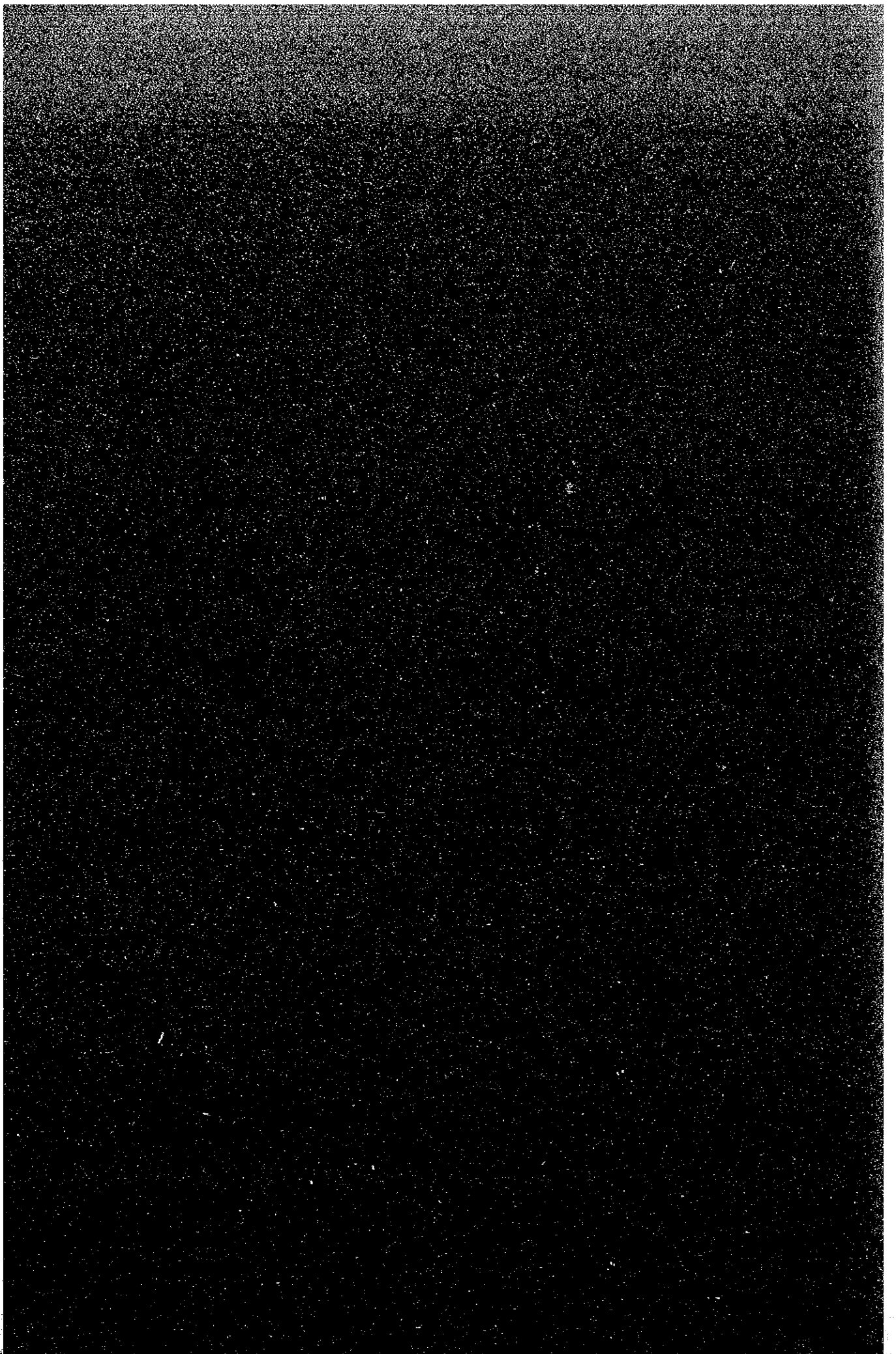


APPENDIXES FOR CHAPTER 4



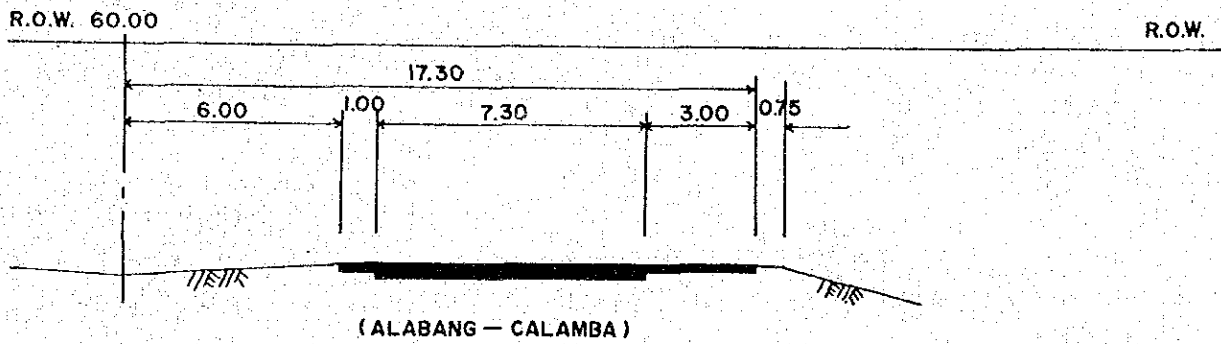
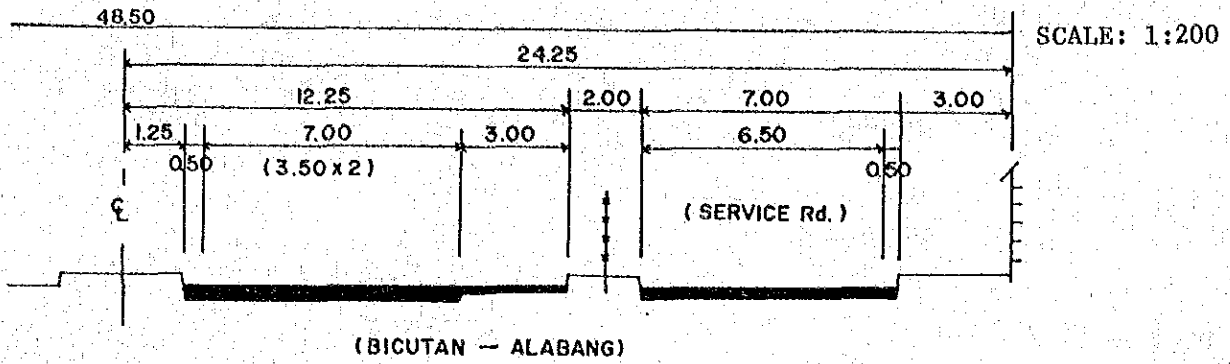
APPENDIX TABLE 4.1-1 INVENTORY DATA OF EXISTING ROADS

ROAD NAME	CARRIAGEWAY WIDTH(M)	SHOULDER WIDTH(M)	SIDE CLEARANCE (M)	SIDE- WALK(M)	PAVEMENT
Quirino Avenue	2 lane 7.0	1.75-0.75	1.75-0.75	partially 1 - 1.5	Asphalt
Imelda Avenue	2 lane 6.7	3.0	3.0	-	Asphalt
South Luzon Expressway	4 lane 2x7.0 or 7.3	3.0	3.0	-	Concrete
Service Road Outsids South Luzon Expwy	2 lane 6.5	0.5	0.5	partially 3.0	Asphalt
Route - 303	2 lane 6.5	0.5	0.5	-	Asphalt
Hwy - 1	2 lane 6.3	2.5 - 3.0	2.5 - 3.0	-	Asphalt
Hwy - 17	2 lane 7.0	1.5 - 3.0	1.5 - 3.0	-	Asphalt
Hwy - 25	2 lane 6.70 - 7.0	1.5 - 2.0	1.5 - 2.0	-	Asphalt & Concrete
Naic Carmona	2 lane 6.0	1.0 - 1.5	1.0 - 1.5	-	Asphalt
Parañaque - Sucat	2 lane 6.7	1.5 - 4.5	1.5 - 4.5	-	Concrete
Zapote - Alabang	2 lane 6.0	3.0 - 5.5	3.0 - 5.5	-	Concrete

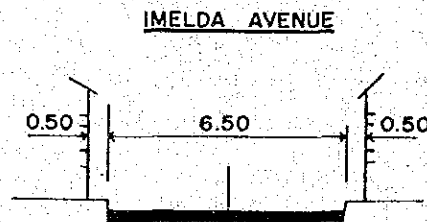
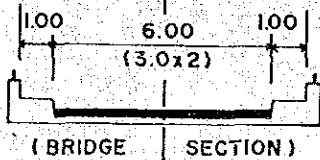
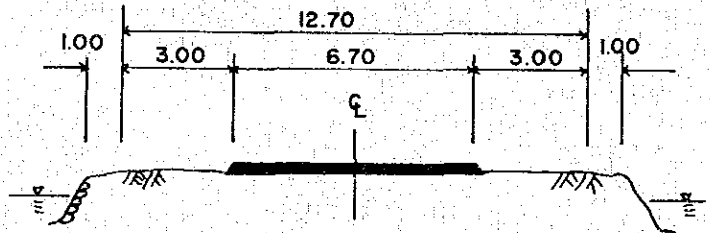
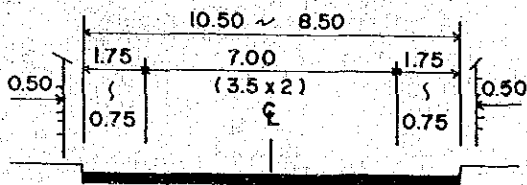
Remarks: Asphalt - - Asphalt Concrete Pavement

Concrete - Portland Cement Concrete Pavement

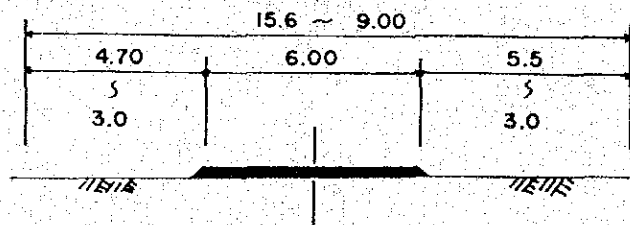
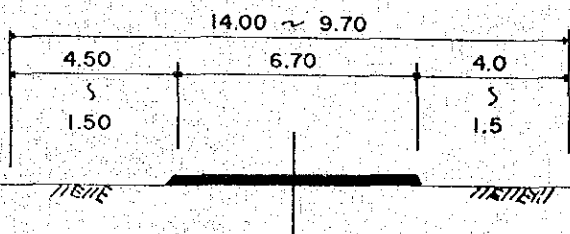
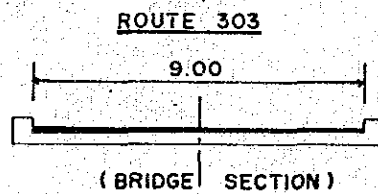
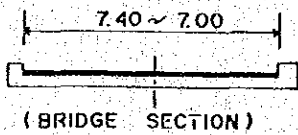
APPENDIX FIG.4.1-1 TYPICAL CROSS SECTION OF EXISTING ROADS



SOUTH LUZON EXPRESSWAY



QUIRINO AVENUE



APPENDIX TABLE 4.2-1 REGISTERED VEHICLES, PHILIPPINES

YEAR	CARS	TRUCKS	TRAILERS	SUB-TOTAL	MOTOR CYCLES	TOTAL	ANNUAL
1971	289,381	185,189	14,070	488,640	95,486	588,336	1.00
1972	312,137	204,391	13,358	529,886	128,750	657,934	1.12
1973	332,233	239,114	13,740	585,087	150,155	735,241	1.12
1974	397,603	272,889	17,477	687,969	164,484	852,253	1.16
1975	399,574	272,303	14,520	686,397	176,751	865,027	1.02
1976	402,328	290,619	14,597	707,544	177,822	885,386	1.02
1977	440,466	327,925	17,151	795,542	200,923	986,466	1.11
1978	493,374	369,351	20,525	883,250	235,357	1,118,607	1.13
1979	504,895	410,199	22,144	937,238	249,558	1,186,796	1.06

