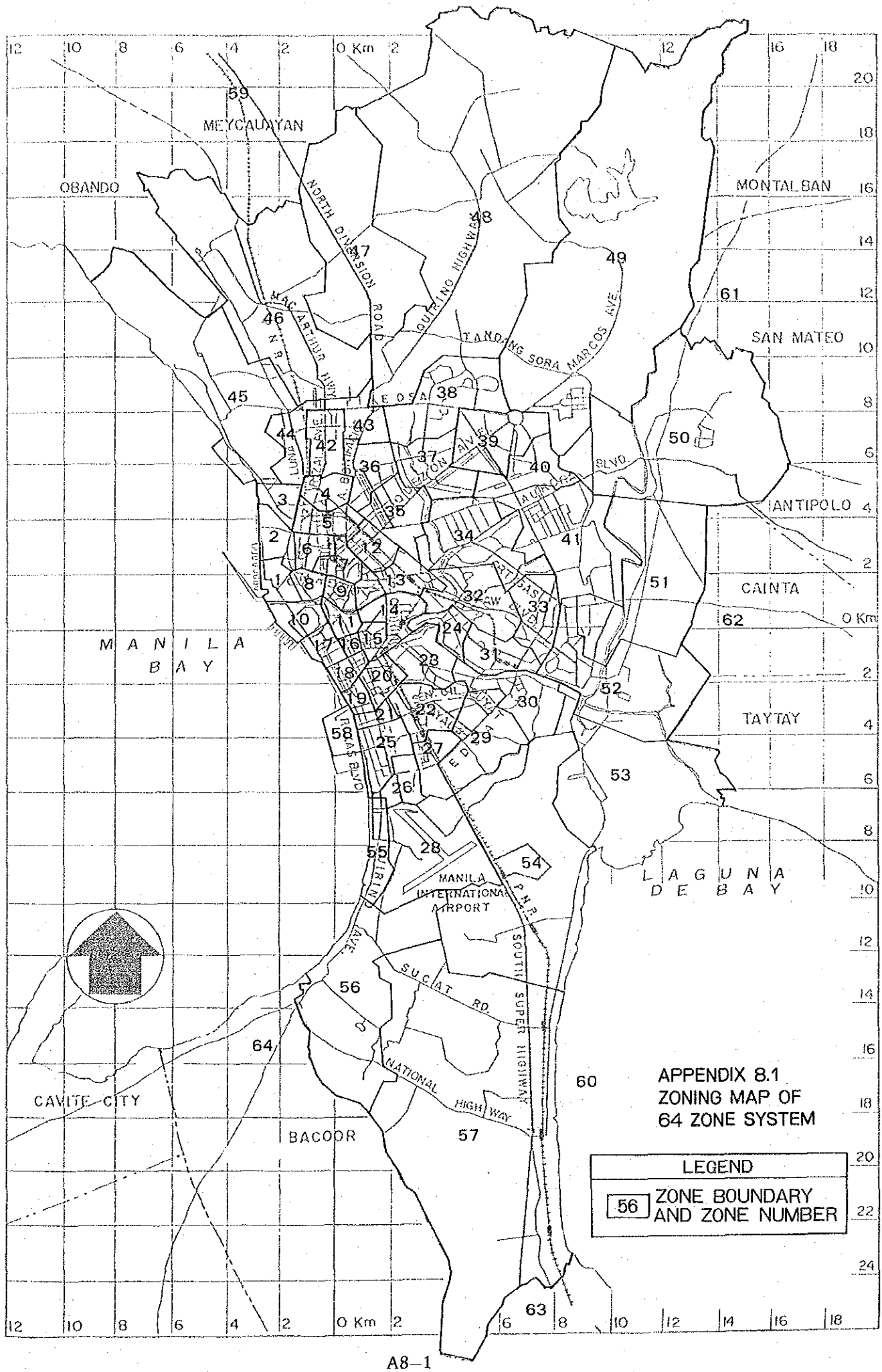
APPENDICES

LIST OF APPENDICES

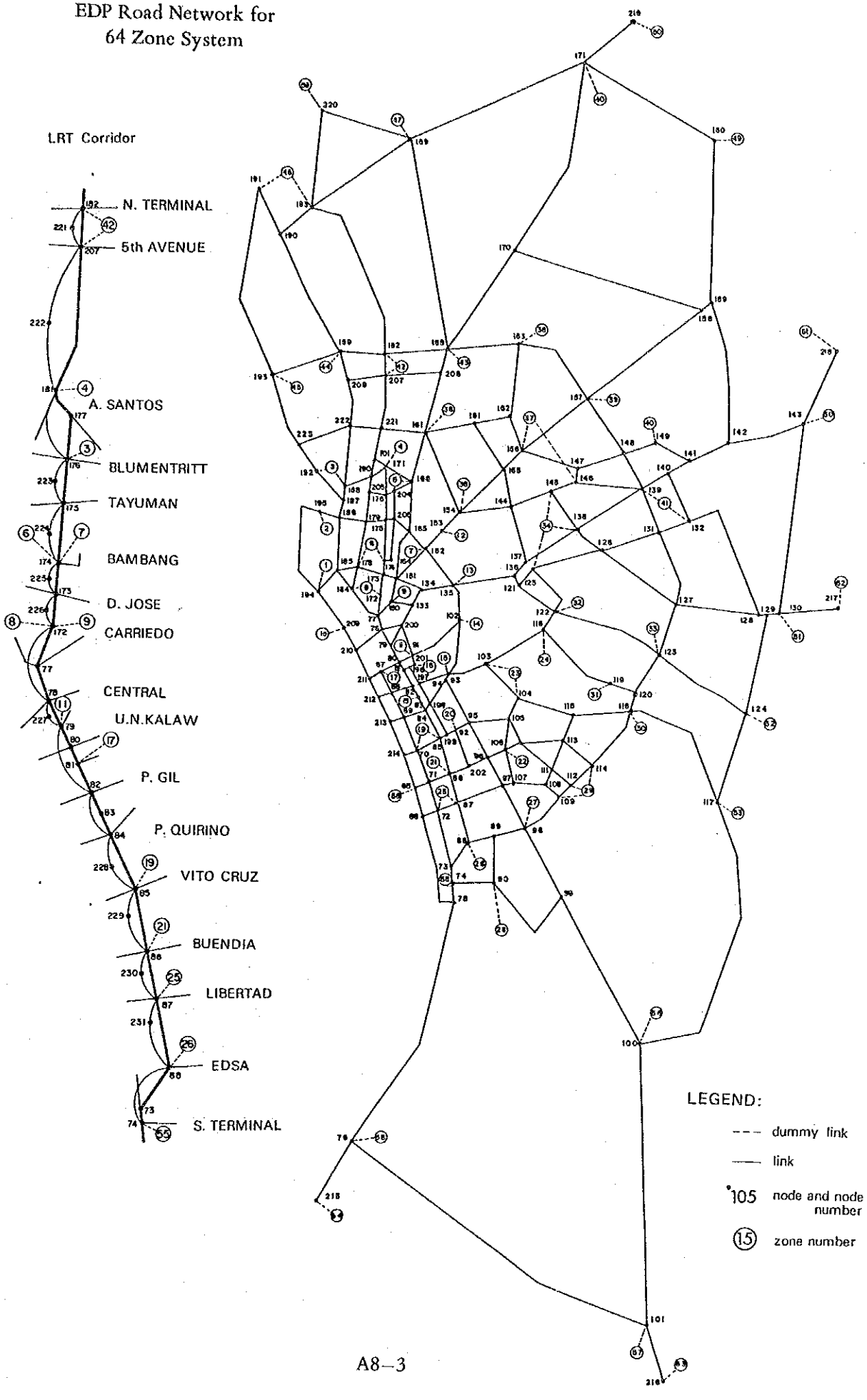
CHAPTER 8


MEYCAUAYAN
OBANDO
MONTALBAN
SAN MATEO
ANTIPOLO
CAINTA
TAYTAY
MANILA BAY
LAGUNA DE BAY
CAVITE CITY
BACOOR
MANILA INTERNATIONAL AIRPORT
NORTH DIVERSION ROAD
QUIRINO HIGHWAY
MAC ARTHUR HWY.
TANDANG SORA MARCOS AVE.
EDSA
AURORA BLVD.
SUCAT RD.
SOUTH SUPER HIGHWAY
NATIONAL HIGH WAY
0 Km
APPENDIX 8.1
ZONING MAP OF
64 ZONE SYSTEM
LEGEND
56 ZONE BOUNDARY AND ZONE NUMBER

Appendix 8.2
JUMSUT 64 Zoning System

JUMSUT Zone No.	Zone Name	MMUTIP Zone No.	JUMSUT Zone No.	Zone Name	MMUTIP Zone No.
1	Divisoria	1, 9	37	Roces/Roosevelt	100, 102, 108
2	Tondo	2	38	Pag-asa/Bago-bantay	99, 103, 104, 131, 132
3	Balut	3, 4			
4	Manuguit	5, 6	39	Philcoa/QMC	105, 106, 124
5	Blumentritt	7,16, 25	40	Kamuning/Kamias	107, 120, 121, 123
6	Sta. Cruz	8, 15			
7	Lerma/Recto	14, 19, 23	41	Cubao	112, 113, 114, 115, 116, 117, 118, 119
8	Binondo	10, 11, 12			
9	Quiapo	13, 17, 18, 33	42	Monumento	136, 139
10	Intramuros	34, 35	43	Balintawak	98, 134, 141
11	San Marcelino	36, 37	44	Sangandaan	137, 138, 140
12	Sampaloc	22, 24, 26	45	Navotas	156, 157, 158, 159, 160, 161, 162, 163
13	Sta. Mesa	20, 21, 27, 28, 31, 32			
14	Pandacan	49, 50, 51	46	Malabon	148, 149, 150, 151, 152, 153, 154, 155
15	Paco	40, 41, 47			
16	Leon Guinto	39			
17	Ermita	38	47	Valenzuela	145, 146, 147
18	Malate	42, 43	48	Novaliches	128, 129, 133, 142, 143, 144
19	Vito Cruz	44			
20	Singalong	45, 46	49	Fairview	125, 126, 127, 130
21	Taft/Buendia	53, 54			
22	Buendia	65, 68, 71	50	Marikina	122,164, 165, 166, 167, 168, 169, 170, 171
23	Sta. Ana	48, 52, 66			
24	Punta	30, 80, 81			
25	Libertad	55, 56, 57, 58	51	Ugong/Rosario	173, 174, 175
			52	Pasig	172, 176, 177, 178, 179
26	Pasay Rotonda	59, 60, 61			
27	Pasong Tamo	64, 69, 78	53	Taguig	76, 180, 182, 183
28	MIA	62, 63, 188			
29	Ayala	70, 72, 77	54	Bicutan	181, 184, 185, 187, 192
30	Guadalupe	67, 73, 74, 75	55	Baclaran	189
			56	Zapote	190, 191, 197, 199, 200
31	Boni	79, 84			
32	JRC/Kalentong	29, 82, 83, 90	57	Alabang	186, 193, 194, 195, 196, 198
33	Crossing	85, 86			
34	San Juan	87, 88, 89, 91, 92, 109, 110, 111	58	Reclamation	201, 202
			59	External: Bulacan	203, 204
			60	External: Norzagaray/ S. Jose del Monte	205
35	España Rotonda	93, 94, 95, 101	61	External: San Mateo/ Montalban	206
36	La Loma/Retiro	96, 97, 135	62	External: Rizal	207, 208
			63	External: Biñan/San Pedro	209
			64	External: Bacoor/Imus/ Cavite	210, 211

Appendix 8.3
EDP Road Network for
64 Zone System



Appendix 8.4
TRANSTEP Data and Planning Base for 74 Zoning System

Table of Contents

List of Figures

1. General

- In order to analyze in detail the impact and effect of the proposed rerouting along the LRT corridor, the following data were prepared on a 74 zoning system.
  a) Zoning : finer zoning along LRT is shown in Appendix Figure A.
  b) Road Network : corresponds to the new zoning; modification was made as shown in Appendix Figure B.
  c) Public Transport Configuration and Line Data : the necessary modivication was made to correspond to the new zoning.
  d) Public Transport Passenger OD table: necessary modification was made on a 74-zone basis

2. Zoning

- The zoning system has the following characteristics:
  a) Each LRT station is represented by one zone.
  b) The corridors parallel to LRT, such as A. Mabini, J.A. Santos, A. Bonifacio, F.B. Harrison, and South Super Highway, are represented by zones divided similarly to those of the LRT corridor.
  c) Areas away from the LRT are represented by a relatively few number of zones.
  d) The zones outside Metro Manila are integrated into the internal zones.
  e) Due to finer zoning along LRT, the zone boundaries are consistent with the MMUTIP 202 zone system around LRT.

- The number of zones in and around the LRT corridor is 54 while the remaining area accounts for only 20. This is shown in Appendix Figure A.

3. Road Network and Link Data

- In consonance to the new zoning system, the EDP road network was built based on the network developed in MMUTIP which covers major roads and major public transport routes.
- The EDP road network is shown in Appendix Figure B. The following information was prepared for each network link:
  a) length of link
  b) number of lanes
  c) link speed
  d) delay function (relationship between velocity and capacity)
- The characteristics of this link-node system include the following:
  a) Corridors near the LRT are segregated by a clearly determined link-node system. Although the walk links from the zone centroids of the nearby corridors also reach the LRT corridors, the distances of the walk links stretching from the same centroid are different considering the actual walking radius.
  b) Each LRT station has feeder links to/from the parallel corridors. As a result, the network shows a ladder pattern along LRT.
  c) The network was simplified as much as possible for areas far from the LRT.

4. **Public Transport Route Configuration and Line Data**
   - Existing jeepney and bus routes were integrated into 99 and 42 EDP routes, respectively. This was done to facilitate handling with the use of TRANSTEP. The method of integration is the same as the 64-zone system (as given in the main text) although the results are different due to the new zones.
   - The integrated routes have characteristics different from those prepared for the 64-zone system on the following points:
     a) Clear segregation of parallel corridors such as Taft and Harrison
     b) Inclusion of all short routes along the LRT corridor
     c) Exclusion of a considerable number of intra-zonal routes outside the LRT corridor.
5. **Public Transport Passenger OD Table**
   - As described in Chapter 16, the new JUMSUT OD Tables were developed based on the 1980/1983 HIS results for the MMUTIP 217 zones (202 zones plus 15 zones outside of Metro Manila). These were used to develop a 74-zone public transport passenger OD Table for the morning peak hour.
   - Since the boundaries of the 74-zone system are not consistent with the MMUTIP zoning, the OD Tables were made through approximation. This was done by dividing the trips in proportion to the area of dividend zones (excluding water surface, cemetery and other non-utilizeable land) and combining them into new zones.

(App.8.4 cont'd.)

