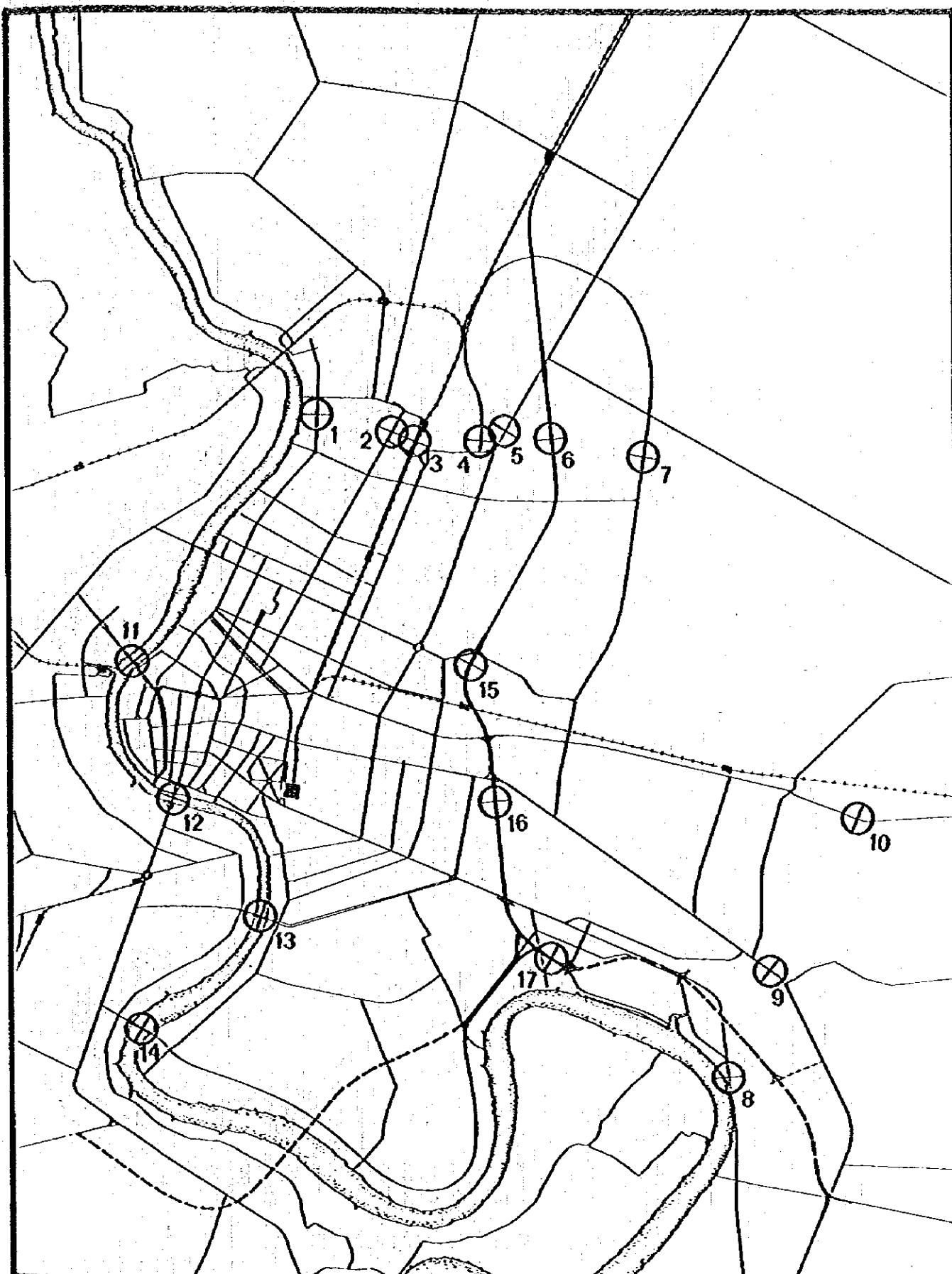
THE SECOND STAGE EXPRESSWAY SYSTEM IN THE GREATER BANGKOK

APPENDIX TABLE 4-1

TRAFFIC VOLUMES ON THE CORDON LINES, 1976-1981

Cordon ¹⁾	1976	1977	1978	1979	1980	1981
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
G B A 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.)	<div> <div>←</div> <div>1.321</div> <div>→</div> </div> <div>(5.7% p.a.)</div>					