Source: Land Transport Commission

APPENDIX TABLE 4.2-2 REGISTERED VEHICLES, REGIONS IV AND IV-A

YEAR	REGION	CARS	TRUCKS	TRAILERS	SUB-TOTAL	MOTOR CYCLES	TOTAL	INDEX
1977	IV	241,911	115,102	6,301	363,314	39,378	402,692	1.00
	IV-A	25,294	31,954	1,378	58,626	19,630	78,256	1.00
	TOTAL	267,205	147,056	7,679	421,940	59,008	480,948	1.00
1978	IV	278,727	137,995	7,287	424,009	50,607	474,616	1.18
	IV-A	25,051	36,702	1,954	63,707	21,832	85,539	1.09
	TOTAL	303,778	174,697	9,241	487,716	72,439	560,155	1.16
1979	IV	287,029	148,054	6,933	442,016	47,883	489,899	1.22
	IV-A	35,019	44,907	2,354	82,280	21,919	104,199	1.33
	TOTAL	322,048	192,961	9,287	524,296	69,802	594,098	1.24
1980	1) IV	298,100	100,715	5,721	404,536	41,606	446,142	1.11
	IV-A	53,991	35,091	215	89,297	25,278	114,575	1.46
	TOTAL	351,091	135,806	5,936	493,833	66,884	560,717	1.17

Sources: Land Transport Commission

Note : 1) Preliminary Figures

APPENDIX TABLE 4.2-3A TRAFFIC VOLUME (AADT) ON MAJOR ROADS

Survey Station	Vehicle Type	(Vehicle Unit)				
		Jeepney	Bus	Sm. Veh.	Truck	Total
A1	Parañaque (Quirino Ave)	12,716	2,605	15,648	1,005	31,974
A3	Bicutan (Service Rd-West)	2,722	209	5,687	1,477	10,095
A4	Bicutan (Service Rd-East)	3,136	754	2,240	926	7,056
A5	(Route 303)	2,434	19	701	175	3,329
A6	Bicutan (Luzon South Expressway)	3,677	3,098	29,639	3,240	39,659
A1-A6	T o t a l	29,284	6,789	69,253	7,852	113,178
B1	Parañaque- (Sucat Road)	5,597	57	7,207	1,147	14,008
B2	Zapote- (Alabang Road)	6,645	328	5,333	1,178	13,484
B1-B2	T o t a l	12,242	385	12,540	2,325	27,492
C1	Parañaque- (Sucat Road)	5,311	291	16,913	1,839	24,354
C2		689	214	1,226	322	2,451
D1	Alabang (Service Road-West)	1,854	186	1,678	559	4,277
D2	Alabang (Service Road-East)	4,512	578	1,297	698	7,085
D3	Zapote (Alabang Road)	6,044	253	8,339	1,527	16,163
D4	Zapote (Alabang Road)	1,953	47	1,504	207	3,711
D5	Alabang (Hwy 1)	9,129	2,374	9,556	2,743	23,802
IS-1	Parañaque MNL(A-2)	4,599	104	15,338	1,024	21,065
	Parañaque Sucat	5,976	112	13,894	1,081	20,883
	Parañaque Quirino	2,377	81	4,688	276	7,422
IS-2	Zapote MNL	14,536	2,856	12,420	1,288	31,100
	Zapote Alabang	7,101	419	7,165	1,211	15,896
	Zapote Bacoor	10,105	2,825	10,963	1,543	25,436

Source: Study Team traffic count in May 1981.

Remarks: The traffic count for 16 hours are shown in Appendix Table 4.2-4

APPENDIX TABLE 4.2-3B TRAFFIC COMPOSITION BY VEHICLE TYPE

Survey Station	Name of Road	Vehicle Type	Sm. Veh	BUS	JEEPNEY	TRUCK	TOTAL	
Screen A-A Section	West Side Roads	A1	Quirino Ave. (Parañaque)	15,648	2,605	12,716	1,005 ^{*1)}	31,974
				(49.0)	(8.1)	(39.8)	(3.1) ^{*2)}	(100.0)
		IS-1	Imelda Ave. (Parañaque)	15,338	104	4,599	1,024	21,065
	(72.8)			(0.5)	(21.8)	(4.9)	(100.0)	
	Sub Total		30,986	2,709	17,315	2,029	53,039	
			(58.5)	(5.1)	(32.6)	(3.8)	(100.0)	
	East Side Roads	A3 + A4	South Luzon Hwy Service Road(Bicutan)	7,927	963	5,858	2,403	17,151
				(46.2)	(5.6)	(34.2)	(14.0)	(100.0)
		A5	Route 303 (Bicutan)	701	19	2,434	175	3,329
				(21.1)	(0.6)	(73.0)	(5.3)	(100.0)
		A6	South Luzon Highways (Bicutan)	29,639	3,098	3,677	3,245	39,659
				(74.7)	(7.8)	(9.3)	(8.2)	(100.0)
Sub Total		38,267	4,080	11,969	5,823	60,139		
		(63.6)	(6.8)	(19.9)	(9.7)	(100.0)		
T O T A L			69,253	6,789	29,284	7,852	113,178	
			(61.2)	(6.0)	(25.9)	(6.9)	(100.0)	
Screen B-B Section	B1	Parañaque -Sucat Road	7,207	57	5,597	1,147	14,008	
			(51.4)	(0.4)	(40.0)	(8.2)	(100.0)	
	B2	Zapote -Alabang Road	5,333	328	6,645	1,178	13,484	
			(39.6)	(2.4)	(49.3)	(8.7)	(100.0)	
T O T A L			12,540	385	12,242	2,325	27,492	
			(45.6)	(1.4)	(44.5)	(8.5)	(100.0)	

Remarks: The figure indicated - AADT (Veh/day) in 1981.

The percentage share of vehicle type is indicated in ().

APPENDIX TABLE 4.2-4 TRAFFIC VOLUME (16 HR.) FROM THE SURVEY IN 1981

NAME OF ROAD (SITE NO.)	DIRECTION	TRAFFIC VOLUME (16 HOURS)	PEAK HOUR			REMARKS
			HOUR	TRAFFIC VOLUME	RATIO (%)	
QUIRINO AVENUE (A-1)	PARANAQUE → MANILA	13,458	7-8	1,434	10.7	
	MANILA → PARANAQUE	13,204	18-19	1,236	9.3	
SOUTH SUPER WEST SIDE ROAD (A-3)	ALABANG → MANILA	3,893	8-9	433	11.1	
	MANILA → ALABANG	5,061	10-11	408	8.1	
SOUTH SUPER EAST SIDE ROAD (A-4)	ALABANG → MANILA	3,579	8-9	331	9.2	
	MANILA → ALABANG	2,647	18-19	215	8.1	
NATIONAL ROAD 303 (A-5)	SUCAT → MANILA	1,325	8-9	148	11.2	
	MANILA → SUCAT	1,603	8-9	145	9.0	
SOUTH SUPER EXPRESSWAY (A-6)	SUCAT → MANILA	16,943	17-18	1,799	10.7	
	MANILA → SUCAT	18,188	8-9	2,782	15.3	
PARANAQUE- SUCAT ROAD (B-1)	PARANAQUE → SUCAT	6,112	16-17 18-19	464	7.6	
	SUCAT → PARANAQUE	6,365	18-19	528	8.3	
ALABANG-ZAPOTE ROAD (HWY-1) (B-2)	ALABANG → ZAPOTE	5,989	17-18	512	8.5	
	ZAPOTE → ALABANG	5,952	16-17	504	8.5	
SUCAT (IS3) C - 1	SUCAT → PARANAQUE	10,117	18-19	970	9.6	
	PARANAQUE → SUCAT	10,866	8-9	1,429	13.2	
SUCAT (IS4) C - 2	TAGUIG → SUCAT	984	7-8	107	10.9	
	SUCAT → TAGUIG	1,141	6-7	126	11.0	
ALABANG (IS-4) D - 1	ALABANG → MANILA	1,167	17-18	137	11.7	
	MANILA → ALABANG	2,571	8-9	225	8.8	
ALABANG (IS-4) D - 2	ALABANG → MANILA	4,352	7-8	393	9.0	
	MANILA → ALABANG	1,777	6-7	232	13.0	
ALABANG (IS-4) D - 3	ALABANG → ZAPOTE	6,625	18-19	743	11.4	
	ZAPOTE → ALABANG	7,349	7-8	1,053	14.3	
ALABANG (IS-4) D - 4	TAGUIG → ALABANG	1,707	7-8	169	9.9	
	ALABANG → TAGUIG	1,497	8-9	150	10.0	
ALABANG (IS-5) D - 5	ALABANG → LAGUNA	10,490	17-18	911	8.7	
	LAGUNA → ALABANG	10,162	7-8	1,113	11.0	

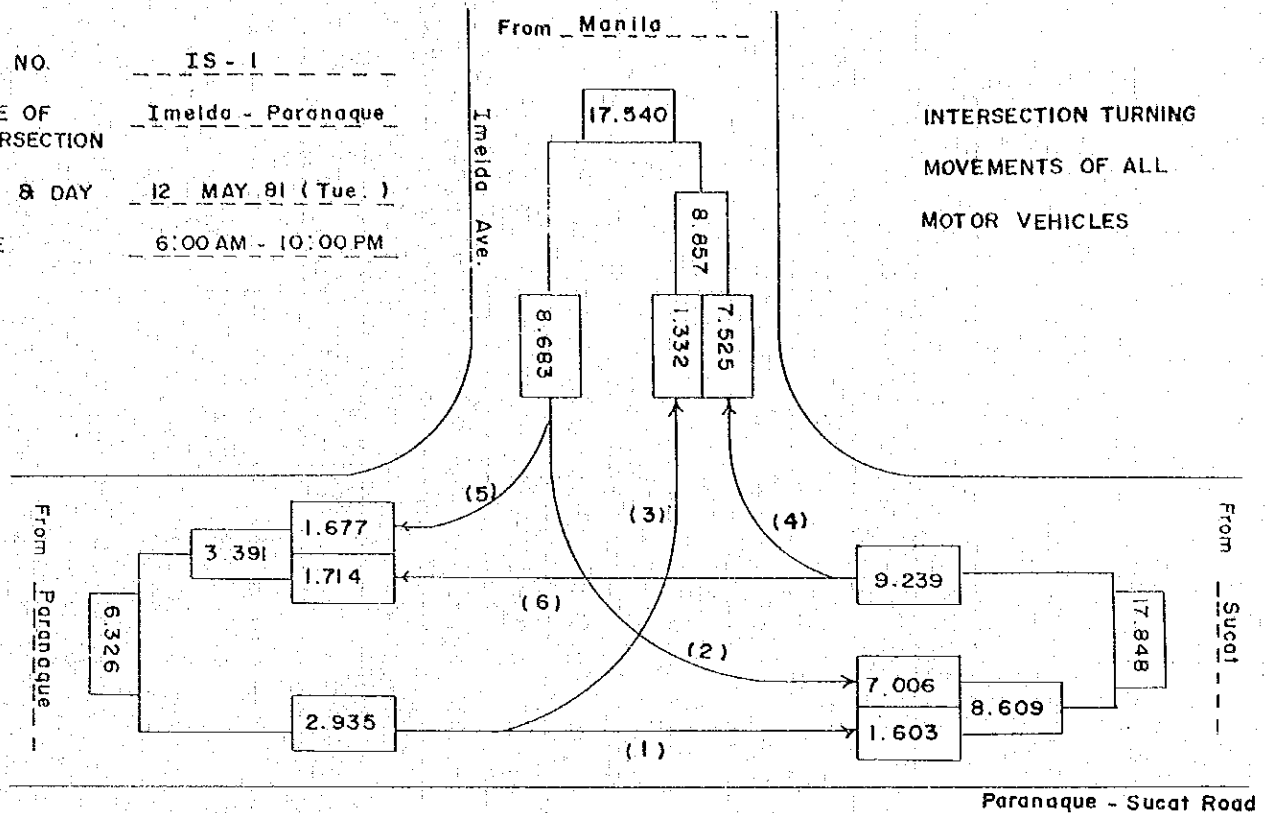
APPENDIX TABLE 4.2-5 DAILY TRAFFIC FACTOR