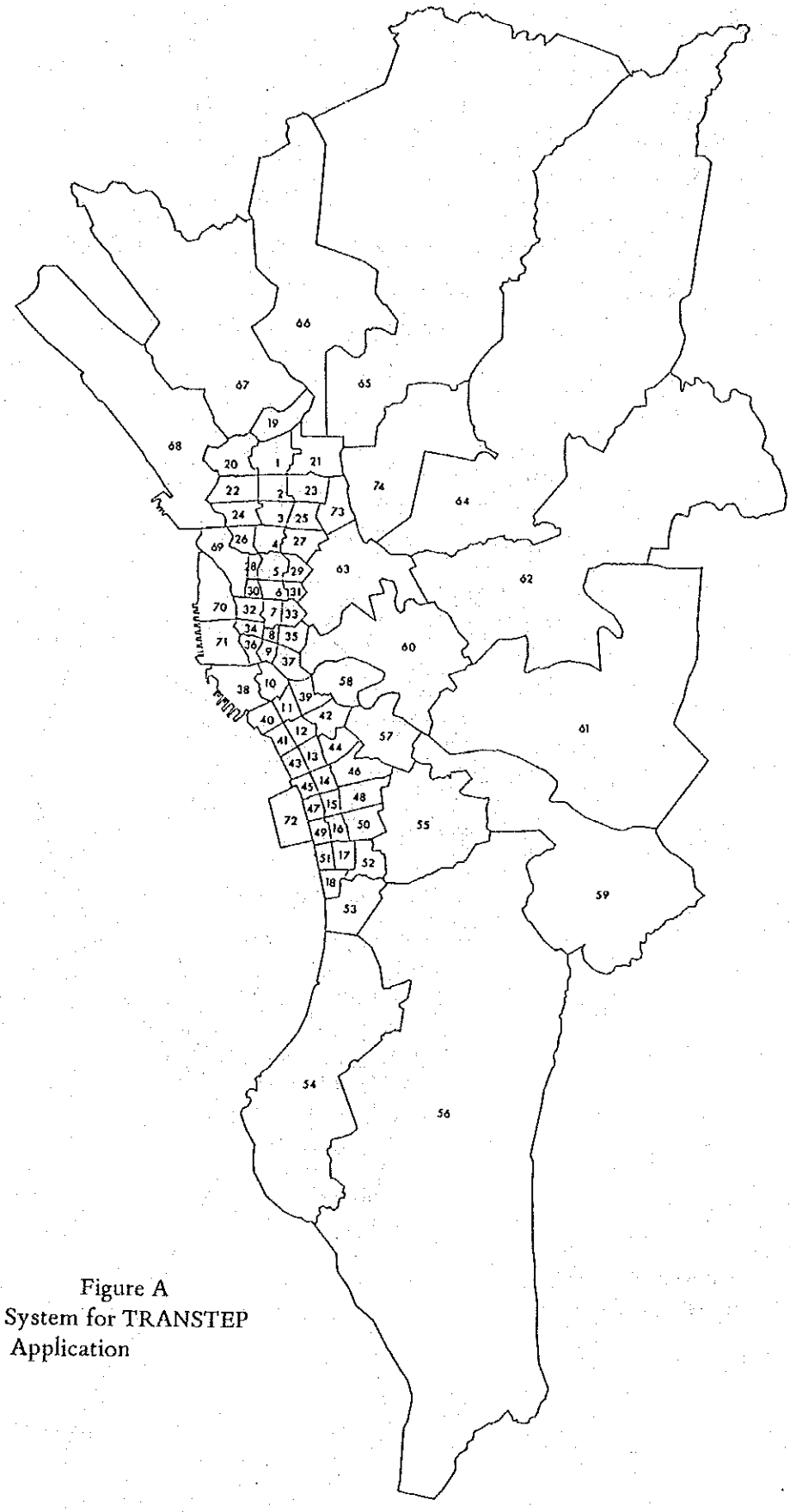


Figure A
74-Zoning System for TRANSTEP Application

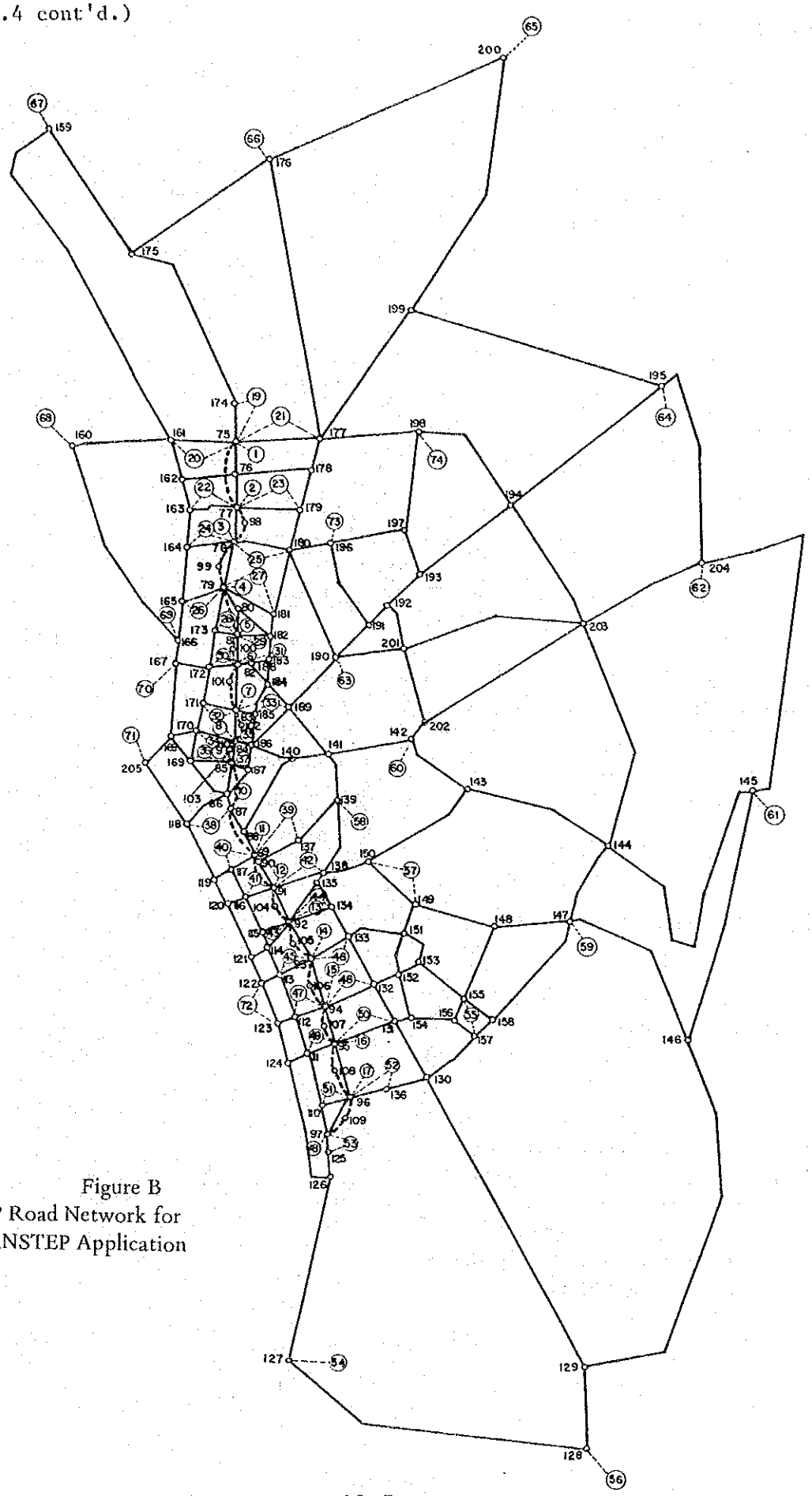


Figure B
EDP Road Network for
TRANSTEP Application

APPENDIX 8.5 EDP ROUTE LIST AND LINE CONFIGURATION

List of Table and Figures

Appendix 8.5
Table A
EDP Route List Prepared for 64 Zone System

EDP Route No. 1/	Mode 2/	Service Type 3/	Route Name	One-way Frequency (Morning Peak)
1	Jeepney	Intra	Divisoria - Tondo	121
2	"	"	Balut - Divisoria	45
3	"	"	Divisoria - Frisco	180
4	"	"	Divisoria - Quiapo	277
5	"	"	Divisoria - Kalaw	301
6	"	"	Divisoria - Pasay Rotonda	47
7	"	"	Divisoria - Libertad	117
8	"	"	Baclaran - Divisoria	163
9	"	"	Divisoria - Punta	233
10	"	"	Cubao - Divisoria	259
11	"	"	Divisoria - Monumento	43
12	"	"	Divisoria - Sangandaan	211
13	"	"	Divisoria - Navotas	161
14	"	"	Divisoria - Malabon	47
15	"	"	Sta. Mesa - Tondo	100
16	"	"	Balut - Blumentritt	160
17	"	"	Blumentritt - Quiapo	239
18	"	"	Blumentritt - Sampaloc	33
19	"	"	Blumentritt - Vito Cruz	71
20	"	"	Libertad - Retiro	181
21	"	"	Baclaran - Blumentritt	405
22	"	"	Blumentritt - Novaliches	400
23	"	"	Binondo - Tayuman	61
24	"	"	Pier - Retiro	95
25	"	"	Quiapo - Roces	50
26	"	"	Muñoz - Pier	393
27	"	"	Project 2 & 3 - Quiapo	239
28	"	"	Monumento - Pier	109
29	"	"	Malabon - Sta. Cruz	190
30	"	Inter	Bulacan - Sta. Cruz	107
31	"	Intra	España Rotonda - Quiapo	367
32	"	"	Fairview - Pier	332
33	"	"	JRC - Quiapo	151
34	"	"	Pasig - Quiapo	162
35	"	"	España Rotonda - Pier	52
36	"	"	Pier - Project 2 & 3	129
37	"	"	Pier - Valenzuela	163
38	"	"	Leon Guinto - Sta. Mesa	297
39	"	Inter	Biñan - Pasay Rotonda	254
40	"	Intra	Boni - Sta. Mesa	400
41	"	"	Marikina - Sta. Mesa	300
42	"	"	Pasig - Sta. Mesa	50
43	"	"	Buendia - Leon Guinto	312
44	"	"	Paco - P. Faura	196
45	"	"	Pier - Sta. Ana	120
46	"	"	Cubao - Fairview	130
47	"	"	P. Faura - Valenzuela	28
48	"	"	Guadalupe - Leon Guinto	308
49	"	"	Frisco - Vito Cruz	44
50	"	"	Muñoz - Vito Cruz	235
51	"	"	Project 2 & 3 - Vito Cruz	125
52	"	"	Mantrade - PRC	113
53	"	"	Guadalupe - Washington	149
54	"	"	Libertad - Zobel Roxas	62
55	"	"	Guadalupe - Libertad	125
56	"	"	Libertad - Mantrade	425
57	"	"	Libertad - Pasay Rotonda	159
58	"	"	Kalentong - Libertad	102
59	"	"	España Rotonda - Libertad	39
60	"	"	Libertad - Project 2 & 3	84
61	"	"	Libertad - Monumento	79
62	"	"	Libertad - Valenzuela	61
63	"	"	Baclaran - España Rotonda	155
64	"	"	Baclaran - Project 2 & 3	70
65	"	"	Baclaran - Nichols	134
66	"	"	Baclaran - Frisco	26
67	"	"	Commonwealth - Quirino Hwy.	54
68	"	"	Balintawak - Quezon Ave	89
69	"	"	Baclaran - Pag-asa	14
70	"	"	Baclaran - Monumento	73
71	Jeepney	Intra	Cubao - Marikina	285
72	"	"	Baclaran - Valenzuela	22
73	"	"	Philcoa - Vito Cruz	63
74	"	Inter	Norzagaray - Pier	35
75	"	Intra	A. Bonifacio - A. Mabini	155
76	"	"	Gasak - Monumento	118
77	"	Inter	Bulacan - Monumento	296
78	"	Intra	Malinta - Novaliches	140
79	"	Inter	Bulacan - Monumento via Expressway	118
80	"	Intra	Meralco - San Juan	39
81	"	"	Frisco - Stop and Shop	70
82	"	"	Cubao - Roces	149
83	"	"	Del Monte - España	186
84	"	"	España Rotonda - Kamias	41
85	"	"	Crossing - Nichols	80
86	"	Inter	Antipolo - JRC	300
87	"	Intra	Guadalupe - Pasig	107
88	"	"	Bagumbayan - Guadalupe	22
89	"	"	Crossing - Guadalupe	184
90	"	Inter	Cubao - Montalban	81
91	"	"	Antipolo - Cubao	102
92	"	Intra	Alabang - Marikina	129
93	"	Inter	Antipolo - Pasig	65
94	"	Intra	Alabang - Pasay Rotonda	181
95	"	"	Alabang - Baclaran via Zapote	499
96	"	Inter	Baclaran - Cavite	162
97	"	"	Cavite - Zapote	141
98	"	"	Alabang - Biñan	204
99	ORB	"	Antipolo - Quiapo	30
100	"	Intra	Divisoria - Marikina	18
101	"	Inter	Divisoria - Tanay	42
102	"	Intra	Divisoria - Pateros via Nagtahan	10
103	"	"	Ayala - Quiapo	80
104	"	"	Guadalupe - Quiapo	56
105	"	"	Pandacan - Quiapo	34
106	"	"	Fairview - Quiapo	5
107	"	"	Baclaran - Project 2 & 3 via Quiapo	28
108	"	"	Baclaran - Cubao via EDSA	65
109	"	"	Ayala - Monumento via EDSA	62
110	"	"	FTI - Valenzuela via Sta. Cruz	2
111	"	Inter	Ayala - Sapang Palay via Quiapo	9
112	"	Intra	Baclaran - Novaliches via EDSA	35
113	"	"	Fairview - Zapote via Quiapo	3
114	"	"	Alabang - Novaliches via EDSA, Expressway	19
115	"	"	Baclaran - Fairview via EDSA	41
116	"	Inter	Ayala - Sapang Palay via EDSA, Expressway	10
117	"	Intra	Baclaran - Sangandaan via EDSA	225
118	"	"	Alabang - Fairview via EDSA	28
119	"	"	Alabang - Valenzuela via EDSA	90
120	"	"	Alabang - Novaliches via EDSA	14
121	PRB	Inter	Bulacan - Divisoria	19
122	"	"	Biñan - Lawton	23
123	"	"	Cavite - Lawton	14
124	LMB	Intra	Ayala - Cubao - Quiapo	7
125	"	"	Ayala - Monumento via EDSA	7
126	LBB	"	FTI - Marikina via EDSA	1
127	"	"	Ayala - Sangandaan via EDSA	11
128	"	"	Binondo - Ayala - Cubao	22
129	"	"	Cubao - Baclaran - Quiapo - Philcoa	1
130	"	"	Ayala - Cubao - Quiapo - Ayala (loop)	5
131	"	"	Domestic - Philtrade via Ayala	2
132	"	Inter-	Antipolo - Ayala - Jones -	5
133	MNB	"	Bulacan - Divisoria via Expressway	6
134	"	"	Bulacan - Sta. Cruz via Expressway	27
135	"	"	San Jose - Sta. Cruz via Expressway	43
136	"	"	Biñan - Lawton - Sangandaan	20
137	"	"	Antipolo - Cubao - Fairview	4
138	"	"	Baclaran - Cavite	34
139	"	"	Antipolo - CBD - Cavite	31

1/ EDP route numbers correspond to those shown in Figures A and B of this Appendix

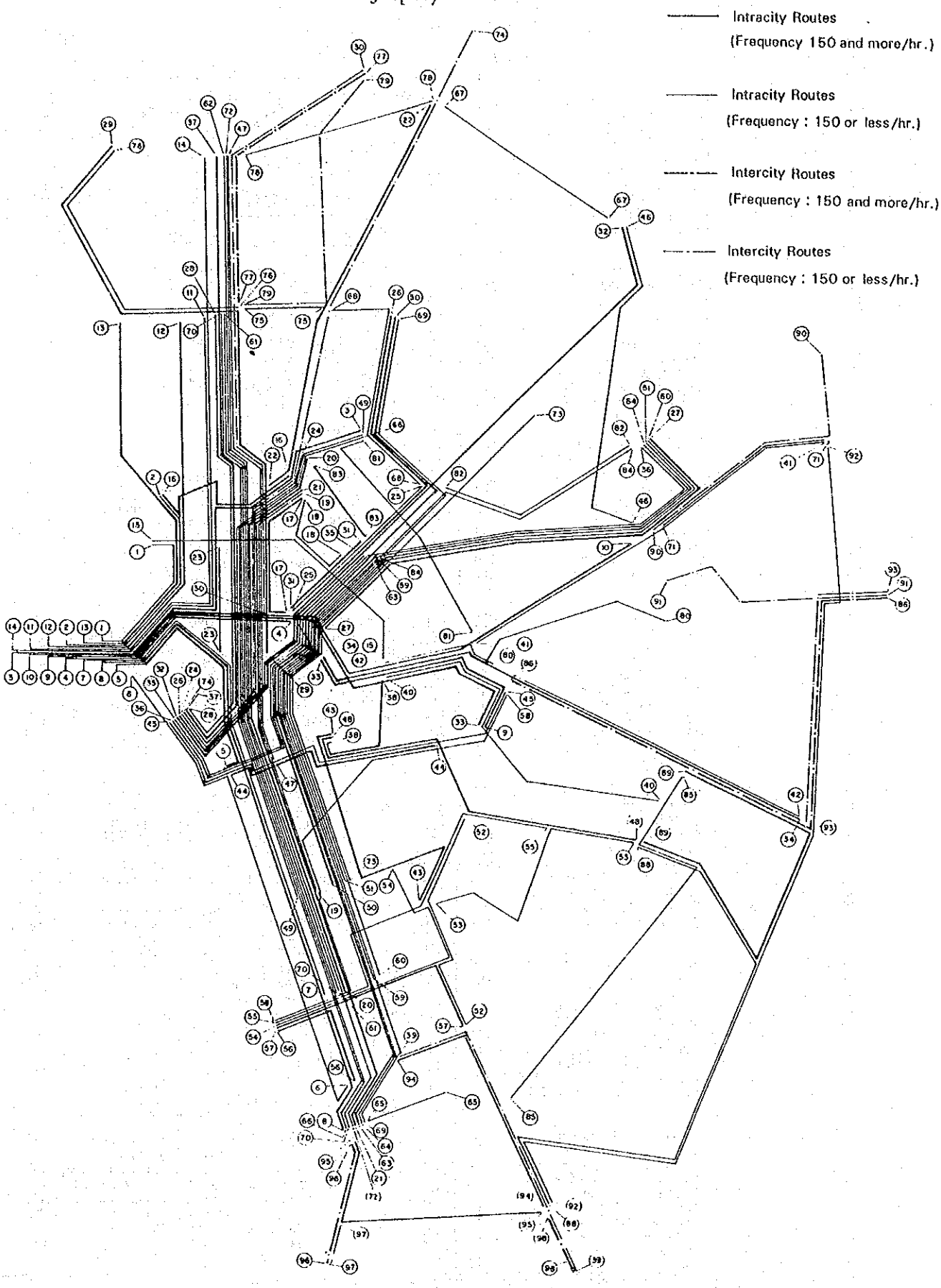
2/ Abbreviations are as follows:

JPY : Jeepney PRB : Provincial Bus
ORB : Ordinary Bus LMB : Limited Bus
LBB : Love Bus MNB : Mini-bus

3/ Intra : Intra-city service, Inter: Inter-city service

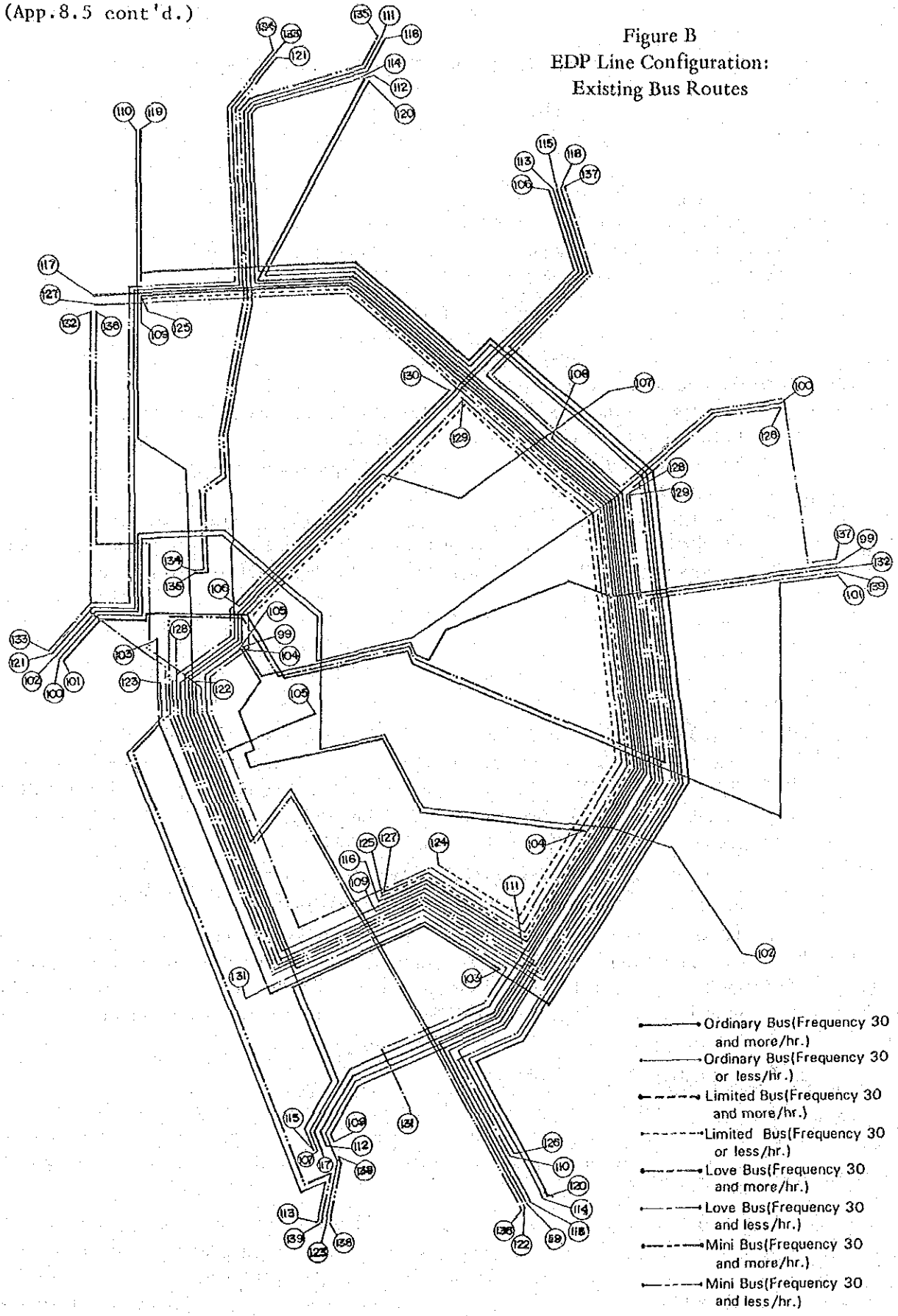
(App.8.5 cont'd.)

Figure A
EDP Line Configuration: Existing
Jeepney Routes



(App.8.5 cont'd.)

Figure B
EDP Line Configuration:
Existing Bus Routes



APPENDIX 8.6. CALIBRATION OF TRANSTEP

Table of Contents

List of Tables

1. General

- It is important to note that TRANSTEP involves several areas which need careful examination and analysis prior to application. A model will not provide the answer right away but will normally require careful interpretation in compliance with the examination of input parameters and assumptions, particularly on the limitations of the model itself. The following are of TRANSTEP:
  a) limitation of the capacity of the model
  b) determination of a set of complicated mode coefficients
- TRANSTEP has a limited capacity wherein only approximately 150 lines (which were expanded from 100 in JUMSUT) can be accommodated. Therefore, it is always clearly indicated what will be lost when the number of lines is reduced to fit the limit of the model. In JUMSUT, the adverse effects of the limited capacity are reduced by increasing the capacity of the model by 50 percent.

2. Determination of Mode Coefficients

- Determination of mode coefficient values is probably the most complicated. In TRANSTEP, it is assumed that a passenger will choose a path in such a way as to minimize the total generalized cost between a given OD. Generalized cost is composed of the following items:
  1) WALK : walking time between traffic generating point and public transport node which is calculated based on a walking speed of five kilometers per hour.
  2) WAIT : waiting time before a passenger rides on a public transport vehicle, which is assumed to be half of the headway.

3) LOAD : Loading/unloading time of passenger which is assumed to be 0.1 minute per passenger.
4) FARE : fare paid
5) TRAVEL : in-vehicle travel time
6) TRANSFER : waiting time before a passenger rides on the next public transport line, which is assumed to be half of the headway.
7) DISCOMFORT : capacity restraint factor which starts when volume/capacity ratio exceeds 80 percent.

- Mode coefficients are factors which will determine the value of time for each of the generalized cost items in view of the fact that a minute of a cost item might be different from a minute of another cost item. (For example, one minute of waiting time under the sun is different from one minute of travel time by Love Bus). Mode coefficient for "FARE" determines the value of time so that time can be compared in monetary terms.
- It is however, always quite difficult to determine a set of mode coefficients which can hardly be verified at the same time. Therefore, different sets of coefficients have been assumed in various studies as shown in Appendix Table A.
- Appendix Table B shows the percentage share of total generalized cost of Metro Manila bus/jeepney operation used in MMUTIP and LRT Masterplan. Under the assumption of time value of P0.6/hour (MMUTIP coefficient), the fare is, more or less, the single largest explanatory factor, while for P3.0/hour (LRT coefficient), fare shares 45 percent of the total and travel time becomes as important as fare. Other factors (mode coefficient values) do not have much of an effect.
- The effects of walk, wait, and transfer are underestimated in each of the above cases. This is one of the areas where further improvement is needed. The question then is how to determine a set of more practical and realistic mode coefficients which will apply to the Metro Manila situation.
- The manner in which a value is determined is also critical in TRANSTEP. Although there are always arguments in determining the time value for Metro Manila transport planning purposes, it seems that a realistic value is somewhere between ₱1.0 and ₱2.0 per hour.
- Considering all of the above, this study initially determined two sets of mode coefficients for further analysis and assessment as shown in Appendix Table C.

3. **Calibration of the Model for 64 Zone System**

- Prior to its application, the model has to be calibrated by comparing its results with the actual situation. Although many factors are involved in calibration, the following relatively affects the results:
  1) The balance of the number of lines by mode: this is pertinent to the preparation of link data and line data.
  2) The balance of link speed and line scheduled speed: since the model takes the lower speed, it is important to determine which speed should be taken up.
  3) Time Value: this influences the results in such a way that high speed mode attracts more passengers when the value is set high.

4) Accessibility: this includes walking time, waiting time, and transfer time and becomes sensitive only when mode coefficients are set high.
5) Capacity Restraint: called "Discomfort Cost" in the model. Although this plays an important role for equalizing passenger loadings by line, it becomes effective only after several paths are selected by PTPATH.

- The first factor is an input to the model and considered to be the most critical, particularly in simulating the modal split between bus and jeepney.
- Although the supply-side factors like service frequency, vehicle-kilometers, scheduled speed and link speed are not normally changed, there are cases when passenger loadings by line cannot be simulated unless link speed and/or scheduled speed are modified because the model is not able to reflect the actual public transport operation in detail.
- Regarding factors 3), 4), and 5), calibration can be made by modifying predetermined values of mode coefficients. Since it is difficult to determine mode coefficient values per se (although they influence traffic assignment results), calibration of the model is made by comprehensively taking into account the above factors.
- In this study, time value was tested in the following three cases:

  ₱1.0/hour
  ₱1.7/hour
  ₱3.0/hour

- The criteria to determine if the calibration has been properly conducted or not are:
  - Whether the modal split in terms of number of passengers, passenger-hours and passenger-kilometers is similar to the present situation.
  - Whether the average trip length by mode is not largely different from the current figures.
  - Whether the average load factor by mode does not largely deviate from the actual figures.
  - Whether passenger loadings by line are relatively equal.
- To calibrate the TRANSTEP model, a number of cases were run in the JUMSUT study which took into account the above mentioned points. Calibrated results are shown in Appendix Table D.

4. Calibration of TRANSTEP for 74 Zone System

- As stated in the former section, TRANSTEP needs a set of Mode Coefficients prior to its application. The Mode Coefficients adopted do not differ much from the former ones except that the passenger time value is ₱1.70 per hour, as given in Appendix Table E.
- As a result of using these coefficients, the relative importance of various cost items has been changed as shown in Appendix Table F.
- TRANSTEP was calibrated by comparing its output with the actual data obtained from the field survey. The summary of the comparison is given in Appendix Tables G and H for jeepney and bus, respectively.

Table A
Alternative Sets of Mode Coefficients

a. MMUTIP Coefficient:

Mode	Walk	Wait	Load	Fare[1/]	Travel	Transfer	Discomfort
Love Bus	1.67	1.0	1.0	1.0	1.0	1.0	2.0
Standard Bus	1.67	1.0	1.0	1.0	1.0	1.0	2.0
Jeepney	1.67	1.0	1.0	1.0	1.0	1.0	2.0
LRT	1.67	1.0	1.0	1.0	1.0	1.0	2.0

b. LRT Master Plan Coefficient:

				Fare[2/]			
Love Bus	1.0	1.5	0.6	0.2	0.5	2.0	0.2
Standard Bus	1.0	1.5	0.4	0.2	1.0	2.0	0.9
Jeepney	1.0	1.5	0.4	0.2	1.0	1.8	1.1
LRT	1.0	1.5	0.3	0.2	1.0	1.5	0.9

c. Modified Coefficient (1): used LRT Line No. 1 Study

				Fare[3/]			
Love Bus	1.67	1.0	0.6	0.35	0.5	1.2	2.0
Standard Bus	1.67	1.0	0.4	0.35	1.0	1.2	2.0
Jeepney	1.67	1.0	0.4	0.35	1.0	1.1	2.0
LRT	1.67	1.0	0.3	0.35	1.0	1.0	1.8

d. Modified Coefficient (2): used in LRT Line No. 1 Study

				Fare[4/]			
Love Bus	1.67	1.0	0.6	0.6	0.5	1.2	2.0
Standard Bus	1.67	1.0	0.4	0.6	1.0	1.2	2.0
Jeepney	1.67	1.0	0.4	0.6	1.0	1.1	2.0
LRT	1.67	1.0	0.3	0.6	1.0	1.5	1.8

Note: Mode coefficient values for fare correspond as follows:

1/ 1.0 = ₱0.6/hr. 3/ 0.35= ₱1.7/hr.

2/ 0.2 = ₱3.0/hr. 4/ 0.6 = ₱1.0/hr.

Table B
Relative Importance of Various Cost Items in Total Generalized Cost (%)

Mode Coefficient	Walk	Wait	Load	Fare	Travel	Transfer	Total
MMUTIP	3.5	0.6	2.5	77.3	15.8	0.3	100.0
LRT Master Plan	5.8	1.6	2.4	45.0	43.7	1.5	100.0

Table C
Initial Mode Coefficients Applied in JUMSUT

Mode	Walk	Wait	Load	Fare[2/]	Travel	Transfer	Discomfort
Love Bus	2.4	1.2	0.7	0.6	1.2	1.8	3.0
Limited Bus	2.4	1.2	0.9	0.6	1.2	1.8	3.0
Standard Bus	1.5	1.0	0.5	0.6	1.2	1.2	1.5
Mini-bus	1.5	1.0	0.5	0.6	1.2	1.3	5.0
Jeepney	1.0	1.0	0.4	0.6	1.0	1.0	2.0
LRT	2.0	1.0 10.0[1/]	0.3	0.6	1.0	1.0 10.0[1/]	2.0

1/ mode coefficient values of 10 (for wait and transfer) were set so that the access cost to LRT will share more or less 10% of the total generalized cost of LRT passengers.

Table D
Major Characteristics of the Calibrated Case
(Do-Nothing Case Without LRT)

Mode	Vehicle /Hour 1/ kms	Vehicle /Hour 1/ Hours	Passenger /Hour 1/ Number 3/	Passenger /Hour 1/ Kms.	Passenger /Hour 1/ Hours	Average Trip Length 2/ (kms)	Average Vol./Cap. Ratio
Jeepney	301,130	16,342	715,019 (73.9)	4,230,707 (63.1)	218,463 (64.8)	5.9	0.94
Ordinary Bus	45,091	2,023	210,149 (21.7)	1,913,765 (28.5)	89,170 (26.4)	9.1	0.71
Limited Bus	591	27	2,014 (0.2)	35,169 (0.5)	1,550 (0.5)	17.5	0.99
Love Bus	2,070	103	4,244 (0.4)	57,913 (0.9)	2,980 (0.9)	13.6	0.47
Mini Bus	10,482	546	36,101 (3.7)	470,409 (7.0)	24,987 (7.4)	13.0	1.28
Total	-	-	967,527 (100.0%)	6,707,963 (100.0%)	337,150 (100.0%)	6.9	0.87

1/ morning peak hour

2/ long trip length of each mode compared to those identified in MMUTIP is due to that JUMSUT OD table includes external trips, while MMUTIP OD table does not.

3/ this calibration was made on the JUMSUT initial OD table before the HIS results were finalized.

Table E
New Mode Coefficients Applied in JUMSUT

	WALK	WAIT	LOAD	FARE	TRAVEL	TRANSFER	DISCOMFORT
Jeepney	1.0	1.0	0.4	0.35	1.0	1.0	2.0
Ordinary Bus	1.5	1.0	0.5	0.35	1.2	1.2	1.5
Premium Bus	2.4	1.2	0.9	0.35	1.2	1.8	3.0
Mini-Bus	1.5	1.0	0.5	0.35	1.2	1.3	5.0
LRT	2.0	1.0	0.3	0.35	1.0	2.0	2.0

Table F
Relative Importance of Various Cost Items
in Total Generalized Cost (%)

Mode / Coefficient	WALK	WAIT	LOAD	FARE	TRAVEL	TRANSFER	TOTAL
MMUTIP	3.5	0.6	2.5	77.3	15.8	0.3	100.0
LRT Masterplan	5.8	1.6	2.4	45.0	43.7	1.5	100.0
JUMSUT	7.3	0.6	1.2	57.1	33.7	0.2	100.0

(App.8.6 cont'd.)