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



APPENDIX
FIG. 4 - 4

TRAFFIC COUNTING LOCATIONS, JULY 1982

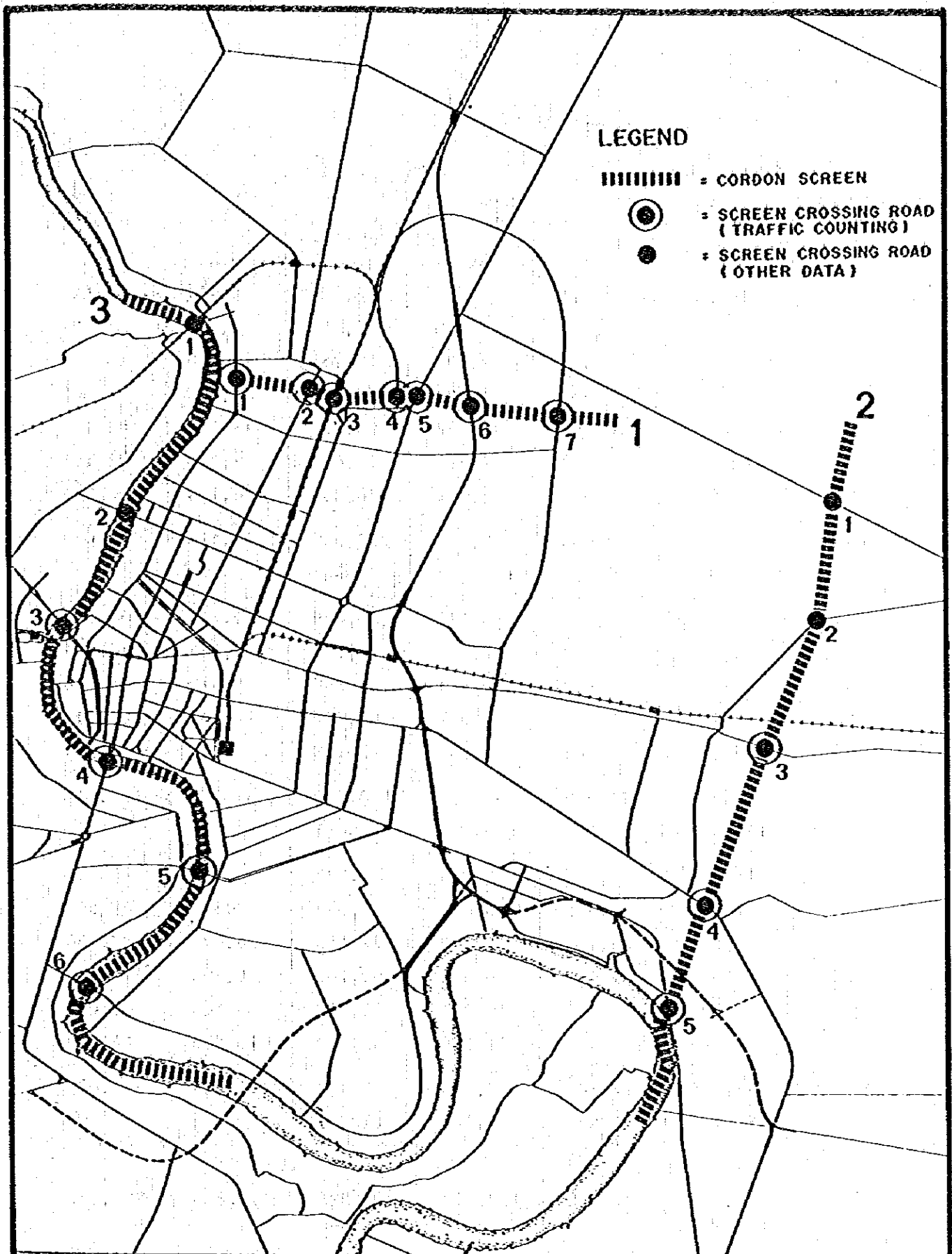
THE SECOND STAGE EXPRESSWAY SYSTEM IN THE GREATER BANGKOK

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	6,031	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	28,844	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