Survey Position	Direction		A (TO MANILA)		B (FROM MANILA)		REMARKS					
	Small Vehicle	Bus	JEEPNEY	TRUCK TOTAL	Small Vehicle	BUS JEEPNEY		TRUCK TOTAL				
East-Side	2,591	353	2,846	707	6,497	2,229	444	3,074	915	6,662	MMUTIP through TEMP of MPWE (24 hour Survey) October 1920	
San Pedro	2,783	433	3,346	838	7,400	2,533	499	3,473	1,044	7,549		
(CH-10)	FACTOR (24h/16h)	1.074	1.227	1.176	1.185	1.139	1.136	1.124	1.130	1.141	1.133	
West-Side	4,779	1,236	3,937	414	10,366	4,922	1,320	4,660	421	11,323		
Bacoar	5,185	1,329	4,768	481	11,763	5,594	1,408	5,206	511	12,719	"	
(CH-11)	FACTOR (24h/16h)	1.085	1.075	1.211	1.162	1.135	1.136	1.067	1,117	1,214	1,123	
South Luzon	13,524	1,443	1,644	1,577	18,188	12,448	1,644	1,580	1,271	16,943	16 hour: Count- ing Survey May '81	
Expressway	17,432	1,494	2,109	1,850	22,885	15,684	1,968	1,999	1,776	21,427	24 hour: Volume by CDGP APRIL '81	
(A-6)	FACTOR(24h/16h)	1.289	1.035	1.283	1.173	1.258	1.260	1.197	1,265	1,397	1,265	

APPENDIX FIG. 4.2-1 TRAFFIC VOLUME (16 HR.) AT PARANAQUE INTERSECTION BY THE SURVEY IN 1981

SITE NO. IS - 1
 NAME OF INTERSECTION Imelda - Paranaque
 DATE & DAY 12 MAY 81 (Tue.)
 TIME 6:00 AM - 10:00 PM

INTERSECTION TURNING
 MOVEMENTS OF ALL
 MOTOR VEHICLES



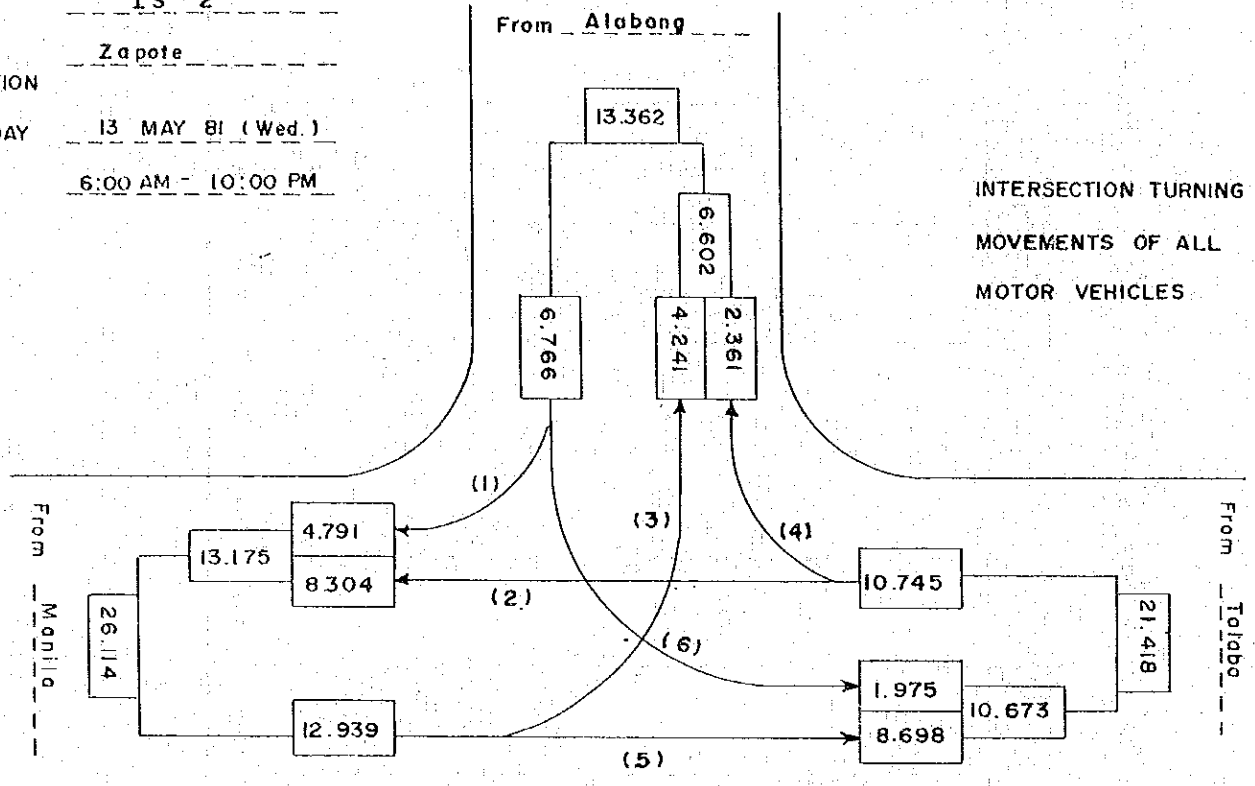
TRAFFIC VOLUME (16 hr.) ; PARANAQUE INTERSECTION (1981)

SITE NO.	DIRECTION	TRAFFIC VOLUME (16 HOURS)	PEAK HOUR	
			TRAFFIC VOLUME	RATIO (%)
IS-1	PARANAQUE → SUCAT (1)	1,603	7-8 : 136	8.5
"	MANILA → SUCAT (2)	7,006	18-19 : 764	10.9
"	PARANAQUE → MANILA (3)	1,332	7-8 : 223	16.7
"	SUCAT → MANILA (4)	7,525	7-8 : 963	13.0
"	MANILA → PARANAQUE (5)	1,677	18-19 : 197	11.7
"	SUCAT → PARANAQUE (6)	1,714	8-9 : 151	8.8

Note: 1) The ratio is calculated using the 16 hour volume.

APPENDIX FIG. 4.2-2. TRAFFIC VOLUME (16 HR.) AT ZAPOTE INTERSECTION BY THE SURVEY IN 1981

SITE NO. IS - 2
 NAME OF INTERSECTION Zapote
 DATE & DAY 13 MAY 81 (Wed.)
 TIME 6:00 AM - 10:00 PM



TRAFFIC VOLUME (16 Hr.); ZAPOTE INTERSECTION (1981)

SITE NO	DIRECTION	TRAFFIC VOLUME (16 HOURS)	PEAK HOUR	
			HOUR	TRAFFIC VOLUME : RATIO (%) ¹⁾
IS-2	ALABANG → MANILA (1)	4,791	7-8	484 : 10.1
"	TALABA → MANILA (2)	8,384	7-8	871 : 10.4
"	MANILA → ALABANG (3)	4,241	18-19	421 : 9.9
"	TALABA → ALABANG (4)	2,361	7-8	201 : 8.5
"	MANILA → TALABA (5)	8,698	18-19	813 : 9.3
"	ALABANG → TALABA (6)	1,975	14-15	163 : 8.3

Note: 1) The ratio is calculated using the 16 hour volume.

APPENDIX TABLE 4.2-6 ANNUAL AND MONTHLY CHANGES OF TRAFFIC ON THREE STATIONS ADJACENT TO THE PROJECT ROADS: ADT

	Station 2400 (117) Laguna 1)		Station 24 94 (1078) Guvite 1)		Station 2413 Laguna 2)	
	1978	1980	1978	1981	1978	1981
Jan	9261					
	1.031					
Feb	9875		13906			
	1.095		1.767			
Mar	9768					
	1.087	80/79				
April	9942	7712				
	1.107	1.077				
May	9254	8282				
	1.041	1.092				
		7874				
		1.038				
June	9403	7446	10523			
	1.047	1.021	0.883			
July	8442	8371	10110			
	0.929	1.103	0.80			
Aug	8247	7193				
	0.976	0.801	0.88			
Sept	8015	7021	8652			
	0.948	0.926	0.72			
Oct	8336	7268				
	0.928	0.958				
Nov	9568	7251				
	1.065	0.956				
Dec	8490	7283	14586			
	1.162	0.960	1.224			
Mean	8451	7286	11917			
	1.000	1.000	1.000			
			10619			
			10746			
			0.90			
			8470			
			7356			
			8581			
			16936			
			6936			
			7893			
			6920			
			8398			
			7776			
			8866			
			7692			

Notes: 1) The control stations. In May AADT factor is 1/1.041 = 0.961

2) The coverage station.

Source: Planning and Design Division, Region IV-A, MPH, July 1980.

APPENDIX TABLE 4.2-7 ANNUAL AND MONTHLY CHANGES OF TRAFFIC ON TWO CONTROL STATIONS IN MMA

	NO. 32		ESPANA		AVENUE		NO. 38		TAFT		AVENUE	
	1978	1979	1980	1981	81/78	1978	1979	1980	1981	1980	1981	81/78
Jan	79929	75556	63395	0.79	75556	-	75193	-				
	1.017	0.990	0.857		1.316		1.167					
Feb	80569	75456	81678	1.01	51704	51704	76553	51551				
	1.025	0.989	1.105		1.010	1.010	1.185	0.918				
March	76932	75753	79802	1.04	50623	50623	54563	57227				
	0.979	0.992	1.079		0.988	0.988	0.847	1.020				
April	77715	74790	62623	0.81	49832	49832	51668	57472				
	0.989	0.980	0.847		0.975	0.975	0.802	1.024				
May	77768	78643	80273	1.03	51861	49748	57392	57392				1.11
	0.990	1.030	1.086		0.903	0.971	1.022	1.022				
June	77761	83619	75838		50575	51643	57007	57007				1.13
	1.022	1.096	1.026		0.881	1.008	1.016	1.016				
July	76350	83171	51704		50834	50834						
	1.004	1.090	0.900		0.992	0.992						
Aug	75220	63630			51879	51879						
	0.989	0.834			1.013	1.013						
Sept	74490				51510	51510						
	0.979				1.006	1.006						
Oct	75534				51379	51379						
	0.993				1.003	1.003						
Nov	74953				52112	52112						
	0.985				1.017	1.017						
Dec	75694				52192	52192						
	0.952				1.019	1.019						
Mean	78583	76527	79335	81/79	57424	51223	64444	56130				81/79
	1.000	1.000	1.000	0.97	1.000	1.000	1.000	1.000				1.10
	(1.000)	(0.968)	(0.971)	0.97	(1.000)	(0.892)	(1.122)	(0.977)				

Notes: 1) Bothways, ADT in each month. Counted by the automatic counting machine. There were no countings in some months due to the failure of machines, construction works, etc.

Source: Metro Manila Traffic Engineering and Management Project, MPH.