Table G
Comparison of TRANSTEP Asseignment Results With Actual Survey Results
(Jeepney)

Route Type	Corridor Used Other than LRT Corridor)	Route Length (Kms.)		Vehicle - Kms.		Vehicle - Hrs.		No. of Passengers		Pass.-Kms.		Pass.- Hrs.		Load Factor		Average Trip Length (Kms.)	
		TRANSTEP	Surveyed	TRANSTEP	Surveyed	TRANSTEP	Surveyed	TRANSTEP	Surveyed	TRANSTEP	Surveyed	TRANSTEP	Surveyed	TRANSTEP	Surveyed	TRANSTEP	Surveyed
I		8.9	10.2	17288.4	18317	1106.6	1640	46210	34091	190305	166487	11651	17645	0.69	0.57	4.1	4.9
II	McArthur	17.4	12.0	4368.0	4636	243.7	312	7798	7239	68940	42080	3775	3193	0.97	0.57	8.8	5.8
	Harrison	10.9	11.1	926.8	990	59.6	99	1208	2503	7306	12025	452	1027	0.49	0.76	6.0	4.8
	A. Bonifacio	10.9	11.1	2549.4	2274	158.8	195	4728	5105	27136	21532	1669	1717	0.67	0.59	5.7	4.2
	J. A. Santos	7.1	7.9	610.6	618	39.4	41	2008	1196	9651	4822	610	330	0.99	0.49	4.8	4.0
	Pier	11.2	11.4	1747.2	2195	106.1	190	3512	3364	16560	18745	1010	1797	0.59	0.53	4.7	5.6
	EDSA (N)	11.2	11.8	9004.8	6827	519.9	550	28244	12723	96538	55061	5520	4636	0.67	0.50	3.4	4.3
	España	14.7	15.8	14372.0	12738	849.3	1025	28147	24187	187087	117139	10999	10666	0.81	0.57	6.6	4.8
	Jones Bridge	9.1	10.6	3794.2	3523	263.9	333	9424	6972	38687	35118	2465	2861	0.64	0.62	4.1	5.0
	Vito Cruz	2.5	3.7	1560.0	2206	94.6	188	1647	5764	1904	10856	107	909	0.08	0.31	1.2	1.9
Sub-total		95.0	95.4	38933.0	36007	2335.3	2933	86716	69053	453809	317378	26607	27136	0.73	0.55	5.2	4.6
III	McArthur	17.9	18.4	9665.4	8676	547.1	696	17810	10917	129812	91934	7222	7040	0.84	0.16	7.3	8.4
	A. Bonifacio	10.2	10.8	3071.2	3328	200.8	283	5514	5955	19543	27214	1300	2331	0.40	0.51	3.5	4.5
	España	13.3	12.5	46012.0	40403	2671.0	2874	57238	68959	360986	367949	19467	25189	0.49	0.57	6.3	5.3
	Jones Bridge	8.2	8.4	967.6	810	73.6	74	609	1600	1904	8270	153	637	0.12	0.64	3.1	5.2
Sub-total		49.6	50.1	59716.2	53217	3492.5	3927	81171	87431	512245	495367	28142	35197	0.54	0.58	6.3	5.7
IV		6.4	8.7	74251.6	86992	3774	6237	110672	136700	697477	664690	34441	76472	0.59	0.48	6.3	4.9
V		6.3	5.6	17498.2	13518	1158.1	1252	41900	39133	121914	102321	7738	9366	0.44	0.47	2.9	2.6
VI		8.3	6.6	59927.4	48677	2986.6	3626	139067	118769	965289	418319	46664	28972	1.01	0.54	6.9	3.5
TOTAL		174.6	176.6	267614.8	256728	14853.1	19615	505736	485177	2941039	2164562	155243	194788	0.69	0.53	5.8	4.5

(App.8.6 cont'd.)

Table H
Comparison of TRANSTEP Assignment Results with Actual Survey Results (Bus)

Route Type	Corridor Used Other than LRT Corridor)	Route Length (Kms.)		Vehicle - Kms.		Vehicle - Hrs.		No. of Passengers		Pass.-Kms.		Pass.- Hrs.		Load Factor		Average Trip Length (Kms.)	
		TRANSTEP	Surveyed	TRANSTEP	Surveyed	TRANSTEP	Surveyed	TRANSTEP	Surveyed	TRANSTEP	Surveyed	TRANSTEP	Surveyed	TRANSTEP	Surveyed	TRANSTEP	Surveyed
II	España	20.4	19.3	1428.0	1624	80.1	120	5598	5319	40525	42166	2288	2743	0.48	0.44	7.2	7.7
	Quirino Ave.	15.6	34.0	405.6	1071	21.4	51	1792	2264	25417	47481	1322	2409	0.98	0.69	14.2	30.0
	S.S. Hi-way	44.4	68.6	1332.0	1990	57.0	83	8661	2439	153521	40498	6103	1730	2.12	0.37	17.7	16.6
	Roxas Blvd.	10.1	12.0	20.2	48	1.1	3	0	188	0	517	0	29	0	0.20	0	2.8
	Buendia	20.2	12.3	727.2	995	37.2	80	758	4263	7813	22164	430	1270	0.20	0.41	10.3	5.2
	A. Bonifacio	17.9	47.7	2506.0	5558	131.6	235	6037	7399	45300	135166	2372	5360	0.38	0.52	7.5	18.5
Sub-Total		128.6	193.9	6419.0	11286	328.4	572	22846	21872	282576	287992	12515	13541	0.80	0.49	11.9	13.2
III	Dimasalang	27.3	52.1	546.0	656	30.2	26	3168	1339	28134	13262	1539	452	0.87	0.34	8.9	9.9
	P. Gil	8.8	9.6	704.0	778	41.2	66	10207	8643	43572	40204	2660	3066	1.05	0.88	4.3	4.7
	Buendia	36.0	30.3	1845.0	1873	110.6	142	11704	5920	64161	73326	3813	4593	0.60	0.67	5.5	12.4
	U.N. Ave.	5.0	5.4	440.0	428	27.4	176	1570	4780	13130	13255	785	7042	0.51	0.52	2.9	2.8
	McArthur	22.8	23.7	45.6	56	2.6	4	590	344	5258	1919	283	106	1.95	0.58	8.9	5.6
	N. Diversion Rd.	28.0	89.8	523.6	1949	29.7	55	4448	3193	31628	88063	1733	2013	0.97	0.73	7.1	27.5
	España	35.6	18.1	213.6	507	10.6	44	385	1277	5377	11011	289	617	0.47	0.40	14.0	8.6
	Quirino Ave.	18.4	24.3	1030.4	1729	60.9	120	4023	3416	39496	42941	2066	2739	0.82	0.53	9.8	12.6
	Jones Br.	12.0	11.6	552.0	363	35.5	31	12023	1456	34449	10435	2256	908	1.33	0.61	2.9	7.2
Sub-Total		193.9	264.9	5900.2	8339	348.7	664	51118	30368	265205	294416	15424	21536	0.61	0.36	5.2	9.7
IV		37.5	66.2	2297.0	4038	127.2	195	5640	10172	40488	72207	2365	5043	0.32	0.35	7.2	7.1
V		68.4	101.7	3115.2	4418	181.6	262	15807	14697	72813	133555	4135	7561	0.44	0.57	4.6	9.1
VI		196.6	179.4	8197.8	8040	332.0	522	14618	21798	241711	262039	9709	16716	0.50	0.56	16.5	12.0
VII		239.0	233.5	2435.4	21868	1024.5	1170	57837	91208	467991	894708	19462	44118	0.33	0.69	8.3	9.8
TOTAL		864.0	1039.6	50283.2	57989	2342.4	3385	167866	190115	1370784	1944917	63610	108515	0.45	0.50	8.2	10.2

APPENDIX 8.7 LOADING/UNLOADING PATTERN OF LRT PASSENGERS FOR REROUTING PLANS A, B, C, D, AND E

List of Table and Figures

Table A
Summary of Assessment of Alternative Rerouting Plans (LRT Fare ₱1.5 flat, Time Value ₱1.0/hr)[1/]

Item	Base Case (W/out Bus/Jpy. Rerouting)		Alternative Bus/Jeepney Rerouting Plans				
	W/out LRT	With LRT	PLAN A	PLAN B	PLAN C	PLAN D	PLAN E
1. LRT Traffic							
1) No. of Pass/hr.	-	23,242	23,991	37,291	32,789	31,986	28,343
2) Ave.Trip Length (kms.)	-	10.0	10.0	8.5	9.0	9.0	9.4
3) Ave. Load Factor (%)	-	43.0	44.0	58.0	54.0	53.0	49.0
4) Max. Volume Capacity	-	0.83	0.84	1.13	1.08	1.0	0.88
2. Estimated LRT FARE Revenue (₱million/year)	-	106.8	108.0	167.7	147.6	144.0	127.8
3. LRT Impact on BUS/JEEPNEY							
1) No.of Pass. (000)/Hr.							
JPY.	715.0	705.0	703.9	682.7	681.5	693.3	696.6
BUS	252.5	247.8	249.1	265.7	265.9	228.5	233.5
TOTAL	967.5	952.8	953.0	948.4	947.4	921.8	930.1
2) Pass. kms. (000)/kms.							
JPY.	4,230.7	4,123.1	4,107.7	3,892.9	3,884.7	4,141.8	4,133.8
BUS	2,447.7	2,243.3	2,352.0	2,492.2	2,527.0	2,217.4	2,247.3
TOTAL	6,678.4	6,366.4	6,459.7	6,385.1	6,411.7	6,359.2	6,381.1
4. LRT Economic Impact							
1) Total Fare Paid(₱000/hr)	1,038.3	1,041.8	1,042.2	1,057.3	1,056.0	1,029.4	1,028.0
2) Total Generalized Cost excluding Fare (₱000/hr.)	438.4	432.8	432.7	438.6	437.3	423.6	425.2

1/ Based on the provisional 1980 HIS OD table.

Figure A
Loading/Unloading Pattern of LRT Passengers
(Rerouting Plan A)

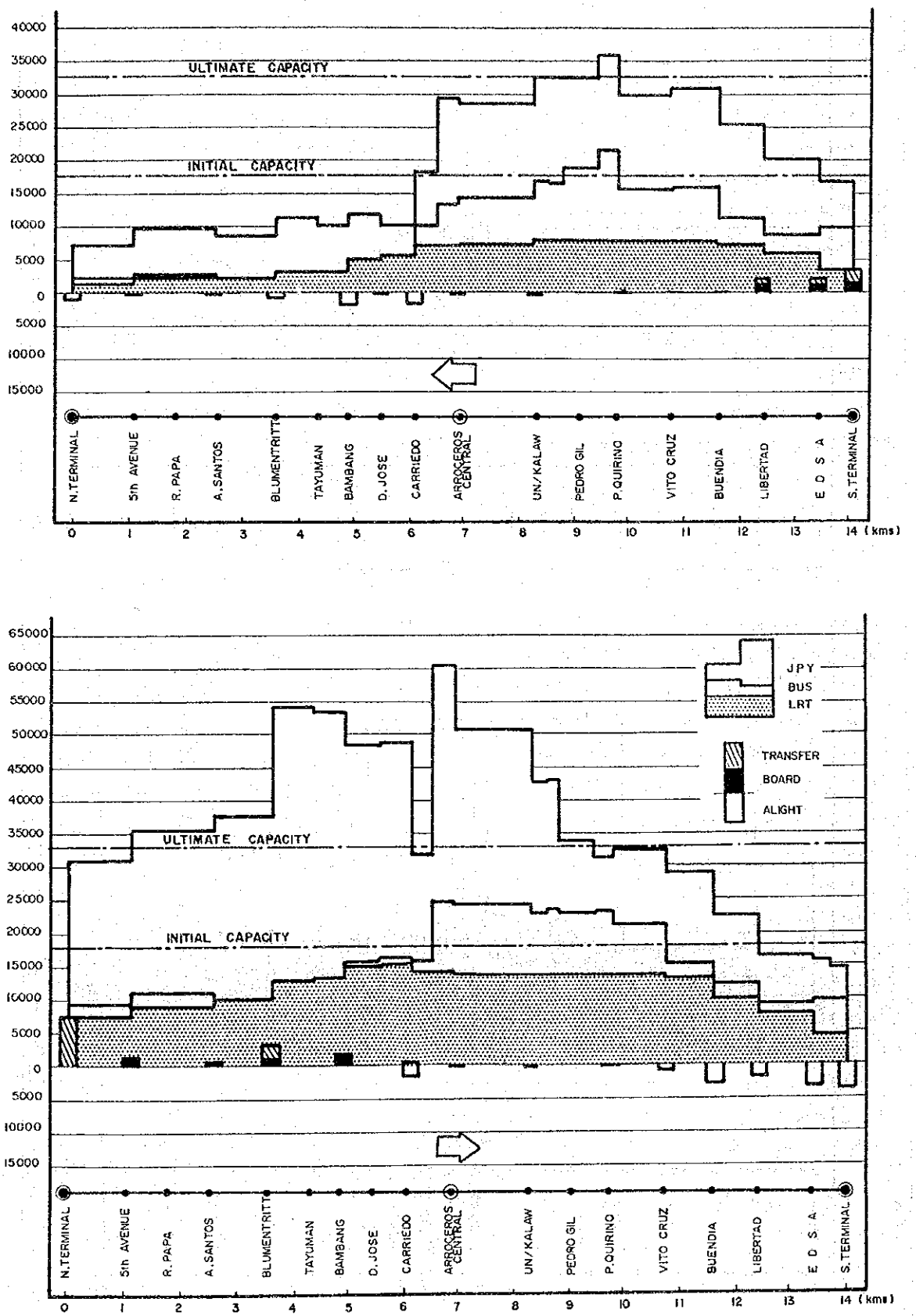


Figure B
Loading/Unloading Pattern of LRT Passengers
(Rerouting Plan B)

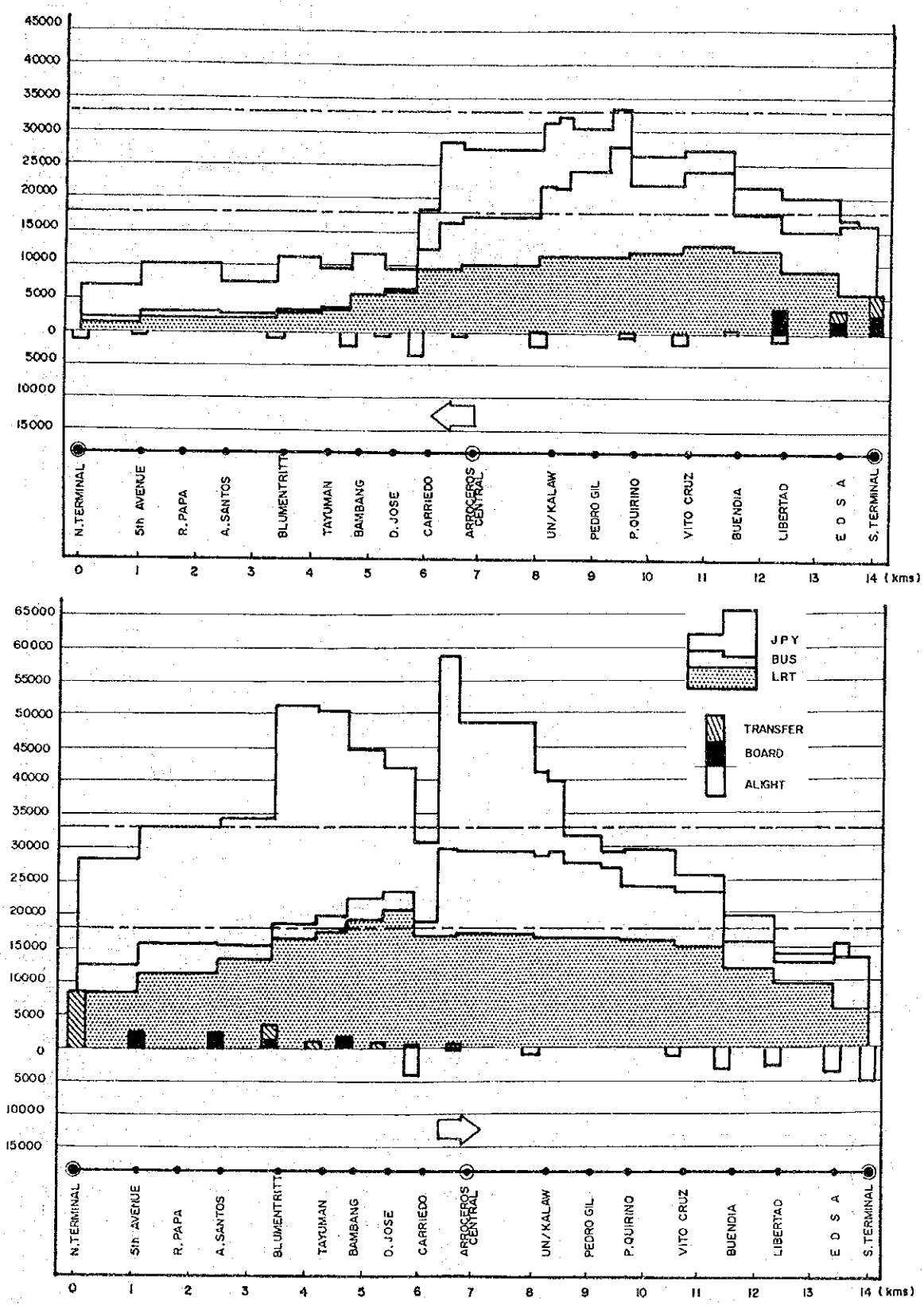


Figure C
Loading/Unloading Pattern of LRT Passengers
(Rerouting Plan C)