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

**APENDIX 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	SI XUY XUY XUY → SI XUY BAN PHO	○ 14,081	2,789	19.8		789	5.6	32.0
	SI XUY BAN PHO → SI XUY XUY XUY	⊗ 15,225	2,640	17.3	7:00-8:00	1,680	11.0	68.0
	TOTAL	29,306	5,429	18.5		2,469	8.4	100.0
2	SI XUY XUY → SI XUY BAN PHO	⊗ 15,891	1,476	9.3		1,734	10.9	73.1
	SAPHAN KONG → SI XUY XUY	○ 14,076	1,357	9.6	7:00-8:00	637	4.5	26.9
	TOTAL	29,967	2,833	9.5		2,371	7.9	100.0
3	PHASAT ROAD → SI XUY XUY STATION	○ 6,183	327	5.3		417	6.7	33.0
	SI XUY XUY STATION → PHASAT ROAD	⊗ 6,331	365	5.8	7:00-8:00	846	13.4	77.0
	TOTAL	12,514	692	5.5		1,263	10.0	100.0
4	SI XUY XUY ROAD → SI XUY XUY ROAD	○ 6,283	355	5.7		761	12.1	92.0
	SI XUY XUY ROAD → SI XUY XUY ROAD	⊗ 1,073	36	3.9	17:00-18:00	65	6.2	8.0
	TOTAL	7,356	451	6.1		827	11.2	100.0
5	SAPHAN KONG → SI XUY XUY	○ 43,200	5,816	13.5		2,325	5.4	34.7
	SI XUY XUY → SAPHAN KONG	⊗ 49,788	5,473	11.2	17:00-18:00	4,378	8.9	65.3
	TOTAL	92,988	11,289	12.3		6,703	7.3	100.0
6	DOCKEAD → SI XUY XUY	○ 37,454	5,219	13.9		2,285	6.1	35.4
	SI XUY XUY → DOCKEAD	⊗ 37,719	5,373	14.2	7:00-8:00	4,165	11.0	64.6
	TOTAL	75,183	10,592	14.1		6,450	8.6	100.0
7	ASOKE → SI XUY XUY	○ 15,012	777	5.2		1,247	8.3	61.0
	SI XUY XUY → ASOKE	⊗ 11,917	769	6.5	17:00-18:00	797	6.7	39.0
	TOTAL	26,929	1,545	5.7		2,044	7.6	100.0
8	PORT → SI XUY XUY	○ 5,841	1,501	25.7		580	9.9	56.0
	SI XUY XUY → PORT	⊗ 6,830	1,690	24.7	17:00-18:00	454	6.6	44.0
	TOTAL	12,671	3,191	25.2		1,034	8.2	100.0
9	PHASAT ROAD → SI XUY XUY	○ 33,678	6,040	17.9		1,706	5.0	40.3
	SI XUY XUY → PHASAT ROAD	⊗ 33,402	6,051	18.1	7:00-8:00	2,526	7.6	59.7
	TOTAL	67,080	12,091	18.0		4,232	6.3	100.0
10	SI XUY XUY → SI XUY XUY	⊗ 15,521	1,432	9.2		853	5.6	41.9