APPENDIX TABLE 4.2-8 AVERAGE NUMBER OF PASSENGERS PER VEHICLE

STATION VEHICLE TYPE	OD-1 (Parañaque)		OD-2 (Zapote)		OD-3 (Alabang)		OD-4 (Sucat)		T O T A L		Average Pass/Veh
	Veh.	Pass.	Veh.	Pass.	Veh.	Pass.	Veh.	Pass.	Veh.	Pass.	
JEEPNEY	12,365	130,191	11,177	109,196	8,337	67,302	7,873	58,616	39,752	365,305	9.2
C A R	11,047	31,065	11,497	37,419	6,950	18,073	6,066	17,633	35,560	104,190	2.9
B U S	1,667	59,288	3,038	107,240	1,251	26,770	1,030	18,882	6,986	212,180	30.4
TRUCK	677	1,841	912	2,853	2,222	5,837	1,489	4,918	5,300	15,449	2.9
T O T A L	25,756	222,385	26,624	256,708	18,760	117,982	16,458	100,049	87,598	697,124	8.0

APPENDIX TABLE 4.2-9 TRIP-PURPOSE DISTRIBUTION

A. PASSENGER CARS (Car/Jeep/Taxi)

(Vehicles Unit)

STATION	DIRECTION 2)	PURPOSE					TOTAL
		HOME	WORK	SCHOOL	BUSINESS	OTHERS	
OD-1 (Parañaque)	A	667	1,950	105	1,712	1,673	6,107
	B	1,215	486	27	1,539	1,673	4,940
OD-2 (Zapote)	A	1,064	1,299	89	1,720	1,255	5,427
	B	2,194	332	31	1,059	2,454	6,070
OD-3 (Alabang)	A	551	519	14	930	674	2,688
	B	1,305	1,038	10	1,150	759	4,262
OD-4 (Sucat)	A	435	618	22	1,230	386	2,703
	B	565	1,127	33	1,029	609	3,363
TOTAL 1)	A	2,717 (16.1)	4,386 (25.9)	230 (1.4)	5,592 (33.0)	3,988 (23.6)	16,925 (100)
	B	5,279 (28.3)	2,983 (16.0)	101 (0.6)	4,777 (25.6)	5,495 (29.5)	18,635 (100)
	A + B	7,996 (22.5)	7,369 (20.7)	331 (0.9)	10,369 (29.2)	9,483 (26.7)	35,560 (100)

B. PUBLIC TRANSPORTATION (Jeepney/Bus)

(Persons Unit)

STATION	DIRECTION 2)	PURPOSE					TOTAL
		HOME	WORK	SCHOOL	BUSINESS	OTHERS	
OD-1 (Parañaque)	A	17,559	11,937	3,902	15,308	58,640	107,346
	B	38,755	7,811	1,150	8,786	25,629	82,131
OD-2 (Zapote)	A	21,926	10,648	3,574	9,992	49,073	95,213
	B	67,815	6,692	173	19,118	27,445	121,243
OD-3 (Alabang)	A	8,215	13,774	3,423	3,693	18,534	47,639
	B	24,283	7,520	169	3,390	11,105	46,467
OD-4 (Sucat)	A	9,152	16,014	822	4,646	12,706	43,340
	B	11,909	8,418	183	6,466	7,183	34,159
TOTAL 1)	A	56,852 (19.4)	52,373 (17.8)	11,721 (4.0)	33,639 (11.5)	138,953 (47.3)	293,538 (100)
	B	142,762 (50.3)	30,441 (10.7)	1,675 (0.6)	37,760 (13.3)	71,362 (25.1)	284,000 (100)
	A + B	199,614 (34.6)	82,814 (14.3)	13,396 (2.3)	71,399 (12.4)	210,315 (36.4)	577,538 (100)

Notes : 1) Percent share is shown in ().

2) Direction A towards Manila and the direction B from Manila

APPENDIX NOTE 4.1 TRIPS AND POPULATION

Statistical analysis was conducted on the relationship between the volume of trips generated and attracted, and the population and the employment. Data were studied and used for the analysis as follows:

To determine the traffic volume generated and attracted in each zone, the short distant trips within the zone, t_{ii} , was estimated to obtain the total trips since the 1981 O-D table in Appendix 14-1 did not include these intra-zonal trips. The intra-zonal trips, t_{ii} , and its percent share to the total trips T_i , generated and attracted in zone i , were obtained by the data of the 1980 O-D person Tables of MMETROPLAN. The above percent share in each zone was used to estimate the volume of intra-zonal vehicle trips in 1981, with which the total trips generated and attracted in each zone were determined.

Population and employment opportunity in each zone were estimated for 1980 and 1990 in Chapter 3. The figures of population and employment for 1981 were calculated by interpolating the figures in 1980 and 1990.

A typical relationship of small vehicle trips and population by zone is presented in Appendix Fig. 4.2-3 where zones in the DIZ and those in the Northern Area are shown in different scale. Appendix Fig. 4.2-4 illustrates another relationship between the truck trips and employed persons by workplace. Similar relationship was studied for the cases of buses and jeepneys. Regression analysis by the least square method was conducted to find the parameter and the degree of correlation. The regression model formulas tested using one or two independent variables are shown below.

$$T = a P_1 + k \quad \text{--- (1)}, \quad T = a P_2 + k \quad \text{--- (2)}$$

$$T = k P_1^b \quad \text{--- (3)}, \quad T = k P_2^a \quad \text{--- (4)}$$

$$T = a P_1 + b P_2 + k \quad \text{--- (5)}$$

It was found that the formulas (1) and (2) had higher correlation coefficient (r) when zones 1-46 were used than the groups of the zones 1-33 and the zones 34-46. The formula (3) had a higher value of (r) when the zones were grouped into two: one with zones 1-33 and the other 34-46, than the all zones of 1-46. Also, the two groups had higher values of (r) under the formula (3) than the formula (1).

In the case of truck trips the employment opportunity was considered to be more closely associated than the population. Truck trips indicated a higher value of (r) under formula (4) for the zones 1-33 than the zones 34-46 and the all zones as well. In the case of two-variable regression as in the formula (5), the parameters were reasonable (not negative) and resulted in a high correlation coefficient for small vehicles, buses and jeepneys in the zones 1-33. But other groups had a negative parameter although they had a high value of (r). The parameters are shown in Appendix Table 4.2-10.

It is understood that the parameters indicate the following trip rates in the case of $T = aP_1 + b$, if other conditions are not changed.

Small vehicles	4 vehicle trips per 10 inhabitants
Buses	0.2 vehicle trip per 10 inhabitants
Jeepneys	1 vehicle trip per 10 inhabitants

For the employment opportunities, the regression formula of $T = bP_2 + K$ indicates the following rate:

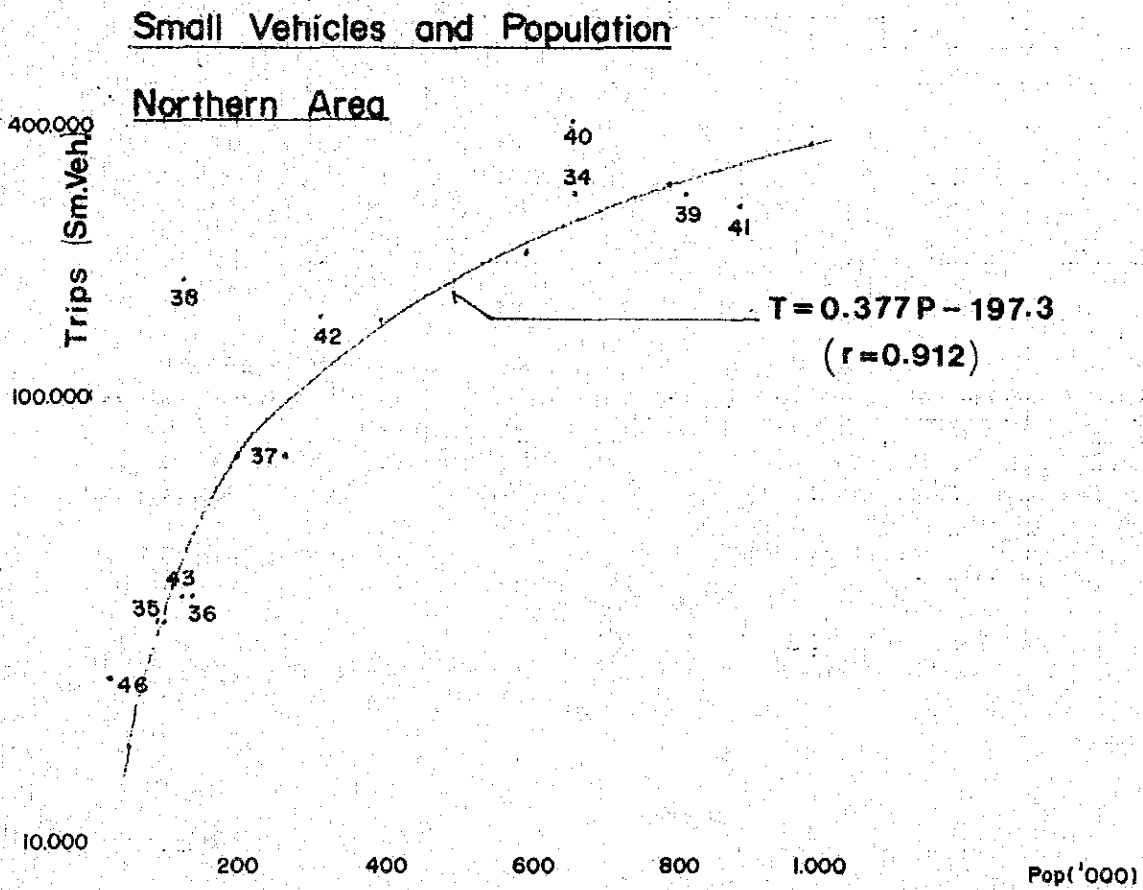
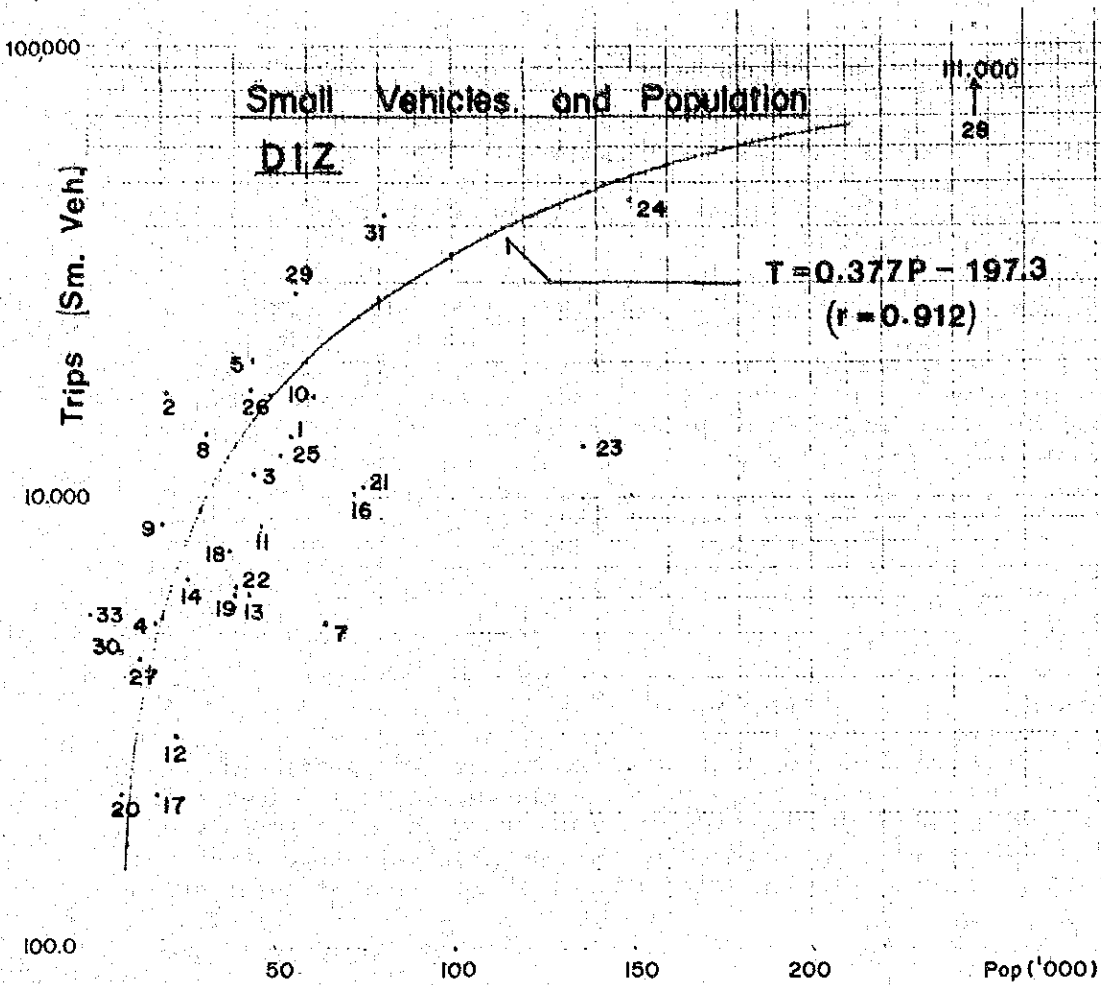
Trucks 8 vehicle trips per 10 workers.

By using the two-variable regression, the following trip production rates were obtained. In these cases the same trip volume was explained by two variables resulting in a smaller respective rate than the cases of single variable (P_1) regression.