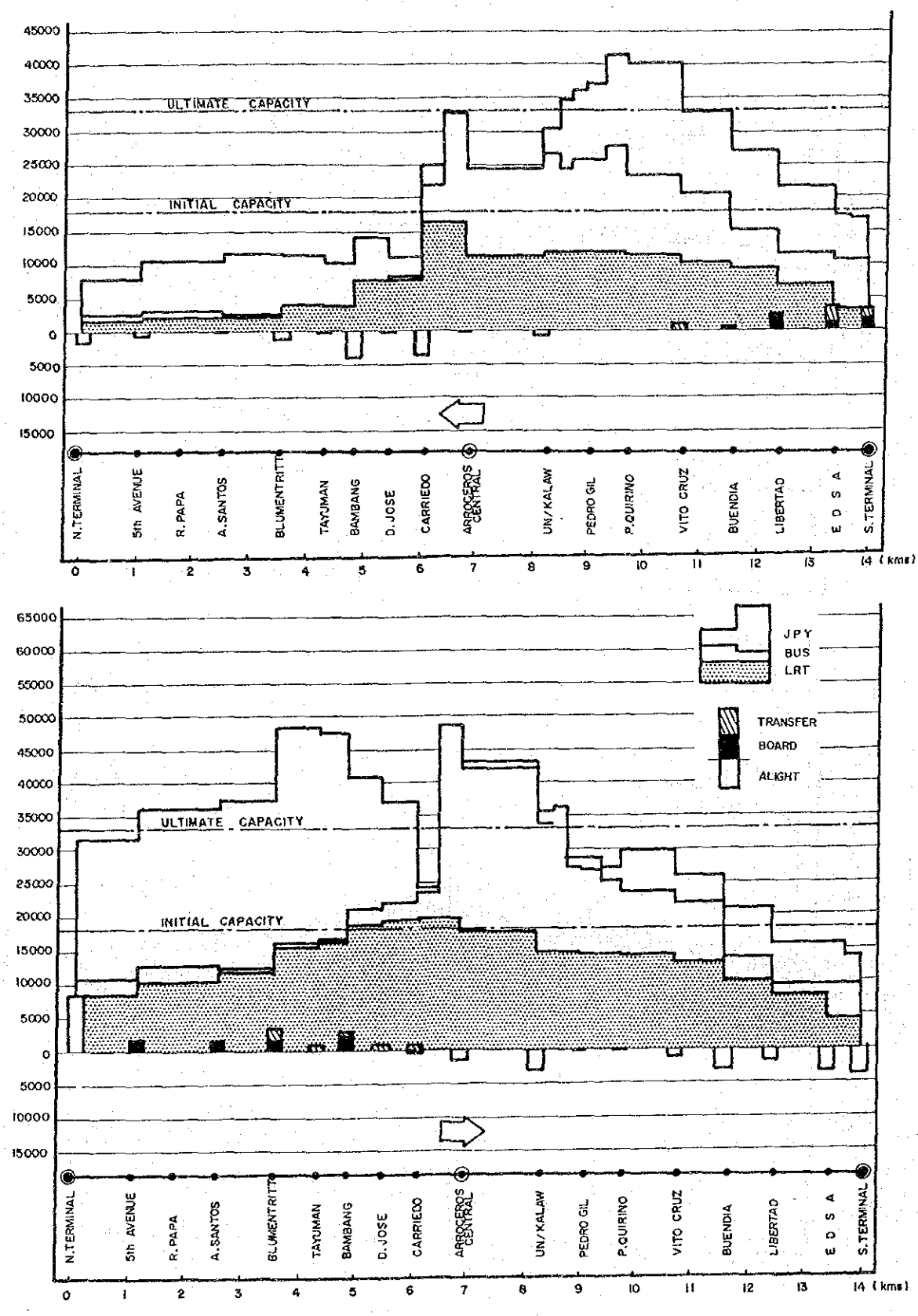


Figure D
Loading/Unloading Pattern of LRT Passengers
(Rerouting Plan D)

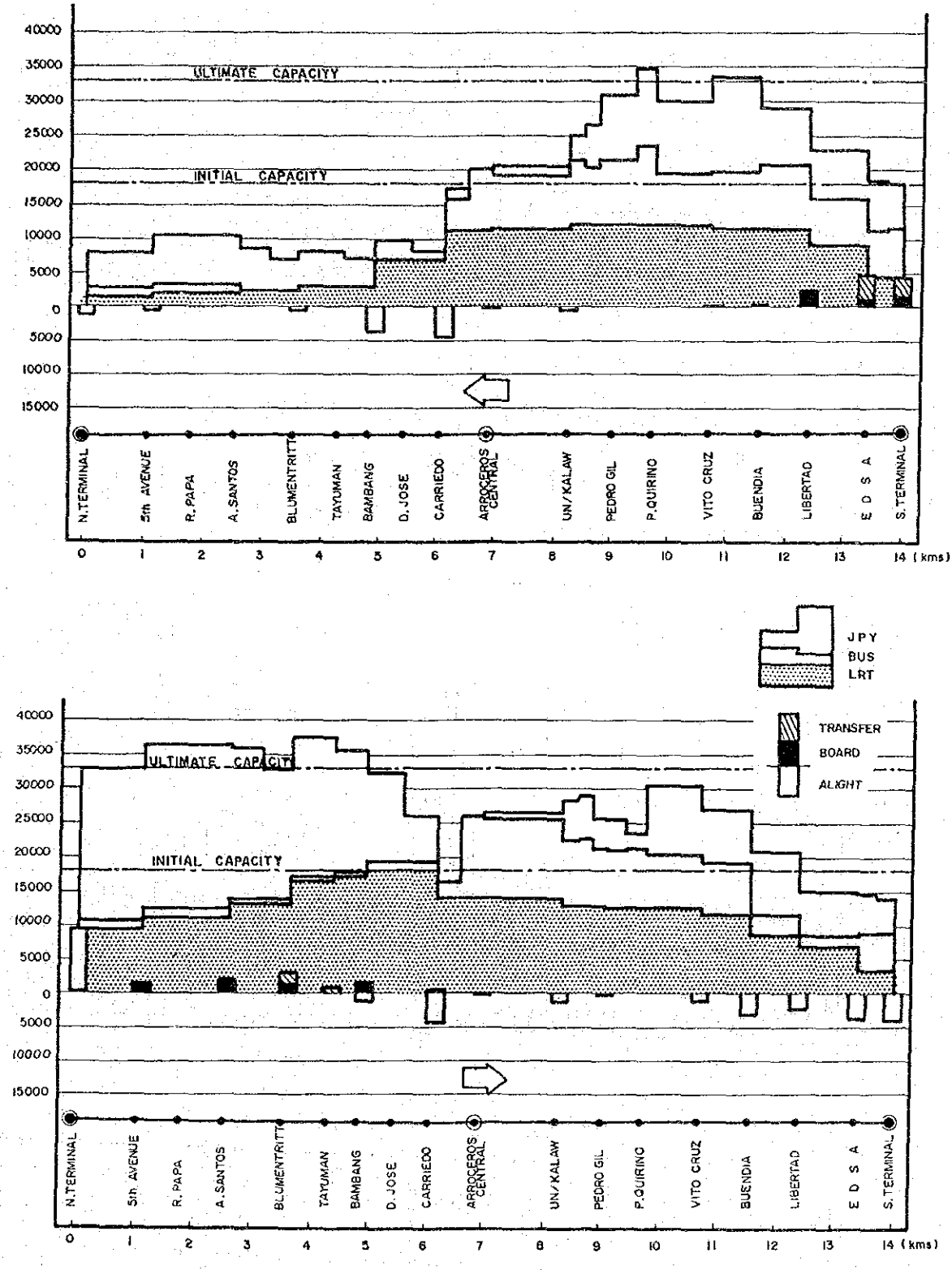
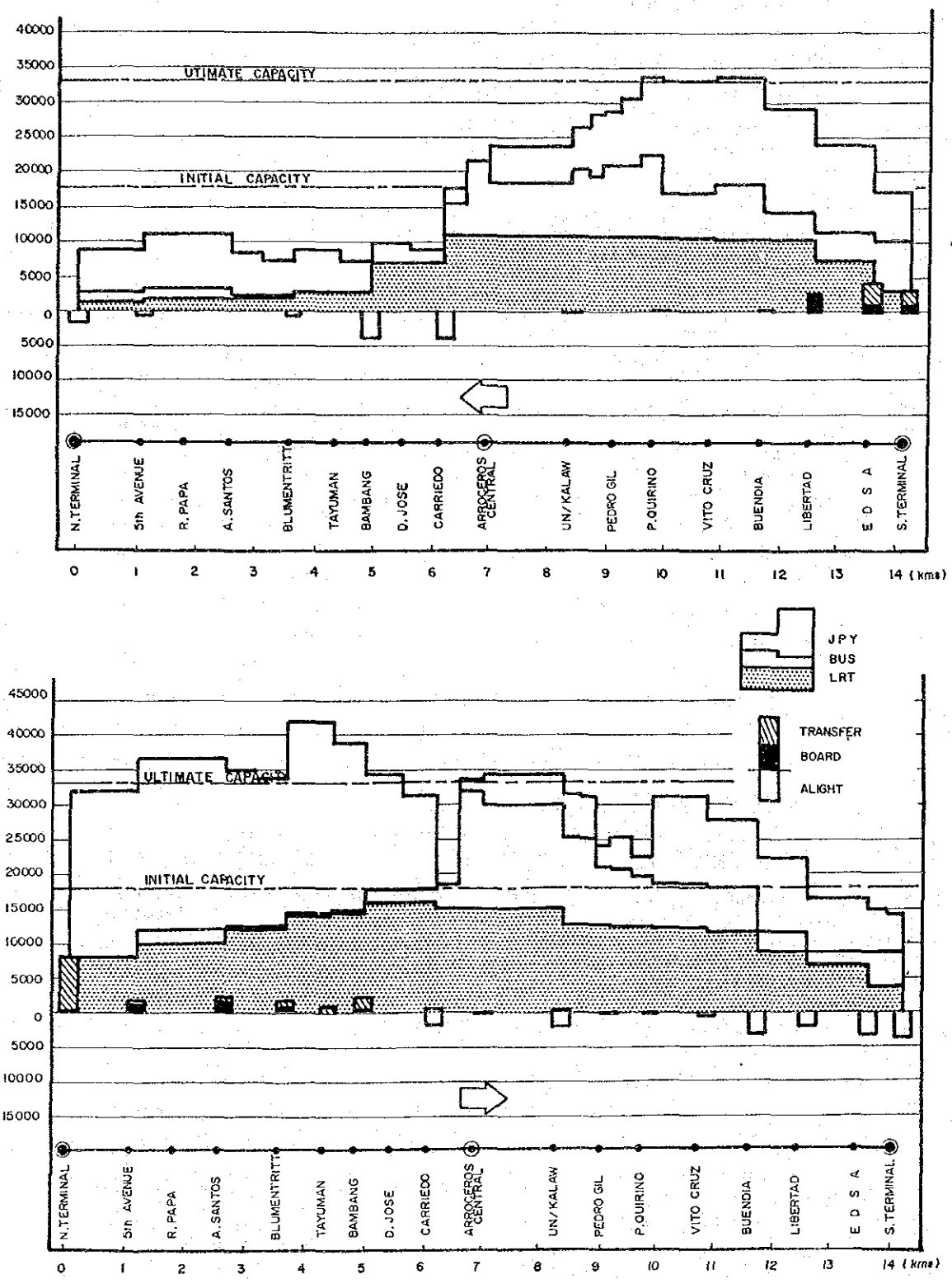


Figure E
Loading/Unloading Pattern of LRT Passengers
(Rerouting Plan E)



APPENDIX 8.8 SUMMARY INFORMATION ON AVAILABLE SIDE STREETS

List of Appendices

A North Blumentritt Area
B Between Blumentritt and Tayuman Area
C Between Tayuman and C. M. Recto Area
D Between Pedro Gil and San Andres Area
E Between Buendia and EDSA Area
F Between San Andres and Buendia Area
G Between C. M. Recto and C. Palanca St. Area

A NORTH OF BLUMENTRITT AREA:

Road Name	Length (km)	Carriageway Width (m)	Sidewalk Width (m)	Landuse Alongside	Roadside Parking	Road Surface Condition
Solis	0.40	5.2 - 12.0	0 + 0 2.5 + 2.8	residential commercial	rare	good
Cavite	0.52	11.8	3.1 + 1.3	commercial	partly rampant	fair
New Antipolo	0.30	10.0	2.0 + 2.5	commercial	rare	good
Old Antipolo	0.75	8.8	2.5 + 0	commercial PNR station	partly rampant	poor
Tecson	0.33	12.0	2.0 + 1.8	residential commercial	rampant	fair
T. Bugallon	0.28	12.0	2.0 + 1.4	residential	rare	poor
Tindalo	0.23	12.0	2.5 + 2.3	residential	rare	poor
Ipil	0.20	12.0	2.6 + 1.8	residential	rampant	good
S. Reyes	0.22	12.0	2.0 + 2.4	residential	rare	fair
T. Mapua	0.23	12.0	2.0 + 2.3	commercial	rare	good

B BETWEEN BLUMENTRITT AND TAYUMAN AREA:

Road Name	Length (km)	Carriageway Width (m)	Sidewalk Width (m)	Landuse Alongside	Roadside Parking	Road Surface Condition
Laguna	0.58	12.0	2.5 + 2.0	commercial	partly rampant	poor
Batangas	0.67	12.0	3.0 + 2.0	commercial	rare	good
Tayabas	0.68	12.0	2.5 + 2.0	commercial	partly rampant	poor
Camarines	0.60	12.0	2.5 + 2.0	residential commercial	partly rampant	fair
Ipil	0.68	12.0	2.8 + 1.8	residential	rare	good
S. Reyes	0.67	12.0	2.0 + 2.3	residential	rampant	fair
T. Mapua	0.65	12.0	2.0 + 2.3	commercial	rampant	good
Oroquieta	0.61	11.9	2.0 + 1.7	residential (school)	partly rampant	fair
F. Huertas	0.59	12.0	1.7 + 1.6	commercial (San Lazaro race track)	rampant	fair

(App.8.8 cont'd.)

C Between Tayuman and C. M. Recto Area

Road Name	Length (km)	Carriageway Width (m)	Sidewalk Width (m)	Landuse Alongside	Roadside Parking	Road Surface Condition
Quiricada	0.94	10.1 - 12.0	1.4 + 1.6 1.6 + 3.4	residential (San Lazaro Hospital, Elem. sch.)	partly rampant	good
Alvarez	0.57	12.0	0 + 2.6	residential (Elem. sch.)	rare	poor
Bambang	0.97	8.0 - 12.0	1.1 + 1.1 1.5 + 2.0	residential commercial	partly rampant	fair
E. Remegio	0.52	12.0	2.5 + 2.3	residential commercial	rare	fair
Mayhaligue	0.41	12.0	2.1 + 3.3	residential commercial	rare	fair
V. Fuguso	0.57	14.4	1.2 + 1.6	commercial (Central Mkt)	rampant	fair
Lope de Vega	0.45	11.9	2.2 + 2.7	commercial	rare	fair
Doroteo Jose	0.36	12.5	2.0 + 2.0	commercial	rampant	poor
S. Reyes	0.85	9.8	2.5 + 2.7	residential commercial	rare	poor
T. Mapua	0.85	9.9 - 10.0	2.1 + 0 1.8 + 1.5	commercial	partly rampant	poor
Oroquieta	1.38	11.9	2.3 + 1.3 2.0 + 1.7	residential commercial (Old prison)	partly rampant	poor
F. Huertas	1.11	11.9	1.7 + 2.0	residential commercial	partly rampant	poor
P. Guevarra	1.10	11.9	1.8 + 2.0	residential commercial (Elem. sch., Central Mkt.)	rare	good
T. Alonzo	0.37	12.0	2.1 + 2.5 2.8 + 2.7	residential (High Sch.)	rare	good

D Between Pedro Gil and San Andres Area

Road Name	Length (km)	Carriageway Width (m)	Sidewalk Width (m)	Landuse Alongside	Roadside Parking	Road Surface Condition
Gen. Malvar	0.95	10.2 - 10.8	2.2 + 2.2 2.4 + 2.4	commercial (SPC,PCU,PWU)	partly rampant	fair
Julio Nakpil	0.94	10.2	2.5 + 2.2	commercial (PWU)	rampant	fair
Remedios	0.82	9.9	2.8 + 2.6	commercial	partly rampant	fair
M. Adriatico	0.65	11.0	2.0 + 2.15	commercial	partly rampant	good
J. C. Bocobo	0.65	10.0	2.2 + 2.2	commercial residential	rampant	good

M.Y. Orosa	0.65	10.0	2.5 + 2.2	commercial residential (St.Paul Col.)	rampant	fair
L. Ma. Guerrero	0.65	10.8	2.8 + 2.1	commercial residential (SPC, PCU)	rampant	fair
Dr. A.Varquez	0.65	10.0	1.5 + 1.5	residential (PCU)	rampant	fair
Indiana	0.70	10.2	2.2 + 2.2	residential commercial	rare	fair
L. Guinto	0.75	10.1	2.4 + 2.4	commercial (PCU, PWU)	rare	poor
T. Agoncillo	0.75	9.0	nothing	commercial	rare	good
San Pascual	0.75	11.1	nothing	commercial	rare	fair
Kansas	0.75	10.2	1.6 + 0	residential commercial	rare	poor
Singalong	0.77	7.8 - 8.8	1.7 + 1.7	residential	rare	good

Legend:

SPC - St. Paul's College
PCU - Philippine Christian College
PWU - Philippine Women's University