	SI XUY XUY → SI XUY XUY	○ 15,555	1,384	8.9	16:00-17:00	1,205	7.8	58.1
	TOTAL	31,076	2,816	9.0		2,075	6.7	100.0
11	BANGKOK → PHASAT ROAD	○ 36,360	3,636	10.0		1,558	4.3	27.7
	PHASAT ROAD → BANGKOK	⊗ 37,662	3,763	10.0	7:00-8:00	4,034	10.7	72.3
	TOTAL	74,022	7,399	10.0		5,592	7.5	100.0
12	BANGKOK → PHASAT ROAD	○ 35,863	4,090	11.4		1,518	4.2	33.1
	PHASAT ROAD → BANGKOK	⊗ 35,387	4,082	11.5	7:00-8:00	3,069	8.7	66.9
	TOTAL	71,250	8,172	11.5		4,587	6.4	100.0
13	BANGKOK → PHASAT ROAD	○ 22,068	2,445	11.1		755	3.4	26.1
	PHASAT ROAD → BANGKOK	⊗ 24,856	3,132	12.6	7:00-8:00	2,143	8.6	73.9
	TOTAL	46,924	5,577	11.9		2,898	6.2	100.0
14	BANGKOK → PHASAT ROAD	○ 18,000	4,375	24.3		1,253	7.0	47.3
	PHASAT ROAD → BANGKOK	⊗ 18,333	3,933	21.4	10:00-11:00	1,397	7.6	52.7
	TOTAL	36,333	8,314	22.8		2,650	7.3	100.0
15	DOCKEAD → PORT	⊗ 14,001	1,892	13.5		2,033	14.5	75.5
	PORT → DOCKEAD	○ 13,799	2,052	14.9	7:00-8:00	659	4.8	24.5
	TOTAL	27,800	3,944	14.2		2,692	9.7	100.0
16	PORT → SI XUY XUY ROAD	⊗ 11,239	2,044	18.2		1,232	11.0	62.5
	SI XUY XUY ROAD → PORT	○ 10,270	1,653	16.0	17:00-18:00	739	7.2	37.5
	TOTAL	21,509	3,697	18.1		1,971	9.2	100.0
17	PORT → SI XUY XUY ROAD	⊗ 3,650	453	12.4		485	13.3	55.9
	SI XUY XUY ROAD → PORT	○ 3,927	433	11.0	8:00-9:00	358	9.2	43.1
	TOTAL	7,577	892	11.6		853	11.2	100.0
TOTAL	INBOUND	303,101	40,281	13.0	—	28,158	9.1	62.3
	OUTBOUND	303,664	40,111	13.2	—	17,027	5.6	37.7
	TOTAL	612,765	80,392	13.1	—	45,185	7.4	100.0
TOTAL	INBOUND	28,890	4,333	15.0	—	3,750	13.0	68.0
	OUTBOUND	28,066	4,344	15.5	—	1,766	6.3	32.0
	TOTAL	56,956	8,673	15.3	—	5,516	9.7	100.0
TOTAL	INBOUND	337,391	44,670	13.2	—	31,908	9.4	62.9
	OUTBOUND	331,730	44,455	13.4	—	18,793	5.6	37.1
	TOTAL	669,121	89,125	13.3	—	50,701	7.6	100.0