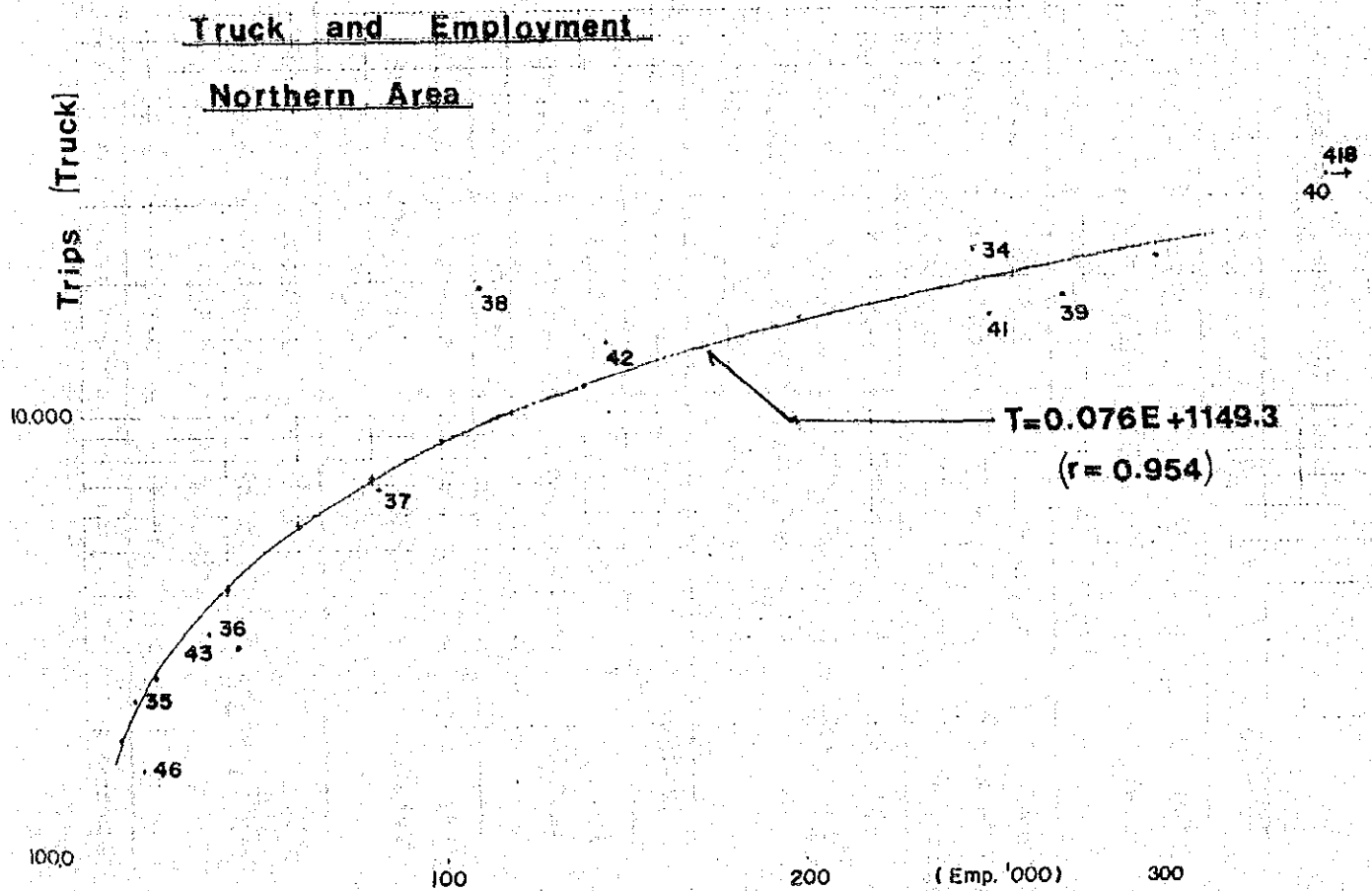
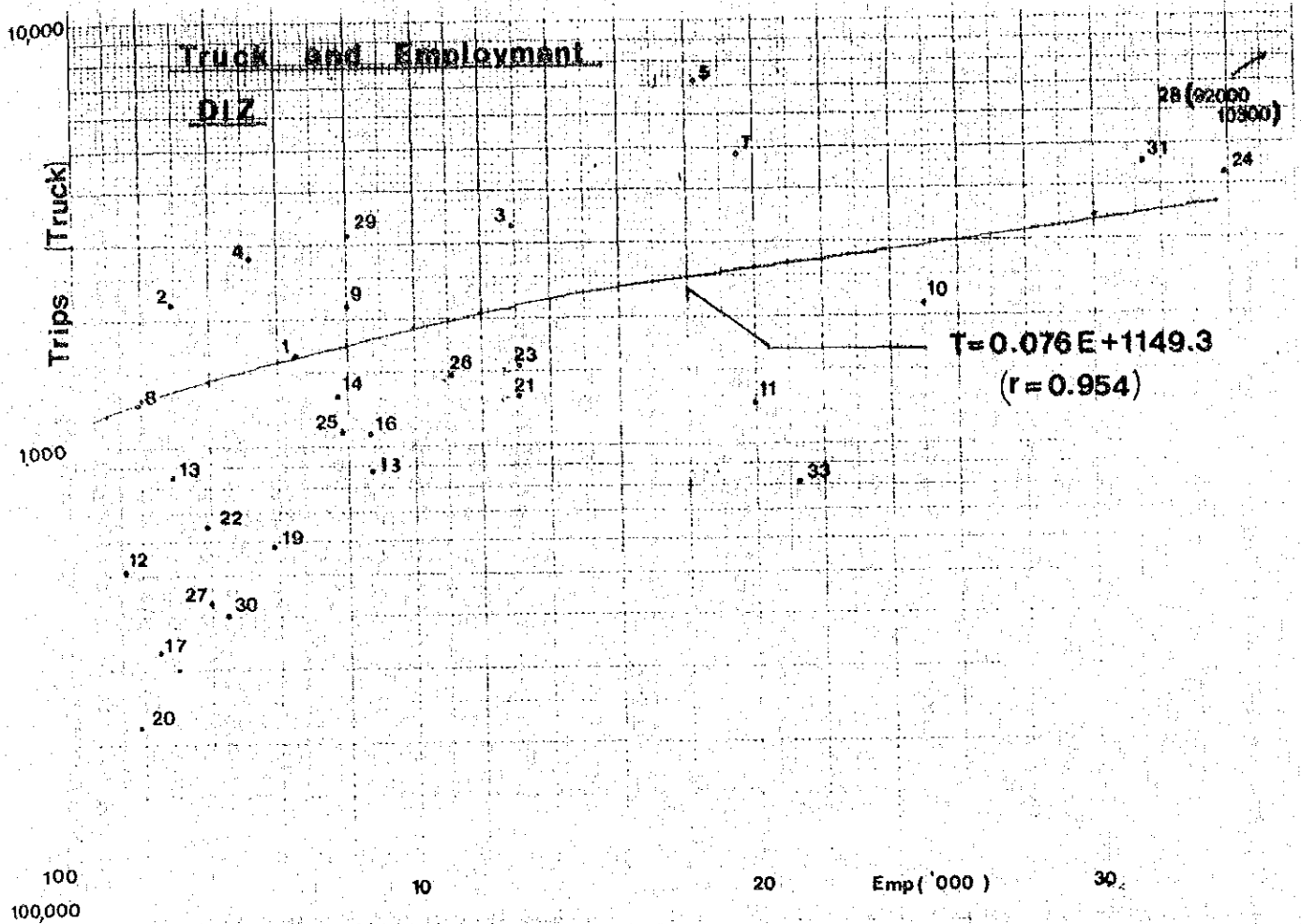
	Every 10 Inhabitants	Every 10 Workers
Small vehicles	1.0	8.0
Buses	0.1	0.6
Jeepney	0.3	3.0
Trucks	negative	1.0

It is to be noted that the parameters indicate the trip production rates in 1981. It does not indicate the time sequential changes in the trip rate from 1981 to 1985 or from 1981 to 1990. Parameters for time sequential changes should incorporate in the changes in income, industrial composit, car ownership, etc., among other factors.

APPENDIX FIG. 4.2-3 TRIPS AND POPULATION



APPENDIX FIG. 4.2-4 TRIPS AND EMPLOYMENT



APPENDIX TABLE 4.2-10. REGRESSION ANALYSIS: PARAMETERS AND CORRELATION COEFFICIENT

Zone	1 - 33	34 - 46	1 - 46
(1)	a : 0.34908	0.12717	0.37737
$T=aP_1 + K$	k : -4694.26331	5383.41467	-1972.50000
	(r) : 0.86419	0.42602	0.91154
(2)	a : 0.99329	2.37563	0.74204
$T=K.P_1^a$	k : 0.20495	9.8934E-08	3.60820
	(r) : 0.86601	0.91503	0.70403
(5)	a : 0.10639	0.16840	-0.01907
$T=aP_1 + bP_2 + K$	b : 0.82434	-0.12906	1.04052
	k : -1095.01904	5138.03247	3070.61865
	(r) : 0.93458	0.43752	0.98771
Zone	1 - 33	34 - 46	1 - 46
(1)	a : 0.02410	0.01063	0.02427
$T=aP_1 + K$	k : -425.36931	132.63591	-143.79019
	(r) : 0.88121	0.42983	0.91179
(2)	a : 0.71455	1.56722	0.59550
$T=K.P_1^a$	k : 0.22846	2.2545E-05	1.14969
	(r) : 0.82204	0.82763	0.69989
(5)	a : 0.00783	-0.00264	-0.00076
$T=aP_1 + bP_2 + K$	b : 0.05527	0.04154	0.06569
	k : -184.04816	211.60883	174.57315
	(r) : 0.94904	0.57849	0.98528

Zone	1 - 33	34 - 46	1 - 46
(1)	a : 0.10301	0.08359	0.11358
$T=aP_1 + K$	k : -1320.86182	-488.05594	-487.72046
	(r) : 0.84926	0.49771	0.90614
(2)	a : 0.87246	2.03155	0.68626
$T=K.P_1^a$	k : 0.21037	8.4144E-07	1.99126
	(r) : 0.85226	0.90354	0.71149
(5)	a : 0.02653	-0.02535	-0.00760
$T=aP_1 + bP_2 + K$	b : 0.25978	0.34107	0.31805
	k : -186.61768	160.41339	1053.77063
	(r) : 0.92773	0.68325	0.98413
Zone	1 - 33	34 - 46	1 - 46
(2)	b : 0.10711	0.10700	0.07563
$T=bP_2 + K$	k : 783.0574	1461.16240	1149.31631
	(r) : 0.83448	0.46898	0.95365
(4)	b : 0.91305	1.48755	0.89209
$T=K.P_2^b$	k : 0.38499	2.5045E-03	0.35343
	(r) : 0.87184	0.8185	0.82436
(5)	a : -0.00219	0.00138	-0.01150
$T=aP_1 + bP_2 + K$	b : 0.11261	0.10417	0.10169
	k : 837.14339	1436.57243	1483.90244
	(r) : 0.83486	0.46907	0.96255

Remarks: a and b are the parameters of the variable, P_1 and P_2 and K is the constant resulted from the regression. (r) is the correlation coefficient. P_1 is population and P_2 is employment opportunity.

APPENDIX NOTE 4.2 TRIP LENGTH DISTRIBUTION

Trip lengths of vehicles were studied from the data of the origin-destination interview survey. The data were grouped into two: one in the corridor along the coast of Manila Bay (Interview stations 1 and 2) and the other along the coast of Laguna Lake (Interview stations 3 and 4). Trip lengths in kilometers were classified into 13 categories marked off by every 5 kilometers.