E Between Buendia and EDSA Area

Road Name	Length (km)	Carriageway Width (m)	Sidewalk Width (m)	Landuse Alongside	Roadside Parking	Road Surface Condition
G. Villanueva	0.20	3.1 - 4.6	nothing	residential	rare	good
Villareal	0.22	5.0	nothing	residential	rare	good
Vergel	0.25	4.6	nothing	commercial	partly rampant	good
Villaruel	0.47	4.9 - 6.3	nothing	commercial	rare	good
A. Pablo	0.20	3.10	nothing	commercial residential	rare	fair
Cartimar	0.21	12.1	2.5 + 2.5	commercial	rampant	fair
Mabolo	0.21	5.8	nothing	commercial	rare	fair
Dancel	0.23	4.2	nothing	residential	rare	good
Lucban	0.23	3.2	nothing	residential	rare	good
P. Manahan	0.25	3.0	nothing	residential	rare	poor
Col. Doro	0.24	3.0	nothing	residential	rare	poor
Primero De Mayo	0.24	3.0	nothing	commercial	rampant	poor
J.S. Galvez	0.40	4.0	nothing	residential	rare	fair
Pasay Lions RD	0.11	3.0	nothing	commercial	rare	fair

Sanchez	0.23	3.0	nothing	commercial	rare	fair
R. Domingo	0.23	5.1	nothing	commercial	rare	good
Ignacio	0.29	6.0 - 10.0	nothing	commercial residential	rare	good
Leveriza	0.67	6.1	nothing	residential commercial	rampant	good
A. Luna	0.62	5.1	nothing	residential commercial	rare	good
P. Burgos	0.70	6	nothing	residential	rare	good
Park Ave.	1.32	6.1	nothing	residential	rare	good
L. Villanueva	0.87	4.2	nothing	commercial	rare	good
Marquita	0.35	4.0	nothing	commercial	rare	good
Zamora	1.10	6.0	nothing	residential	rare	good
Figueroa	0.60	3.0 - 6.0	nothing	commercial	rare	poor

F Between San Andres and Buendia Area

Road Name	Length (km)	Carriageway Width (m)	Sidewalk Width (m)	Landuse Alongside	Roadside Parking	Road Surface Conditions
Maligaya	0.22	4.4	nothing	residential	rare	fair
Dagonoy	0.08	8.0	1.7 + 2.5	residential	rare	fair
Estrada	0.28	10.5	2.0 + 2.2	commercial (SSC)	rare	fair
Inquimboy	0.10	3.0	nothing	residential	rare	good
Balagtas	0.31	7.0	1.4 + 1.4	residential	rare	poor
Gotamco	0.28	6.9	1.2 + 1.2	residential commercial	rare	good
San Juan	0.52	6.2 - 7.1	nothing 1.4 + 1.4	residential commercial	rare	good
M. Adriatico	1.07	10.5 - 19.0	2.2 + 2.2 3.5 + 3.5	commercial park (Rizal Mem. Stadium, Zoo, Century Park Sheraton H.)	partly rampant	fair
Leveriza	0.55	8.5	nothing	commercial	rampant	fair
L. Guinto	0.87	12.0	2.5 + 2.6 3.1 + 3.1	commercial residential (SSC)	partly rampant	fair
Singalong	0.86	8.0	1.1 + 1.7	residential (SSC)	rare	good

(App.8.8 cont'd.)

Leveriza	0.76	8.5	nothing	residential	partly rampant	fair
Donada	0.79	6.0 - 7.3	nothing	residential commercial	rare	fair
San Juan	0.83	4.6	nothing	residential	partly rampant	fair
Domingo	0.83	6.0	nothing	residential	rare	good
Bautista	0.90	12.1	1.3 + 1.3	residential commercial	rare	good

Legend:

SSC - St. Scholastica College

G Between C. M. Recto and C. Palanca St. Area:

Road Name	Length (km)	Carriageway Width (m)	Sidewalk Width (m)	Landuse Alongside	Roadside Parking	Road Surface Conditions
Soler	0.63	4.5 - 12.0	1.5 + 1.2 3.2 + 3.2	commercial residential	rare	poor
Ongpin	0.38	7.0 - 9.5	0 + 0.9 1.5 + 1.0	commercial	rare	good
G. Puyat	0.38	6.0 - 8.7	1.0 + 0.9 1.7 + 1.7	commercial	rare	fair
Paterno	0.20	4.0 - 4.1	0 + 0 0.7 + 0.7	commercial	rare	fair
Carriedo	0.20	12.0	2.9 + 2.9	commercial	rampant	good
T. Alonzo	0.30	12.0	2.8 + 2.7	commercial (Ortañez Univ)	rare	good
T. Mapua	0.30	7.0	1.6 + 1.6	commercial	rare	fair
Evangelista	0.49	7.1 - 8.4	1.4 + 1.4	commercial	rare	good
Villalobos	0.12	11.0	0.9 + 0.8	commercial	rare	good

APPENDIX 8.9 LRT CORRIDOR ROADS BY WIDTH

List of Figures

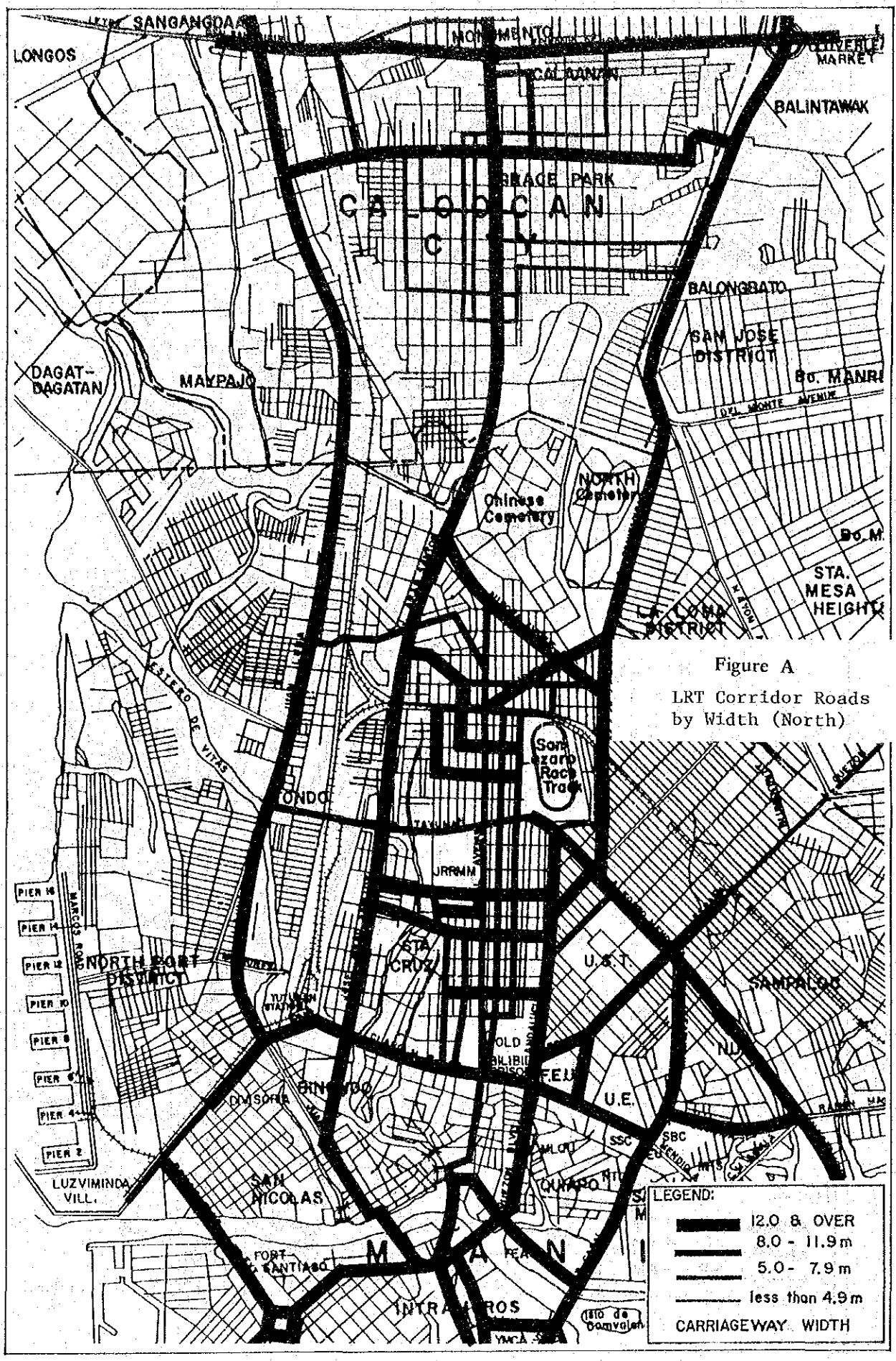


Figure A

LRT Corridor Roads by Width (North)

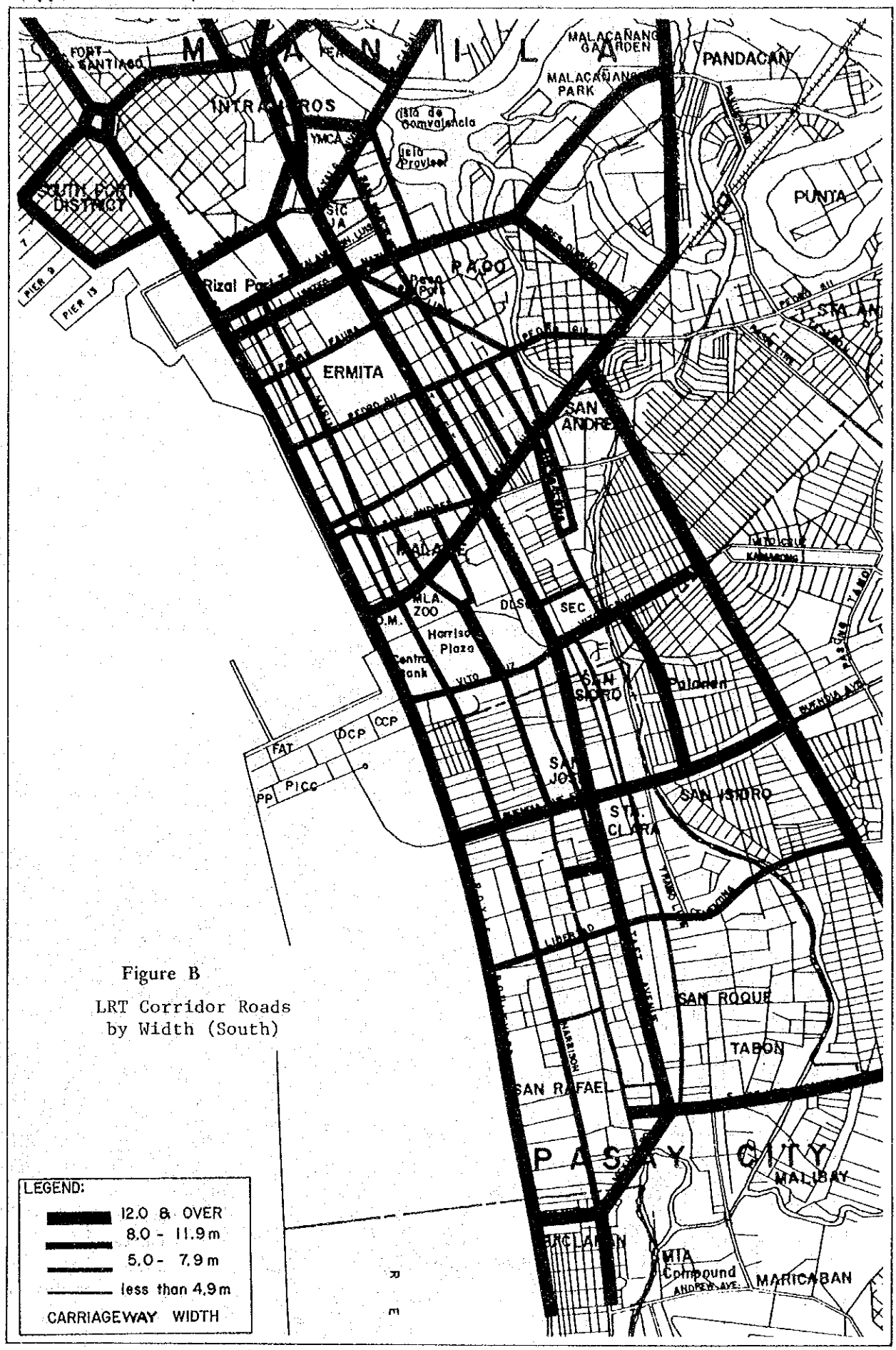


Figure B

LRT Corridor Roads
by Width (South)

APPENDIX 8.10 ALTERNATIVE REROUTING PLANS

List of Figures

(App.8.10 cont'd.)

Figure A — REROUTING PLAN Alternative A (Banning of Jeepney for V. Fugoso – Plaza Sta. Cruz Section of Rizal Avenue)

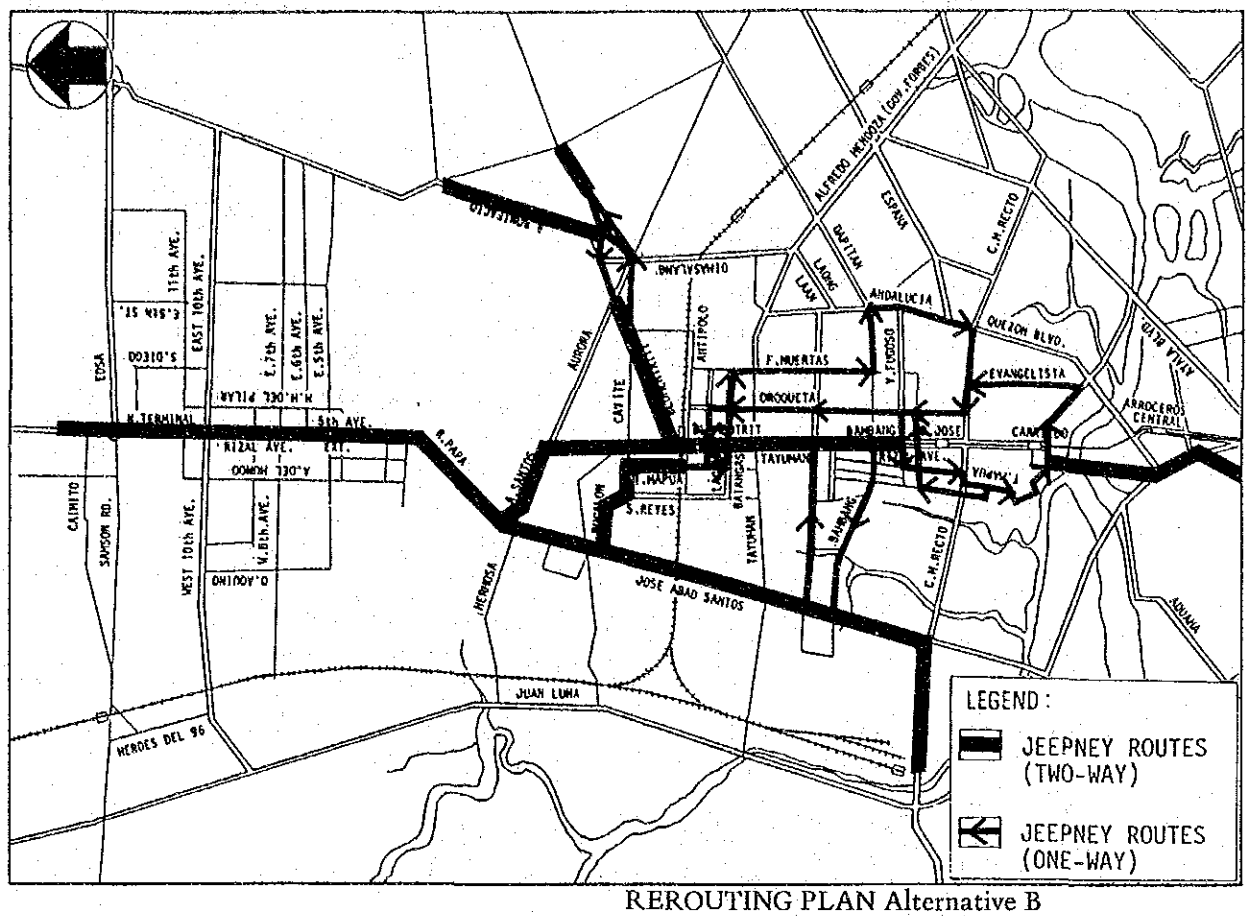
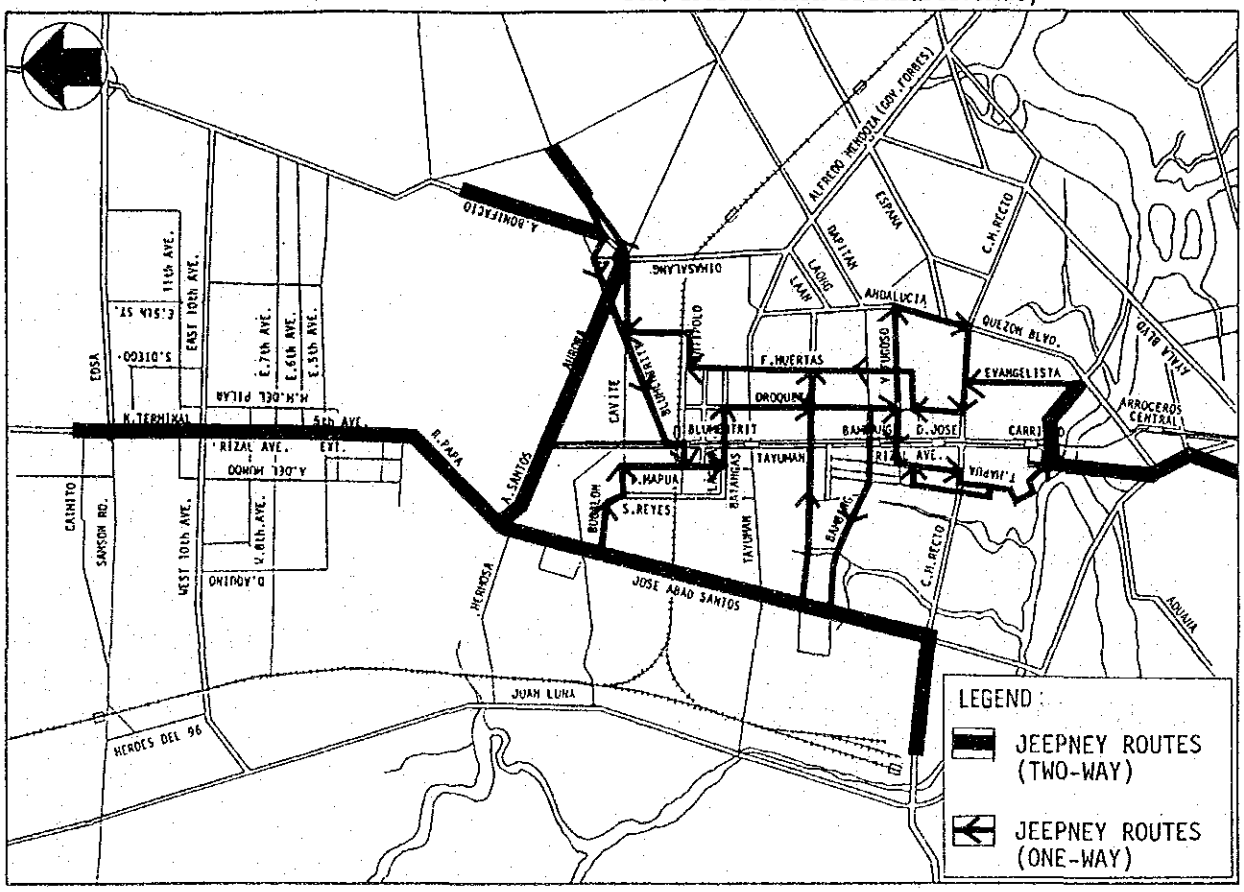