⊗ INBOUND
○ OUTBOUND

APPENDIX TABLE 4-6

TRAVEL SPEED SURVEY RESULTS, 1982

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

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.

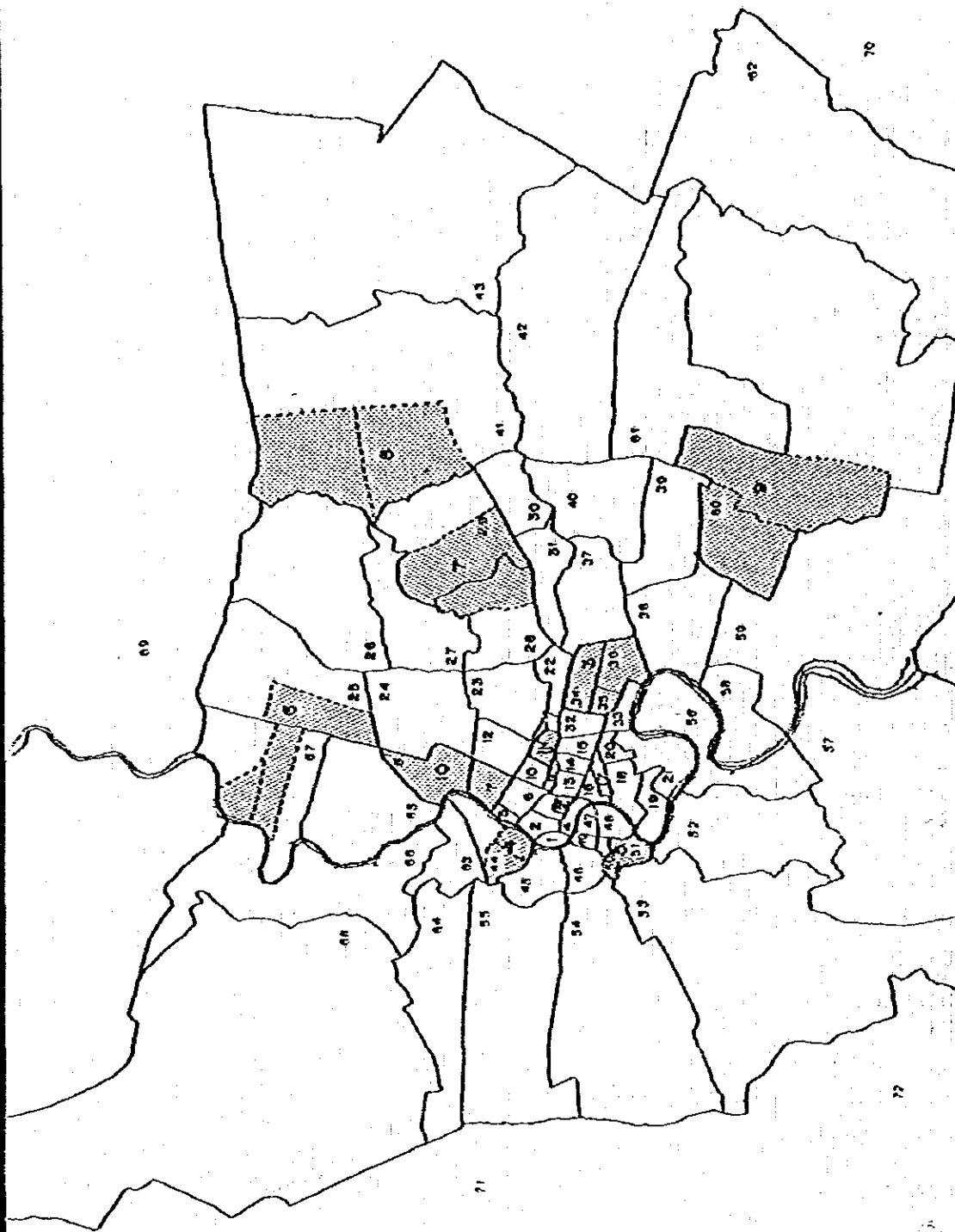
APPENDIX TABLE 4-7

BLOCKS OF PERSON TRIP INTERVIEW : POPULATION AND HOUSEHOLD

Block No.	Amphoe	Tam bon	Population	Households	Families size ¹⁾	
1.	Phayathai	Phayathai	245,993	11,921	20.6	
	Phayathai	Makkasan	20,605	7,995	2.6	13.4
2.	Pom Prap	Pom Prap	50,132	5,863	8.6	
	Pom Prap	Thep Sirin	18,253	3,333	5.5	7.4
	CORE TOTAL		334,983	29,112	-	8.1
3.	Phra Khanong	Khlong Tan	94,365	16,339	5.8	
	Phra Khanong	Phra Khanong	79,255	11,954	6.6	6.2
4.	Bangkok Noi	Bang Yi Khan	38,692	7,744	5.0	
	Bangkok Noi	Bang Bamru	18,487	3,232	5.7	5.2
5.	Thonburi	Talat Phlu	47,267	6,674	7.1	
	Thonburi	Bukhalo	111,693	15,755	7.1	7.1
6.	Bang Khen	Thung Song Hong	30,124	6,397	4.7	
	Pak Kret	Pak Kret	12,324	2,782	4.4	4.7
	Pak Kret	Bang Put	6,830	1,356	5.0	
7.	Bang Kapi	Khlong Chan	55,804	11,498	4.9	
	Bang Kapi	Khlong Kum	46,268	8,322	5.6	5.1
10.	Dusit	Thanon Nakhorn-Chaisri	124,105	11,688	10.6	
	Dusit	Bang Sue	168,811	29,293	5.8	7.1
	URBAN TOTAL		834,525	133,034	-	6.3
8.	Minburi	Bang Chan	7,245	1,058	6.9	