The result is shown in Appendix Fig. 4.2-5 from which the following points were noticed:-

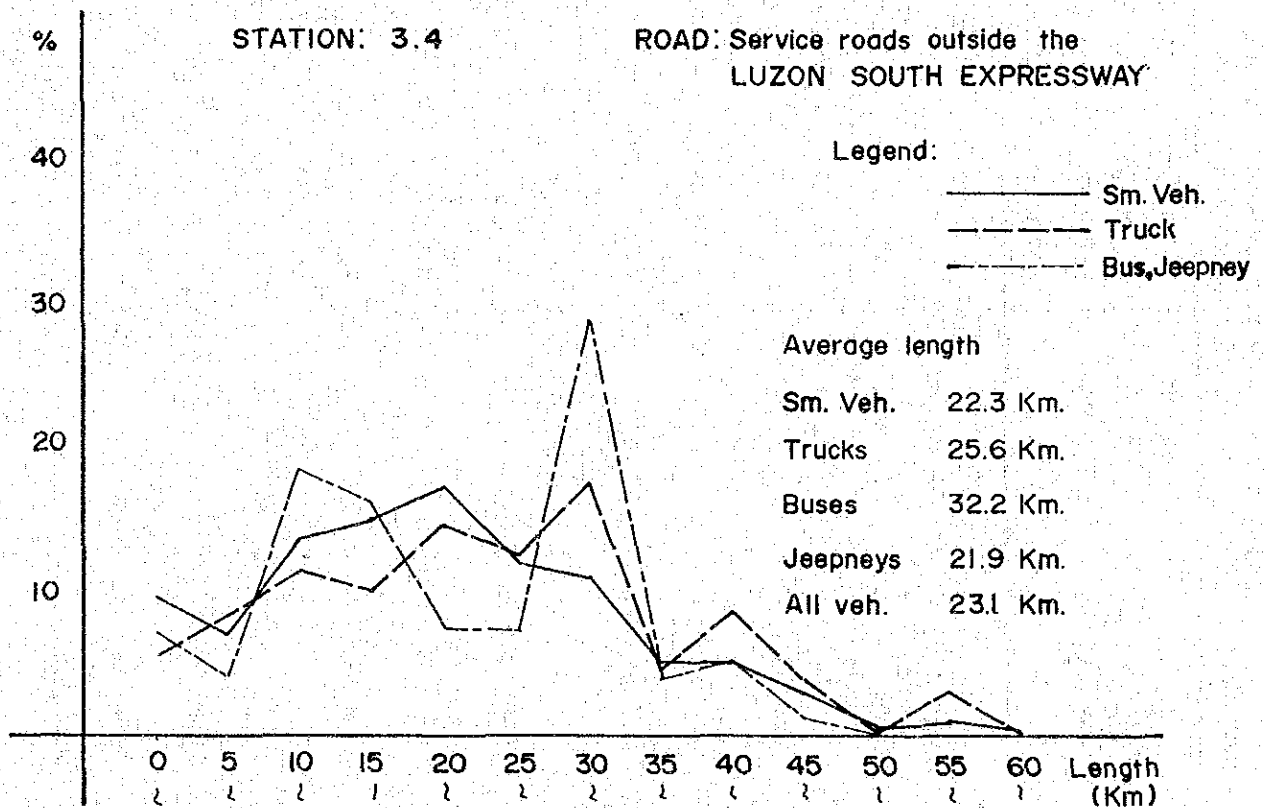
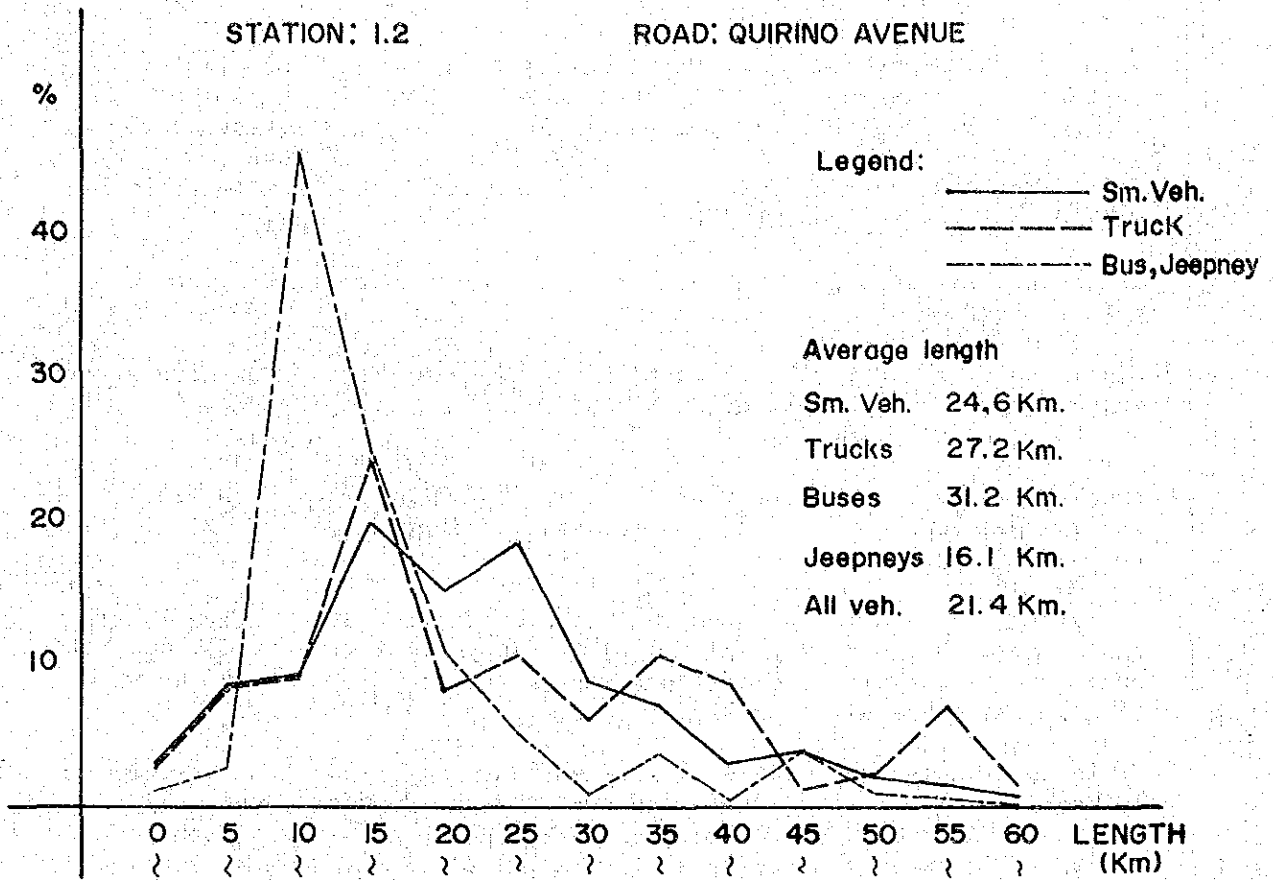
Small vehicles had a similar pattern of trip distribution on both groups. The average length was 22 Km on the side of Laguna Lake and 25 Km on the side of Manila Bay.

Trucks had also the same pattern of trip distribution on both sides. The average length was 26 Km for the side of Laguna Lake and 27 Km for the side of Manila Bay.

The difference was found in bus and jeepney trips. The average length was 23 Km in the former group and 19 Km for the latter. If divided into buses and jeepneys, the difference was larger for jeepneys (22 Km vs. 16 Km), while buses had the same average length (32 Km vs. 31 Km).

It is to be noted that these classifications were only those interviewed in May 1981. Traffic on the expressway and the Project Roads were not included. If they were included the trip length of buses, jeepneys and trucks would have been substantially larger for those moving the side of Laguna Lake.

APPENDIX FIG. 4.2-5 TRIP LENGTH DISTRIBUTION



APPENDIX NOTE 4.3 TRAFFIC VOLUME AND ROAD CAPACITY IN 1981

The counted traffic volume in Appendix Table 4.2-4 was used to determine the peak hour volume for the selected road sections. From these data the peak hour ratio in the traffic volume for each road section was obtained and shown as the peak factor in Appendix Table 4.2-11. The existing hourly capacity and daily capacity were estimated using the factors shown in the same table. The peak hour volume in 1981 for the selected sections and the respective hourly capacity are shown in Appendix Fig. 4.2-6.

It was found that the peak hour volume was 8,600 vehicles while the hourly capacity was 12,800 vehicles on the screen AA. It indicated that the total roads serving the north-south traffic had sufficient capacity in 1981. However, the situation differed when the east and the west corridors were studied independently.

In the west corridor, both roads of Qurino Avenue and Imelda Avenue have served excessive hourly traffic volume more than their hourly capacity, while in the east corridor the peak hour traffic volume of 5,000 vehicles was considerably less than the capacity of the roads, 10,400 vehicles per hour, including South Luzon Expressway.

It was found that the roads in the west corridor had almost always been congested, resulting often stopping and queuing; while the roads in the eastern corridor had served more traffic with higher running speed and less congestion.

In the cordon screen of BB the peak hour traffic was yet reaching its hourly capacity, while in the screen B'B' the traffic exceeded the capacity. The screen B'B' was located 1 Km. inside from the South Luzon Expressway. When the whole section is taken into account, it can be said that the traffic is now at the design capacity of the Project Roads of both A and B.

APPENDIX TABLE 4.2-11 ESTIMATED TRAFFIC CAPACITY OF THE EXISTING ROADS

Items	A1	A2 (IS-1)	A3	A4	A5	A6	ROUTE-303: SUCAT RD	ALABANG RD
Name of Road & Survey Station	QUIRINO : AVENUE	IMELDA : AVENUE	SERVICE RD : (WEST SIDE)	SERVICE RD : (EAST SIDE)	SOUTH SUPER : HIGHWAY	PARANAQUE : ZAPOTE		
Number of Lane	2	2	2	2	2	2	2	2
Peak Factor (%)	8.8	10.8	9.0	9.8	8.9	10.0	10.1	11.4
% of Heavy Vehicles	7.6	4.7	15.0	11.6	5.2	13.0	8.3	10.0
Basic Capacity (P.C.U./hr)	2500	2500	2500	2500	2500	2500	2500	2500
Lane width	0.85	0.85	0.77	0.77	1.00	1.00	0.94	0.94
Lateral Clearance	0.86	0.75	0.70	0.70	1.00	1.00	0.96	0.96
Heavy Vehicle	0.92	0.95	0.86	0.90	0.85	0.85	0.90	0.90
Condition of Sight	0.70	0.80	0.70	0.70	1.0	1.0	0.7	0.7
Total	0.471	0.485	0.324	0.340	0.93	0.93	0.569	0.569
Possible Capacity (Veh/hr)	1,178	1,213	810	850	2,112	2,112	1421	1421
Design Level (Adjustment) V/C	1.0	1.0	1.0	1.0	0.9	0.9	1.0	1.0
Design Capacity (Veh/hr) CD 2	1,178	1,213	810	850	2,093	2,093	1,421	1,421
Peak Factor (%)	8.8	10.8	9.0	9.8	10.0	10.0	10.1	11.4
Rate of Direction (%)	-	-	-	-	60	60	-	-
(Veh/day)	13,400	11,200	9,000	8,700	18,000	18,000	14,000	12,500
Daily Capacity					x 4	x 4		
					= 72,000	= 72,000		