Figure B — REROUTING PLAN Alternative B (Banning of Jeepney for Solis-Plaza Sta. Cruz Section of Rizal Avenue)



(App.8.10 cont'd.)

Figure C REROUTING PLAN Alternative C (Banning of Jeepney for Solis – McArthur Bridge Section of Rizal Avenue)

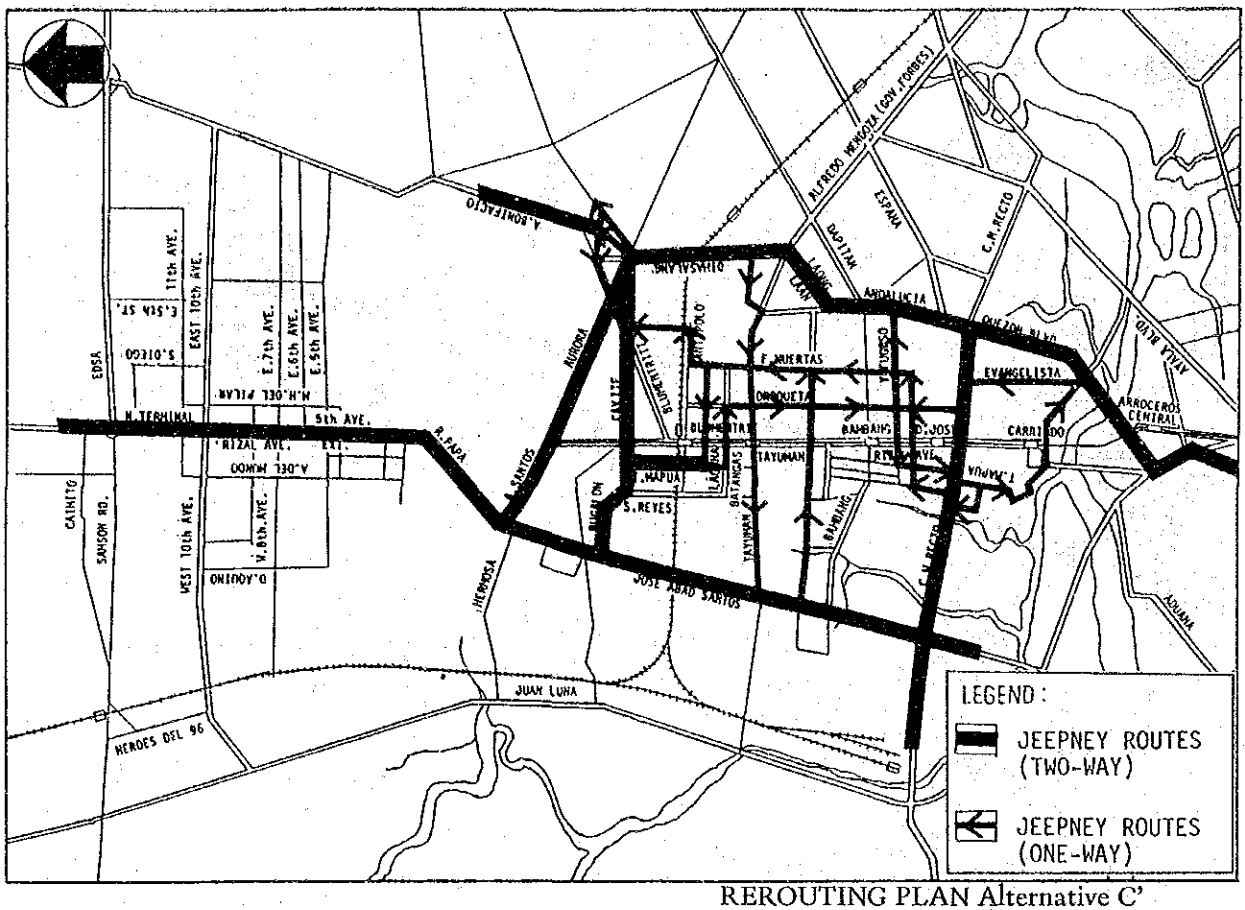
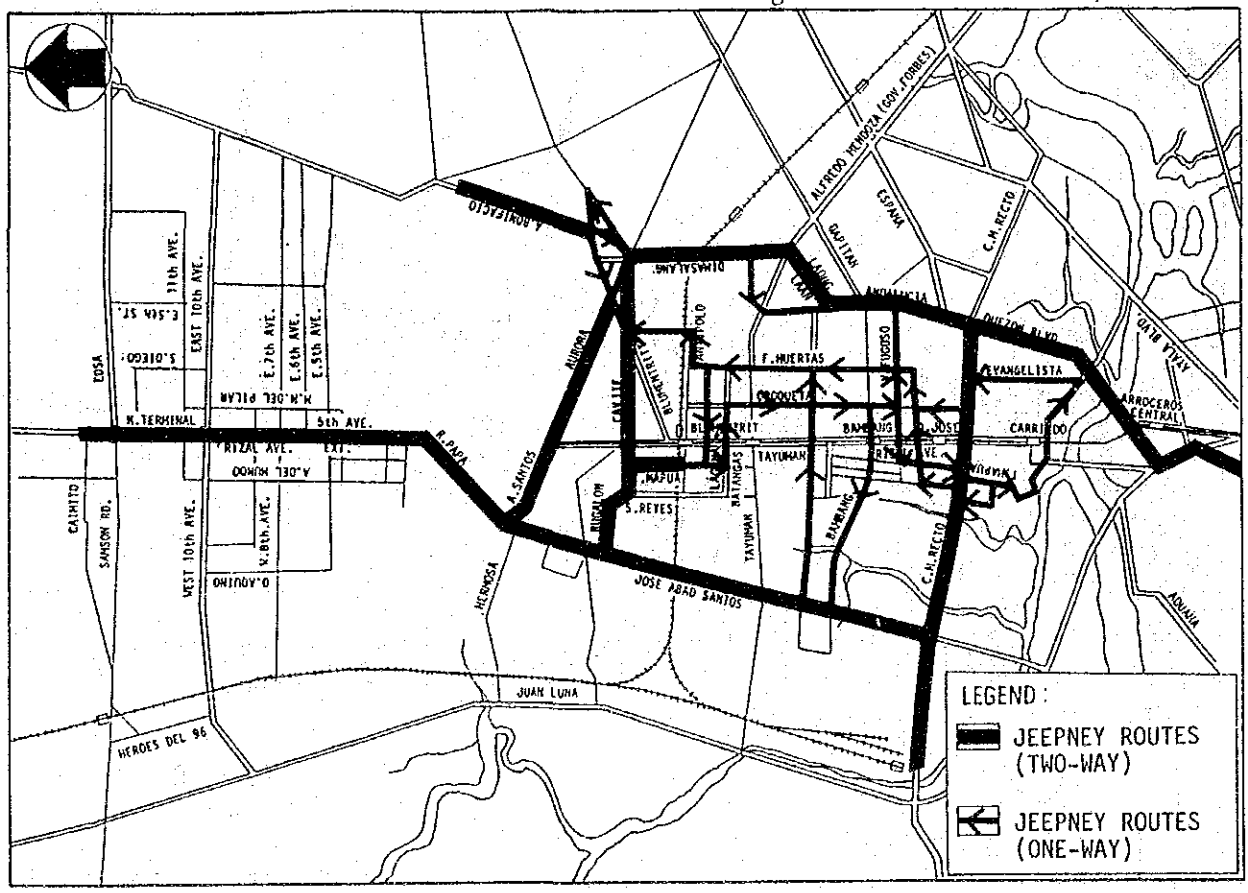


Figure D REROUTING PLAN Alternative C' (Banning of Jeepney for Solis-McArthur Bridge Section of Rizal Avenue)



(App.8.10 cont'd.)

Figure E — REROUTING PLAN Alternative I (Banning of Jeepney for P. Quirino – Vito Cruz Section of Taft Avenue)

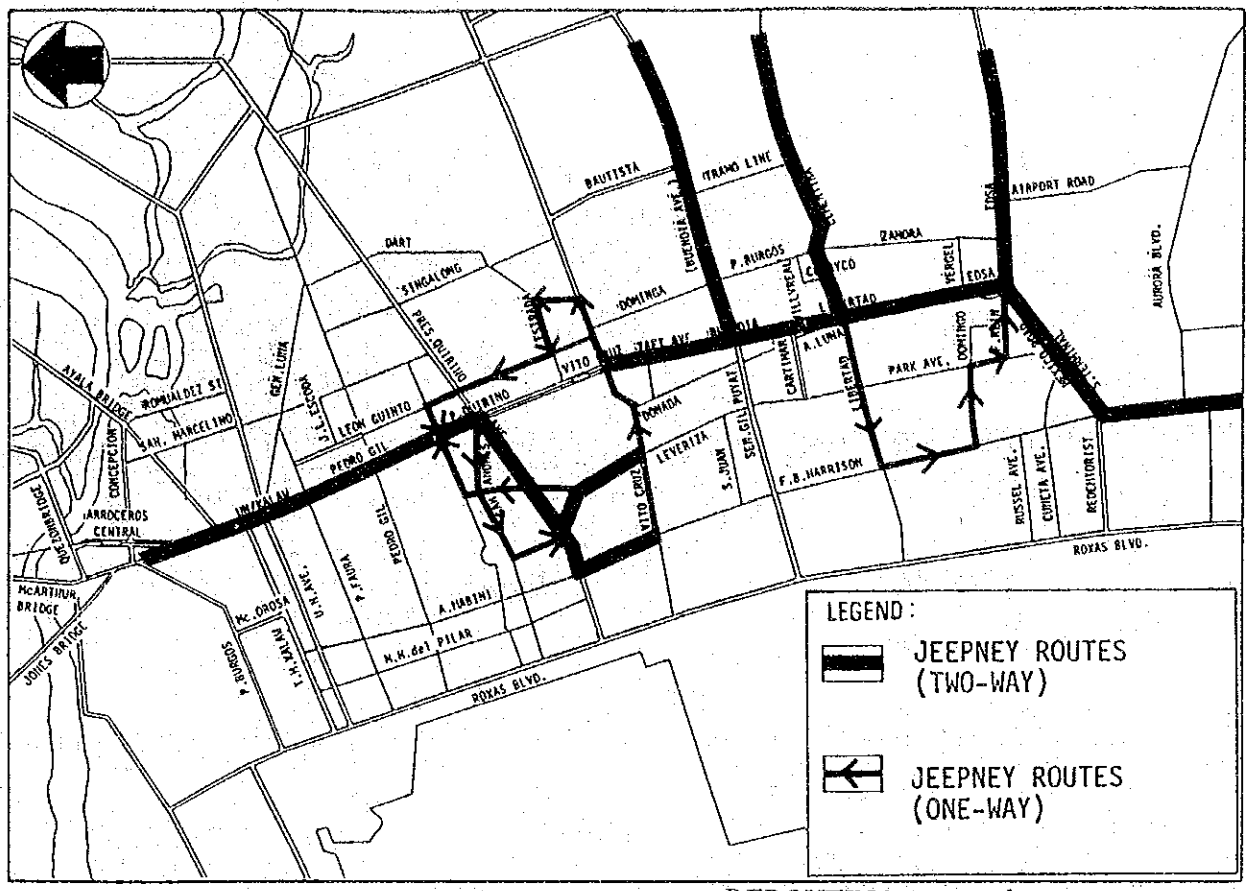
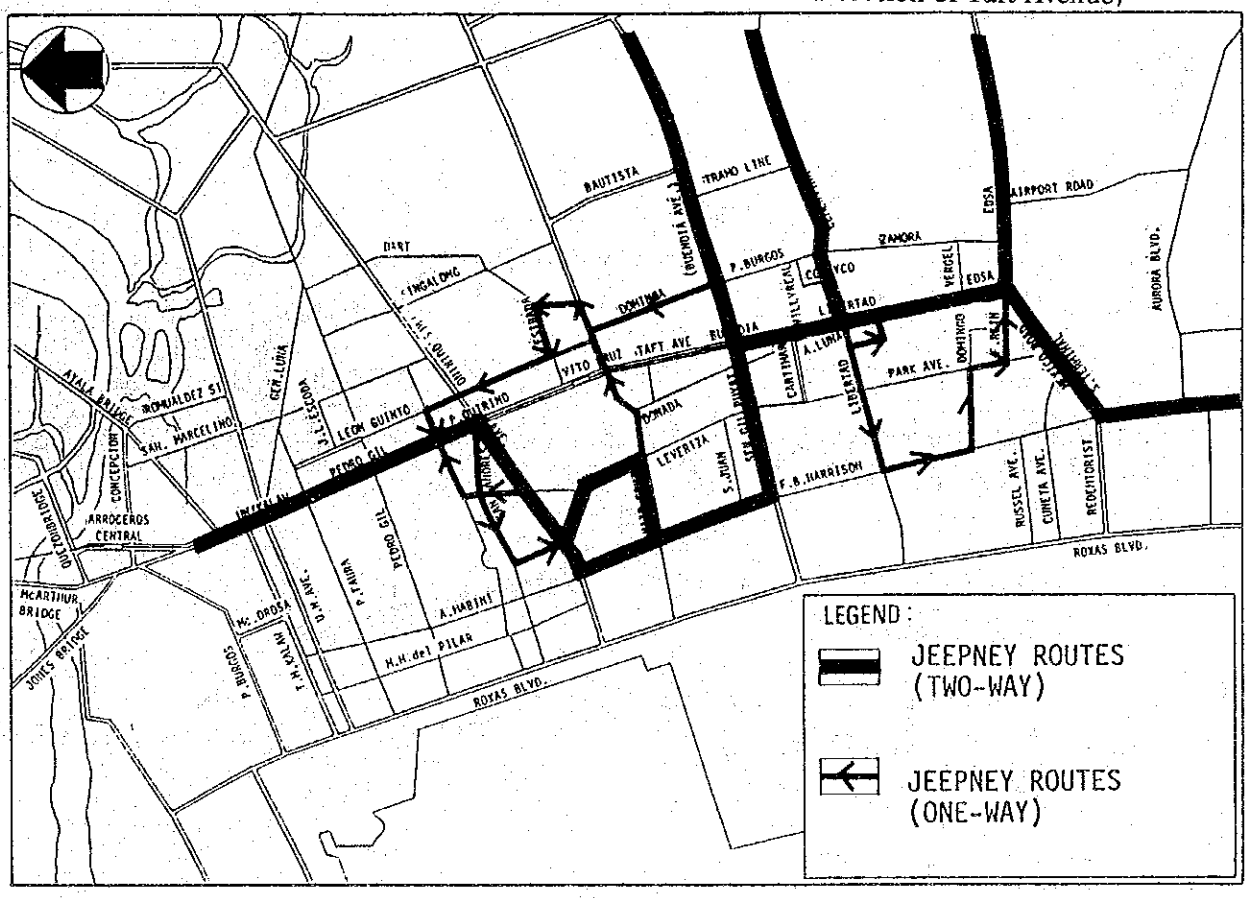


Figure F — REROUTING PLAN Alternative II (Banning of Jeepney for P. Quirino – Buendia Section of Taft Avenue)



(App.8.10 cont'd.)