	Minburi	Samwa Tawan Tok	4,644	654	7.1	6.9
9.	Bang Phli	Bang Kaeo	13,503	2,203	6.1	
	Bang Phli	Bang Phli Yai	18,170	2,920	6.2	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
Average¹⁾	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.

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

4. If you have done more than 4 times 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 (65.8)	(21.7)
2. MC	149	30	94	82	198	553 (19.6)	(6.4)
3. Samlor	7	13	10	20	26	76 (2.7)	(0.9)
4. Taxi	10	4	11	20	26	71 (2.5)	(0.8)
5. School Bus	6	100	1	1	93	201 (7.1)	(2.3)
6. Truck	5	1	26	8	25	65 (2.3)	(0.8)
Total	641 (22.7) (34.8)	390 (13.8) (24.9)	320 (11.4) (61.8)	413 (14.7) (38.9)	1055 (37.4) (29.5)	2819 (100.0)	(32.9) ²⁾
B Public means							
1. S Bus	148	108	22	66	188	532 (9.3)	(6.2)
2. H Bus	1033	1057	176	577	2299	5142 (89.6)	(60.1)
3. Train	7	5	0	3	10	25 (0.0)	(0.3)
4. Boat	15	9	0	3	15	42 (0.1)	(0.5)
Total	1203 (21.0) (65.2)	1179 (20.5) (75.1)	198 (3.4) (38.2)	649 (11.3) (61.1)	2512 (43.8) (70.5)	5741 (100.0)	(67.1) ²⁾
(Total ¹⁾)	1844 (21.5) (100.0)	1569 (18.3) (100.0)	518 (6.1) (100.0)	1062 (12.4) (100.0)	3567 (41.7) (100.0)	8560 (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 \$
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