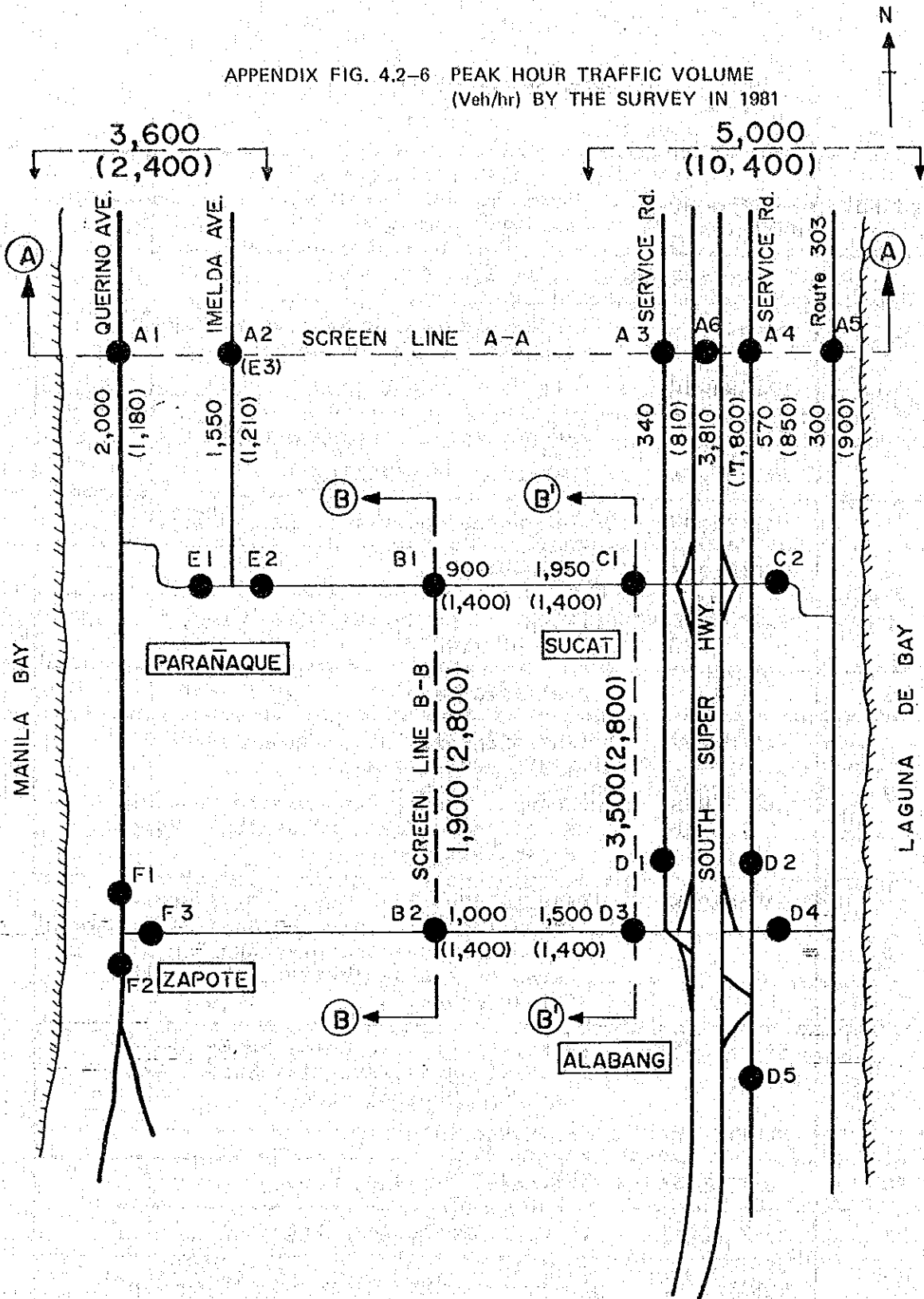
Notes: 1) Peak factor in percent is tabulated by using the traffic volume of 16 hours. The average factor is 9.9%.
 (If the volume of 24 hours is used, the average peak hour factor will be 7.7%).

2) Design Capacity (CD) = $CB \times YL \times YC \times YT \times YI$

3) Daily Capacity (Multiple Lanes) = $\frac{5000 \times CD}{K \times D}$, Daily capacity (2 Lanes) = $\frac{100}{K} \times CD$

Source: Highway Capacity Manual 1965 (Bureau of Public Roads, USA) and Japan Road Design Standard (Japan Roads Association, 1970).

APPENDIX FIG. 4.2-6 PEAK HOUR TRAFFIC VOLUME
(Veh/hr) BY THE SURVEY IN 1981



Legend:

3,600 : Peak Hour Traffic Through the Traffic Counting
in MAY 1981 by the Study Group

● : SURVEY STATION

(2,400) : ESTIMATED TRAFFIC CAPACITY (Veh/hr)

APPENDIX TABLE 4.3-1 ZONE TABLE

(1 of 4)

Zone No.	Description	
	MUNICIPALITY - (Name of Barangay)	
Direct Influence Zone (33 Zones)		
1	TAGUIG	- (Lower Bicutan, Maharlika Village, Signal Village, Upper Bicutan)
	PARAÑAQUE	- (San Martin de Porres)
2	TAGUIG	- (Bagong Tanyag, Bagumbayan)
	PARAÑAQUE	- (Marcelo Green Village)
3	PARAÑAQUE	- (Don Bosco, Merville, Sun Valley)
4	PARAÑAQUE	- (Moonwalk)
5	PARAÑAQUE	- (Vitales, La Huerta, Sto. Niño, San Dionisio)
6	Reclaimed Land	
7	PARAÑAQUE	- (San Dionisio; Gatchalian Subd./ Villanueva Village)
	LAS PIÑAS	- (Manuyo, Manuyo Des, Danilo Fajardo, E. Aldana, Ilaya, Pulanglupa, Zapote, Pulanglupa Dos)
8	PARAÑAQUE	- (San Isidro, B.F. Homes; B.F. Homes Executive/B.F. Homes Phase II/III, San Antonio; San Antonio Valley I & II/ Barangay Village/Better Living/4th Estate Subd.)
9	PARAÑAQUE	- (B.F. Homes: B.F. Homes Phase I/ Teoville Subd./St. Rita Subd., San Antonio; Moon-El Subd.)
	MUNTINLUPA	- (Buli, Suat)
10	MUNTINLUPA	- (Bayanan, Alabang, Cupang)
11	MUNTINLUPA	- (Tunasan, Poblacion, Pototan)
12	LAS PIÑAS	- (Almanza, Almanza Dos, Pilar Village)
13	LAS PIÑAS	- (B.F. Int. Village, Talon, Talon Tres, Talon Cuatro, Talon Singko)
14	LAS PIÑAS	- (Pamplona, Pamplona Dos, Pamplona Tres, Talon Dos)
15	Reclaimed Land	

APPENDIX TABLE 4.3-1 ZONE TABLE

(2 of 4)

Zone No.	Description	
	MUNICIPALITY - (Name of Barangay)	
16	BACOR	- (Aliwa, Aniban, Bonalo, Daang Bukid, Digmaan, Dulong Bayan, Habay, Kaingin, Ligas, Mabolo, Maliksi, Niyog, Pedro Espiritu, Real, Salinas, Sineguilasan, Tabing Dagat, Talaba, Zapote)
17	BACOR	- (Bayanan, Mambog, Molino, San Nicolas)
18	KAWIT	- All Area
19	IMUS	- (Barangay 1-4, Bayan Luma, Palico, Pag-asa, Alapan I, Bukandala, Calsadang Bago, Medicion 1 & 2, Toclong 1 & 2, Tanzang Luma)
20	IMUS	- (Anabu I & II, Pasong Buaya)
21	SAN PEDRO	- (All Area)
22	GEN. TRIAS	- (Bacao, Tejero, San Juan, Sta. Clara, Navarro, Pinagtipunan, Tapia, Pasong Kamachile, Santiago, Pasong Kawayan I & II)
23	CAVITE CITY/NOVELETA/ROSARIO	- (All Area)
24	BIÑAN/CARMONA	- (All Area)
25	DASMARIÑAS	- (All Area)
26	TANZA	- (All Area)
27	GEN. TRIAS	- (Buenavista, San Francisco, Manggahan, Biclatan, Javatera, Panungyanan, Alingaro)
28	PASAY CITY	- (San Isidro, Sta. Clara, San Roque, San Rafael, Malibay) : Pasay New Zone 1 - 18
29	TAGUIG	- (Bambang, Calzada, Ibayo-Tipas, Ligid-Tipas, Napindan, Palingon, Sta. Anan, Tuktukan, Ususan, Wawa)
30	TAGUIG	- (Western Bicutan, Fort Bonifacio)
31	PASAY	- (Manila International Airport Area) : Pasay New Zone 19 - 20
	PARAÑAQUE	- (Baclaran, Tambo, Dongalo)

APPENDIX TABLE 4.3-1 ZONE TABLE

(3 of 4)

Zone No.	Description
	MUNICIPALITY - (Name of Barangay)
32	Reclaimed Land
33	Reclaimed Land
External Zone (16 Zones)	
134	Bounded on the north of Manila, the west by the boundary of the Municipality of MAKATI, on the east by the boundary of Fort Bonifacio and on the South by Epifanio de los Santos Avenue (C-4)
135	Bounded on the north and east by Pasig River, on the south by the boundary of Fort Bonifacio and on the west by EDSA (C-4).
136	Municipality of TAYTAY
137	Bounded on the west by Marikina River, on the east by the boundary of the Municipality of TAYTAY, on the north by the boundary of the Municipality of MARIKINA and on the south by Pasig River.
138	Bounded on the west by Epifanio de los Santos Avenue (C-4) and on the east by Marikina River, on the north by Aurora Boulevard and on the south by the boundary of the Pasig City.
139	Bounded on the east by Epifanio de los Santos Avenue (C-4), on the west and south by Pasig River and on the north by Quezon Avenue (R-7).
140	The Area surrounded by C-2 Route (C.B.D.)
141	Bounded on the north by Epifanio de los Santos Avenue (C-4), on the south by Quezon Avenue (R-7) and on the west of Caloocan city.
142	Bounded on the east by Marikina River, on the west by Epifanio de los Santos Avenue (C-4), on the north by the proposed Republic Avenue and on the south by Aurora Boulevard.
143	Bounded on the west by Marikina River and on the north, east and south by the boundary of the Municipality of MARIKINA.

APPENDIX TABLE 4.3-1 ZONE TABLE

(4 of 4)

Zone No.	Description
	MUNICIPALITY - (Name of Barangay)
144	Bounded on the north and east by the boundary of the Cities of QUEZON CITY and CALOOCAN, and on the south by proposed Republic Avenue.
145	Bounded on the north by the boundary of the Municipality of MEYCAUAYAN, on the south by Epifanio de los Santos Avenue (C-4).
146	Bounded on the north by Epifanio de los Santos Avenue (C-4) and on the south and west by the boundary of the Municipality of MAKATI.
247	Municipalities of SANTA ROSA/CABUYAO/CALAMBA/LOS BAÑOS
248	Municipalities of SILANG/AMADEO/TAGAYTAY CITY
249	Municipalities of NAIG/INDANG/MENDEZ NUÑEZ/ALFONSO/MARAGONDON/GEN. AGUINALDO BAILEN/MAGALLANES

APPENDIX TABLE 4.3-2 OD INTERVIEW FIELD FORM-(A)
(ALL VEHICLE TYPES)

STA. NO. _____ DATE & DAY: MAY 81 () WEATHER: _____ SHEET No.: _____
 DIRECTION: FROM _____ TO _____ INTERVIEWER: _____ O'CLOCK _____
 1. IDENTIFICATION CODE _____
 2. INTERVIEW HOUR _____

3. VEHICLE	1. JEEPNEY 2. CAR/JEEP/TAXI 3. VAN/PICK-UP 4. MINI BUS 5. BIG BUS 6. TRUCK MEDIUM 7. TRUCK LARGE 8. OTHERS(MOTORCYCLE/TRICYCLE)	YEAR OF MANUFACTURE 1 2 3 4 5 6 7 8 9 10 11 12
4. HOME ADDRESS	ST. & ST./BARRIO CITY/MUN./PROVINCE	13 14 15
5. ORIGIN	{ ST. & ST./BARRIO CITY/MUN./PROVINCE OR. NAME OF POPULAR FACILITY ()	16 17 18 19 20 21
6. DESTINATION	{ ST. & ST./BARRIO CITY/MUN./PROVINCE OR. NAME OF POPULAR FACILITY ()	22 23 24
7. PURPOSE OF TRIP	1. HOME 2. WORK 3. SCHOOL 4. BUSINESS 5. SHOPPING 6. RECREATION 7. OTHERS	25
8. NUMBER OF PASSENGERS	(INCLUDING DRIVER) _____ PASSENGERS	26 27
9. SEAT CAPACITY	(ONLY FOR JEEPNEY, MINI BUS, BIG BUS) _____ SEATS	28 29

APPENDIX TABLE 4.3-3 OD INTERVIEW FIELD FORM-(B)
(PUBLIC TRANSPORT PASSENGERS)

STA. NO. _____ DATE & DAY: MAY 81 () WEATHER: _____ SHEET No.: _____
 DIRECTION: FROM _____ TO _____ INTERVIEWER: _____
 1. IDENTIFICATION CODE _____
 2. INTERVIEW HOUR _____ O'CLOCK _____

3. VEHICLE	1. JEEPNEY 4. MINI BUS 5. BIG BUS	1 2 3 4 5 6
4. HOME ADDRESS	ST. & ST./BARRIO CITY/MUN./PROVINCE	13 14 15
5. ORIGIN	{ ST. & ST./BARRIO CITY/MUN./PROVINCE OR. NAME OF POPULAR FACILITY ()	17 18 19
6. DESTINATION	{ ST. & ST./BARRIO CITY/MUN./PROVINCE OR. NAME OF POPULAR FACILITY ()	20 21 22
7. PURPOSE OF TRIP	1. HOME 2. WORK 3. SCHOOL 4. BUSINESS 5. SHOPPING 6. RECREATION 7. OTHERS	23

APPENDIX TABLE 4.3-4 SAMPLING RATE OF OD INTERVIEW

Station Direction 1)	OD-1 (Parañaque)		OD-2 (Zapote)		OD-3 (Alabang)		OD-4 (Sucat)		Total		TOTAL (I & II)
	A	B	A	B	A	B	A	B	A	B	
	Description										
3)	599	434	1,218	464	488	665	661	505	2,966	2,068	5,034
4)	10,858	8,016	8,588	10,745	5,089	7,059	5,751	5,143	30,286	30,963	61,249
	5.5	5.4	14.2	4.3	9.6	10.6	11.5	9.8	9.8	6.7	8.2
	818	922	874	446	838	825	1,056	970	3,586	3,163	6,749
	67,858	54,022	55,758	67,636	28,970	24,989	21,781	8,177	174,367	154,824	329,191
	1.2	1.7	1.6	0.7	2.9	3.3	4.8	11.9	2.1	2.0	2.1

- NOTE: 1) Direction A towards Manila and Direction B from Manila
 2) Traffic Volume is shown for 12 hours from 6:00 A.M. to 6:00 P.M.
 3) In number of vehicles
 4) In number of persons
 5) The survey was on May 20, 1981 (Wednesday) on Station 1 and 4 and May 21, 1981 (Thursday) on Station 2 and 3.