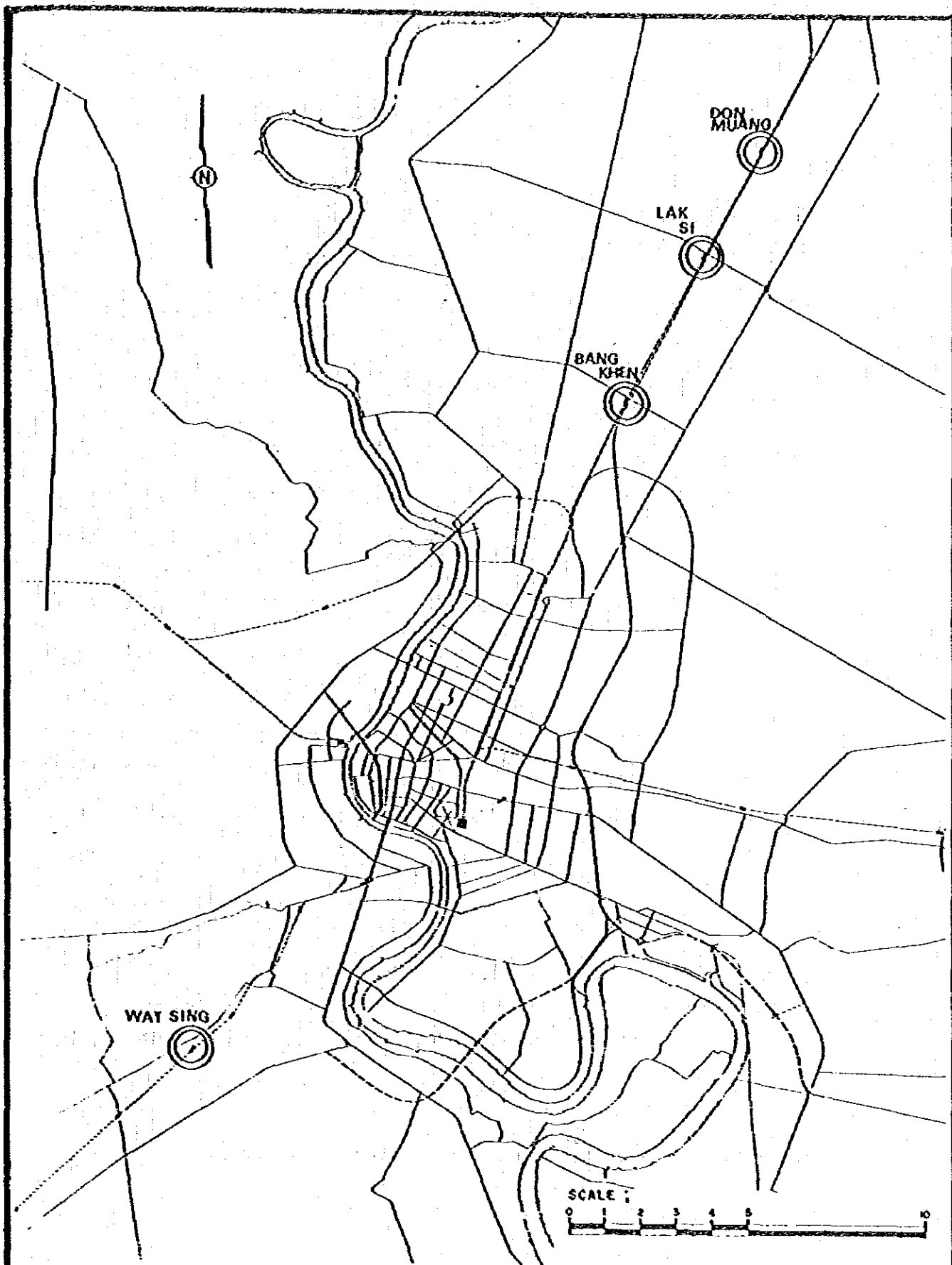
Income ('000)	1.0	3.1	5.1	7.1	9.1	11.1	16.1	21.1	31.1	51.1	Total	Monthly Average B
A) Persons												
1. With car	241	256	123	60	59	29	19	10	2	8	807	5,397
2. With C & MC	91	83	19	11	13	2	5	1	0	4	229	5,179
3. = 1. + 2.	332	339	142	71	72	31	24	11	2	12	1,036	5,738
4. With MC	243	63	16	9	2	1	1	0	0	1	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) 2) C&MC	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) 2) C&MC	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	433	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) 2) C&MC	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) 2) C&MC	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) Cicora 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	Loca- tion	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	7,947	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	2,883	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	2,883	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 :

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

where P : number of person trips (trips/day)

N : number of vehicles registered (vehicles)

E : 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 x 0.90 x 3.5 x 1.65 =	1,977,000
	Taxi	:	22,000 x 0.95 x 28 x 1.58 =	925,000
	Motorcycle	:	218,000 x 1.00 x 3.5 x 1.24 =	946,000
			TOTAL	3,848,000 (41%)

PT	: BMTA bus	:	5,574 x 0.73 x 10 x 2.0* x 47 =	3,825,000
	Mini bus	:	2,410 x 0.73 x 10 x 1.4 x 20 =	493,000
	Mini soi bus	:	2,500 x 0.73 x 10 x 1.4 x 10 =	256,500
	Sight-seeing bus	:	1,640 x 0.90 x 7 x 1.0 x 40 =	414,000
	Other bus	:	7,890 x 0.90 x 3 x 1.0 x 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.