APPENDIX TABLE 4.3-5 WEEKLY VARIATION OF TRAFFIC

Station	Date	Weekday	TR 24 HR	Ratio/AV.	
South	April 19 '81	Sun	38357	0.800	
Expressway	20	Mon	51358	1.071	
NicholsGate	21	Tue	51940	1.083	$1/1.083 = 0.923$
	22	Wed	51186	1.068	$1/1.068 = 0.936$
	23	Thu	48408	1.009	
	24	Fri	49436	1.031	
	25	Sat	44893	0.936	
	Total	-	335618	-	
	Average		47945	1.000	
KB 94	Nov. 20 '80	Thu	11210	1.056	
(1618)	21	Fri	10584	0.997	
Km 24.9	22	Sat	10436	0.983	
Cavite Pro.	23	Sun	11521	1.085	
	24	Mon	10128	0.954	
Manila-	25	Tue	9613	0.905	$1/0.905 = 1.105$
Cavite	26	Wed	10841	1.021	$1/1.021 = 0.979$
	Total	-	74333	-	
	Average		10619	1.000	
St 2400	Dec. 8 '80	Mon	7621	1.046	
K 47.00	9	Tue	7319	1.005	$1/1.005 = 0.995$
Laguna Pro.	10	Wed	7603	1.044	
	11	Thu	7337	1.007	$1/1.007 = 0.993$
Calamba	12	Fri	7437	1.021	
Cabuyao	13	Sat	7177	0.985	
	14	Sun	6485	0.890	
	Total	-	50997	-	
	Average		7283	1.000	

Source: Same as shown in APPENDIX TABLES 4.2-7 and 4.3-8

APPENDIX TABLE 4.3-6 ROADSIDE O-D INTERVIEWING: FACTORS OF EXPANSION TO DAILY TRAFFIC (12 HOURS TO 24 HOURS)

O-D	Direction	Hours	COUNTED	VEHICLE TYPES					Total
				Cars	Trucks	Jeepneys	Buses		
O-D 1A	To Manila	12 HS	COUNTED	5113	326	4715	704		10858
		24 HS	"	6491	455	6909	901		14756
		E F		1,270	1,396	1,465	1,280		-
O-D 1B	From Manila	12 HS	"	3166	202	4044	604		8016
		24 HS	"	5251	265	6234	870		12620
		E F		1,659	1,312	1,542	1,440		-
O-D 4A	To Manila	12 HS	"	2204	497	2659	391		5751
		24 HS	"	2722	742	3846	585		7895
		E F		1,235	1,493	1,446	1,496		-
O-D 4B	From Manila	12 HS	"	1911	514	2492	226		5143
		24 HS	"	3387	757	4083	452		8679
		E F		1,772	1,473	1,638	2,000		-
O-D 2A	To Manila	12 HS	"	3580	363	3744	901		8588
		24 HS	"	5768	493	5470	1401		13132
		E F		1,611	1,358	1,461	1,555		-
O-D 2B	From Manila	12 HS	"	4725	343	4394	1283		10745
		24 HS	"	6452	476	6410	1828		15166
		E F		1,366	1,388	1,459	1,425		-

	Hours	COUNTED	VEHICLE TYPES					Total
			Cars	Trucks	Jeepneys	Buses		
O-D 3A	12 HS	COUNTED	1716	658	2391	324	5089	
	24 HS	"	2707	990	4032	585	8314	
	E F		1,578	1,505	1,686	1,806	-	
O-D 3B	12 HS	"	3094	932	2573	460	7059	
	24 HS	"	4292	1248	4364	675	10579	
	E F		1,387	1,339	1,696	1,467	-	

ADT AND AADT ADJUSTMENT FACTORS

ROADSIDE INTERVIEW	ADT	AADT
O-D TABLES	0.979	0.961
3 & 4	0.993	1.000

Source: From APPENDIX TABLES 4.2-7, 4.3-4 and 4.3-5

APPENDIX TABLE 4.3-8 SOUTH EXPRESSWAY: CHANGES OF TRAFFIC: APRIL AND MAY 1978-81

	All tolled vehicles/month			
	1978	1979	1980	1981
April	1,135,627	1,646,015	1,761,236	1,346,613
May	1,294,152	1,869,163	1,902,185	1,436,971
Total	2,429,779	3,515,178	3,663,421	2,783,584
	(0.691)	(1.000)	(1.042)	(0.792)

Notes: 1) The section between Calamba and Alabang was opened in May 1978.

2) The reduction was caused by the increase of toll rate in July 1980 approximately by 50%.

Source: Tollways Department, GDCP

APPENDIX TABLE 4.3-9 SOUTH EXPRESSWAY, NICHOLS PLAZA, CHANGES OF TRAFFIC BY MONTH, 1979

	All tolled vehicles/month													
	Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec	Average/day	
Entry	619,367	560,352	630,088	558,497	636,002	634,632	640,005	657,206	628,661	659,265	616,061	679,010	7,519,146	(20887)
Exit	738,964	687,736	793,419	714,962	816,348	798,424	789,718	806,224	785,241	813,791	776,722	858,698	9,380,247	(26056)
Total	1,358,331	1,248,088	1,423,507	1,273,459	1,452,350	1,433,056	1,429,723	1,463,430	1,413,902	1,473,056	1,392,783	1,537,708	16,899,393	(46943)
Ratio	(0.965)	(0.886)	(1.011)	(0.904)	(1.031)	(1.018)	(1.015)	(1.039)	(1.004)	(1.046)	(0.988)	(1.092)	1,408,283	(1.000)
					Total	Average								

Notes: In May AADT factor is 1/1.031 = 0.970.

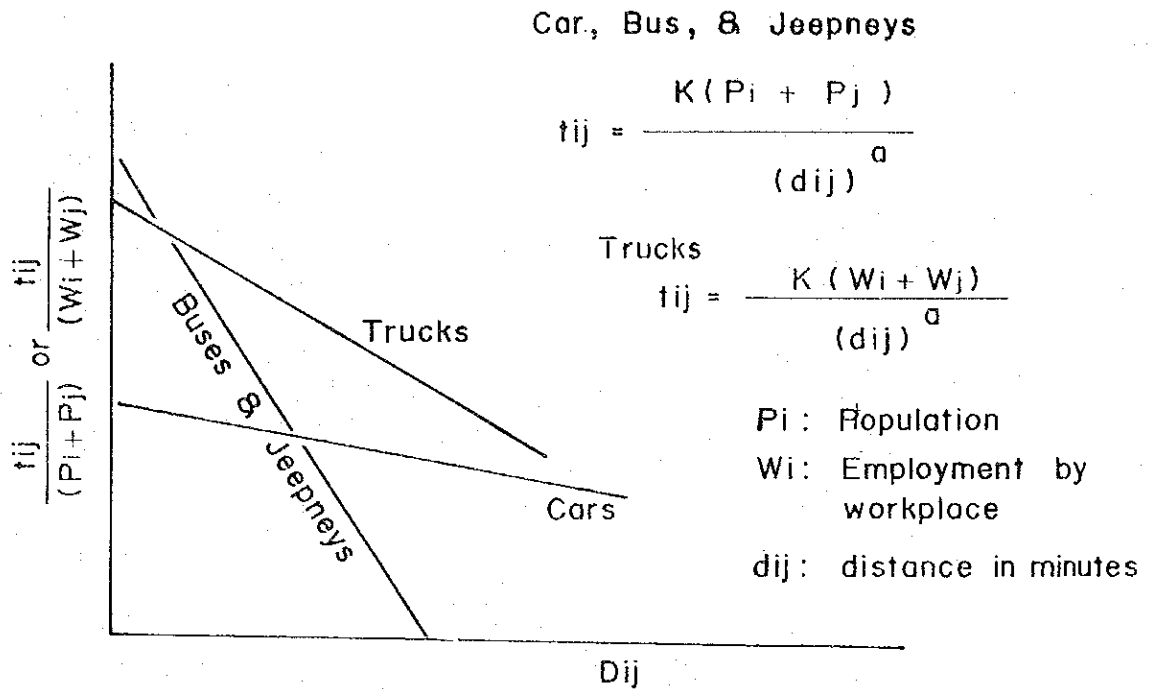
Source: Ibid

APPENDIX TABLE 4.3-10 VEHICLE COUNT - LUZON SOUTH EXPRESSWAY ; APRIL 19-25 1981
VEHICLES BY TYPE

LINK	DIRECTION	Sm & Je		SB		3		Trucks		Buses		TOTAL	ADT
		1	2	3	4	5	6	7	8	9			
NICHOLS	ENTRY	144,714	10,976	2,797	475	318	10	459	4	13,776		173,529	24,790
	EXIT	159,909	11,416	3,067	435	278	6	505		12,254		187,870	26,839
SIGUPAN	ENTRY N	34,312	2,423	563	81	42		70	1	2,643		40,135	5734
	EXIT S	8,689	1,510	725	42	36		44		5,917		16,963	2423
SUCAT	ENTRY N	9,180	1,220	377	65	30		50		797		11,719	1674
	EXIT S	34,080	2,141	402	63	38		70		5,034		41,828	5975
ALABANG	ENTRY N	47,967	1,516	322	31	32	1	28	1	863		50,761	7252
	EXIT S	4,460	624	171	4	2		24		5,316		10,601	1514
CARMONA	ENTRY N	3,065	378	53	7	11	4	2		562		4,082	583
	EXIT S	48,714	1,618	282	28	11		32		5,881		56,566	8081
CALAMBA	ENTRY N	42,656	3,654	1,470	203	83	1	151		9,695		57,913	8273
	EXIT S	2,839	595	161	16	16		29		3,332		6,988	998
TOTAL	ENTRY	5,783	789	226	7	4	1	33	1	4,515		11,359	1623
	EXIT	36,664	3,219	1,220	185	120		156		9,402		50,966	7281
CALAMBA	ENTRY	16,730	1,913	283	29	29	8	142	4	440		19,578	2797
	EXIT	15,030	1,916	346	30	25		115		146		17,608	2515
TOTAL	ENTRY	38,903	5,150	1,104	125	114	5	243		5,772		51,416	7345
	EXIT	35,396	4,381	1,066	137	118	2	245	2	5,825		47,172	6739
TOTAL	ENTRY	341,270	28,361	7,596	1,006	672	25	1,190	10	47,754		427,884	61126
	EXIT	347,821	27,078	7,039	957	635	13	1,208	3	44,416		429,170	61310

SOURCE: Ibid.

APPENDIX FIG. 4.3-1 GRAVITY MODEL PARAMETERS



Parameters by regression analysis of the data on O D station No.1 at Quirino Avenue

	K	a	r
BUS,- JEEP	0,72184	2,89385	r = 0,67228
CAR	1,22832 x 10 ⁻⁶	1,31985	r = 0,72838
TRUCK	4,07418 x 10 ⁻⁵	1,81179	r = 0,88578

Remarks: In order to curb the deviation which might resulted in too large or too small estimated trips by using this model, the calculated t_{ij} were summed up into four groups as identifiable in Appendix Table 4.3-7 and adjusted to the summed up total of the corresponding O-D Trips in 1980 produced from the MMETROPLAN forecast