Figure G — REROUTING PLAN Alternative III (Banning of Jeepney for P. Quirino – Pasay Rdta. Section of Taft Avenue)

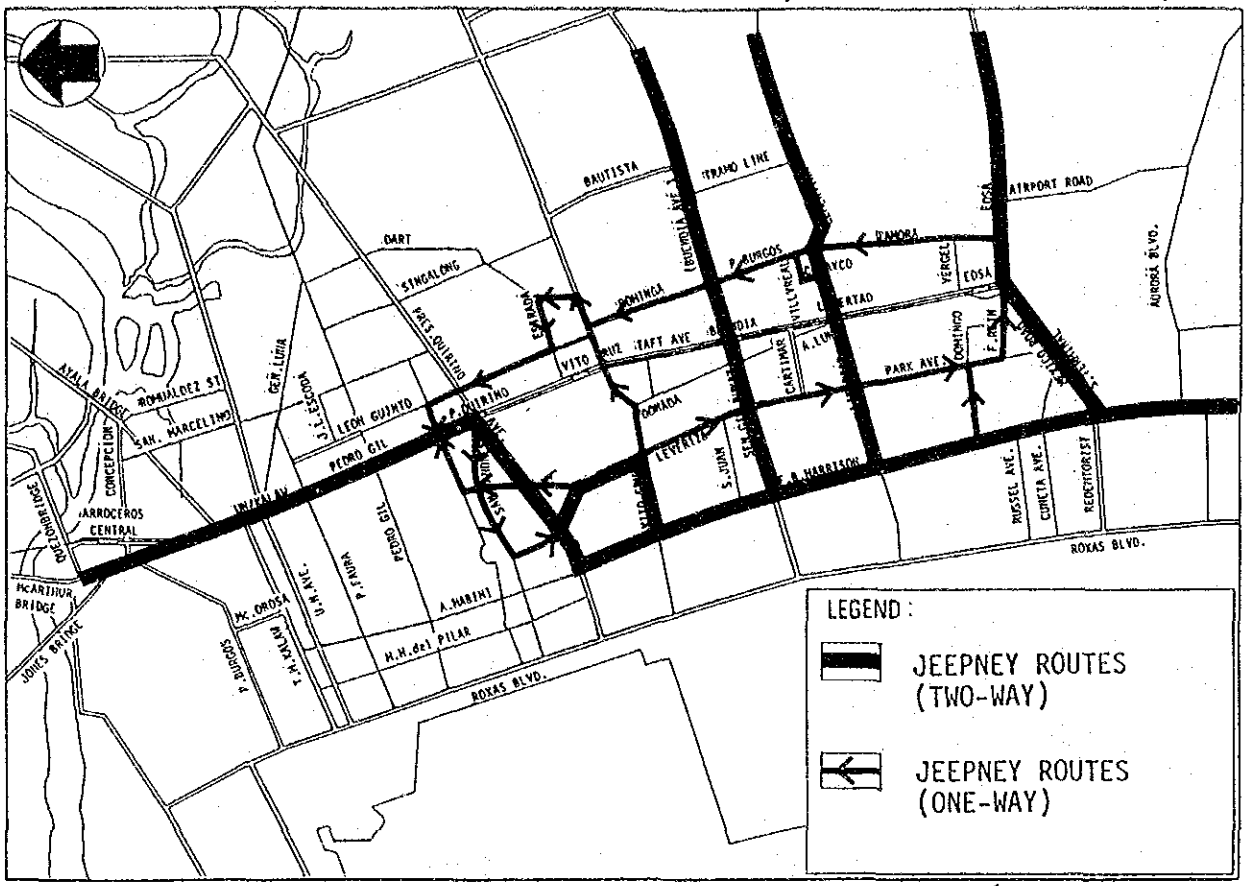
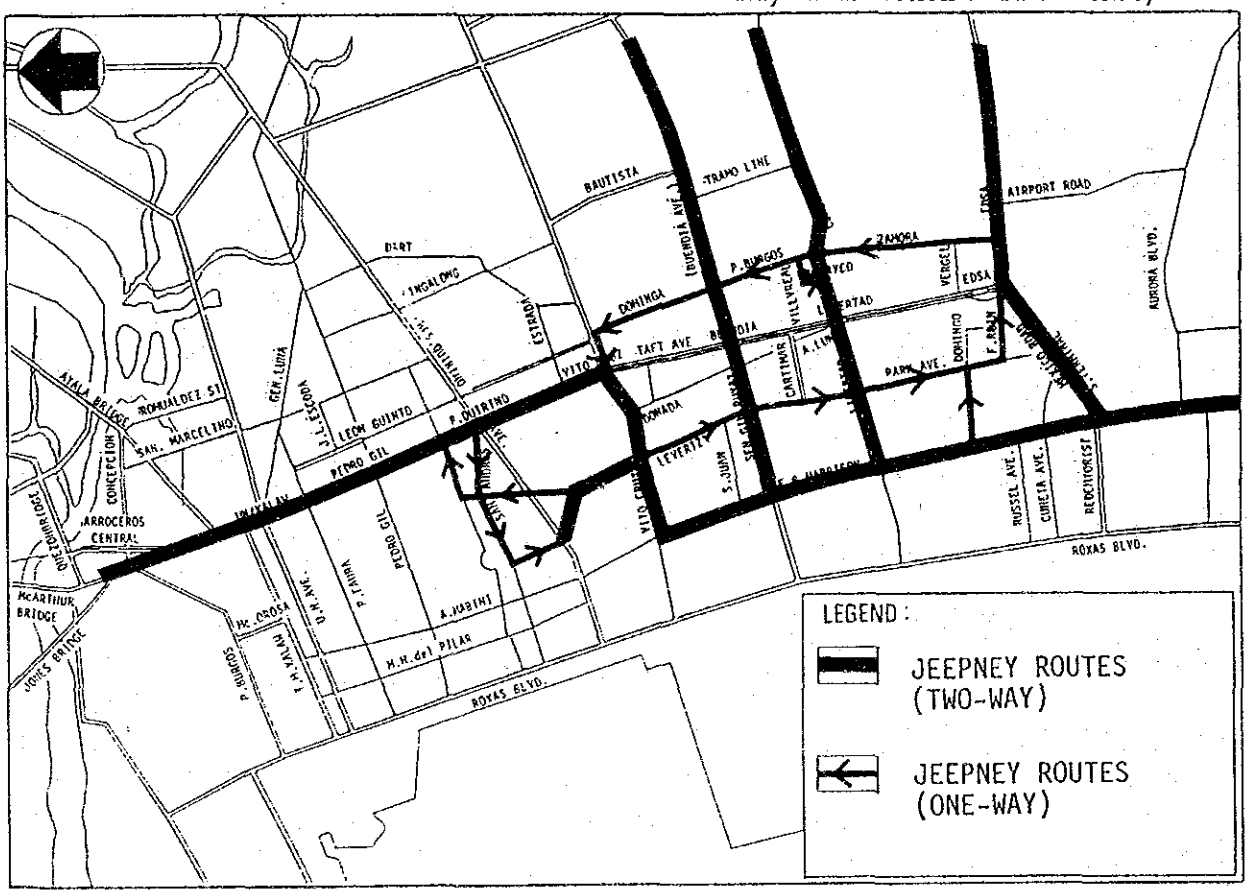


Figure H — REROUTING PLAN Alternative IV (Banning of Jeepney for V. Cruz – Pasay Rtda. Section of Taft Avenue)



APPENDICES FOR CHAPTER 9

APPENDIX 9.1 METHODOLOGY FOR CALCULATING ROAD CAPACITY

- Although there are various methodologies for calculating road capacity, JUMSUT has adopted that of the "Highway Planning Manual" (MPWH Aug. 1981) considering the local condition of Metro Manila.
- As a first step, "Basic Hourly Capacity in PCU for Both Directions" is determined in the MPWH manual as shown in Appendix Table A.

Appendix Table A
Basic Hourly Capacity in PCU (Passenger Car Unit) for Both Directions

Road Type	Carriageway Width (M)	Roadside Friction	Basic Hourly Capacity in PCU in Both Direction
Highway	- 4.0	None or Light	600
Highway	4.1 - 5.0	None or Light	1,200
Highway	5.1 - 5.5	None or Light	1,800
Highway	5.6 - 6.1	None or Light	1,900
Highway	6.2 - 6.5	None or Light	2,000
Highway	6.6 - 7.3	None or Light	2,400
Highway	2 x 7.0	None or Light	7,200 (Expressway)
Urban Street	6.0	Heavy	1,200
Urban Street	6.1 - 6.5	Heavy	1,600
Urban Street	6.6 - 7.3	Heavy	1,800
Urban Street	2 x 7.0	Heavy	6,700

Source : MPWH Highway Planning Manual

- The second step is to adjust the above capacity as follows:
  a) In case the shoulder width is 2.0 meters or less: 10% less
  b) In case obstacle is located within 1.5 meters from the carriageway: 10% less (on one side) or 20% less (on both sides)
- In addition to the above, a factor showing the influence of intersections was taken into account in JUMSUT, as follows:
  a) In case of 2-lane road: 8.8 (20% less)
  b) In case of multi-lane road: 0.6 (40% less)
- Finally, road capacity was calculated as shown in the following examples:
  a) 2-lane road (both directions)
     A) Carriageway Width 6.0 meters or less:

        1,200 x 0.9 x 0.8 x 0.8 = 690 pcu's/hr.

     B) Carriageway Width 6.1 – 6.5 meters:

        1,600 x 0.9 x 0.8 x 0.8 = 920 pcu's/hr.

     C) Carriageway Width 6.6 – 7.3 meters:

        1,800 x 0.9 x 0.8 x 0.8 = 1,040 pcu's/hr.

  b) Multi-lane road (per lane)
     A) With central median:

        1,675 x 0.9 x 1.0 x 0.6 = 900 pcu's/hr.

     B) Without central median:

        1,675 x 0.9 x 0.8 x 0.6 = 720 pcu's/hr.
- In addition, PCU (Passenger Car Unit) is 1.5 for jeepney, 2.5 for bus and 2.0 for truck.

Appendix 9.2
Traffic Conditions by Road Section
Along LRT Corridor (Before Rerouting)

Road Name	Section Name	Section Lenght (kms.)	Width of Carriageway (No. of Lanes)	Peak Hour Traffic Volume: Private Car, Van Jeep	Public Transport: Jeepney	Public Transport: Bus/Truck	Public Transport: Total	Total (Vehicle)	Total (P.C.U.)	PT Total Ratio(%)	Heavy Direction Percentage (%)	Hourly Capacity	V/C Ratio
ROXAS BLVD.	MIA Rd. - Libertad	3.0	28.0 (6)	3,347	330	180	510	3,857	4,292	13.2	65	900/lane	1.03
	Libertad - Buendia	0.7	28.0 (6)	3,544	12	152	164	3,708	3,942	58.7	58.7	900/lane	0.86
	Buendia - P. Quirino	1.3	28.0 (6)	4,146	33	1,026	1,059	5,205	6,761	20.3	50.6	900/lane	1.27
	P. Quirino - P. Burgos	2.3	28.0 (8)	4,090	32	993	1,025	5,115	6,621	20.0	53.7	900/lane	0.99
QUIRINO AVENUE	Redemptorist - MIA Rd.	1.6	14.4 (4)	108	1,075	166	1,241	1,349	2,136	72.4	64.2	720/lane	0.95
	MIA Road - Real	7.4	14.0 (4)	1,852	796	172	968	2,820	3,476	34.3	60.0	720/lane	1.45
TAFT AVENUE	City Hall - P. Gil	1.2	26.3 (8)	1,397	2,755	504	3,259	4,656	6,790	70.0	55.5	900/lane	1.05
	P. Gil - P. Quirino	0.7	26.3 (8)	1,341	2,764	510	3,274	4,615	6,762	70.9	55.9	900/lane	1.05
	P. Quirino - Vito Cruz	0.9	13.8 (4)	1,248	1,239	286	1,525	2,773	3,822	55.0	65.1	720/lane	1.73
	Vito Cruz - Buendia	0.9	13.0 (4)	629	1,235	158	1,393	2,022	2,877	68.9	53.3	720/lane	1.07
	Buendia - EDSA	4.6	13.0 (4)	497	1,054	183	1,237	1,734	2,536	71.6	50.5	720/lane	0.89
BUENDIA	Roxas Blvd. - Taft Ave.	0.8	14.4 (4)	1,503	209	67	276	1,779	1,985	15.5	57.8	720/lane	0.80
	Taft Ave. SSH	0.6	14.4 (4)	2,636	355	271	626	3,262	3,847	19.2	52.9	720/lane	1.41
PRES. QUIRINO	Roxas Blvd. - Taft Ave.	1.1	22.8 (6)	1,798	2	293	295	2,093	2,534	14.1	63.8	900/lane	0.60
	Taft Ave - SSH	0.9	22.8 (6)	2,688	15	575	590	3,278	4,149	18.0	63.8	900/lane	0.98
PEDRO GIL	Roxas Blvd. - Taft Ave.	0.9	10.1 (2)	402	569	13	582	984	1,289	59.1		1,040	1.24
	Taft Ave. - SSH	1.1	10.5 (2)	338	580	7	587	925	1,226	63.5		1,040	1.18
MIA ROAD	Quirino Ave. - MIA	2.5	14.8 (4)	1,890	276	74	350	2,240	2,489	15.6	51.0	720/lane	0.88
REDEMPTORIST	Roxas Blvd. - Mexico Rd	0.3	14.0 (4)	150	127	86	213	413	556	51.6	68.5	720/lane	0.26
F.B. HARRISON	Mexico Rd - Libertad	0.5	10.1 (2)	6	312	0	312	318	474	98.1	one-way	1,040	0.46
	Libertad - Buendia	0.7	10.1 (2)	345	993	33	1,026	1,371	1,918	74.8	61.3	1,040	1.84
	Buendia - P. Quirino	1.4	10.1 (2)	178	1,431	40	1,471	1,649	2,425	89.2		1,040	2.33
A. MABINI	P. Quirino - P. Gil	1.1	9.0 (2)	431	441	18	459	890	1,138	51.6	one-way	720/lane	0.79
	P. Gil - T.M. Kalaw	0.9	9.0 (2)	765	619	34	653	1,418	1,779	46.1	one-way	720/lane	1.24

(App.9.2 cont'd.)

Road Name	Section Name	Section Lenght (kms.)	Width of Carriageway (No. of Lanes)	Peak Hour Traffic Volume: Private Car, Van Jeep	Public Transport: Jeepney	Public Transport: Bus/Truck	Public Transport: Total	Total (Vehicle)	Total (P.C.U.)	PT Total Ratio(%)	Heavy Direction Percentage (%)	Hourly Capacity	V/C Ratio
M. H. DEL PILAR	P. Quirino - T.M. Kalaw	2.0	7.1 (2)	504	519	31	550	1,054	1,361	52.2	one-way	720/lane	0.95
DONADA	Vito Cruz - Buendia	0.8	6.5 (2)	208	0	0	0	208	208		one-way	720/lane	0.14
SAN JUAN	Leveriza-F.B.Harrison	0.3	6.5 (2)	137	0	0	0	137	137		one-way	720/lane	0.10
EDSA	Taft Ave. - SSH	1.6	36.0 (8)	2,103	435	465	900	3,003	3,919	30.0	54.7	900/lane	0.60
MEXICO ROAD	Taft Ave.-Quirino Ave.	0.8	13.0 (4)	218	728	252	980	1,198	1,940	81.8	53.7	720/lane	0.72
LIBERTAD	Roxas Blvd.-Taft Ave.	0.8	7.0 (2)	257	500	9	509	766	1,030	66.4		1,040	0.99
	Taft Ave. - SSH	1.1	7.0 (2)	252	592	9	601	853	1,163	70.5		1,040	1.12
VITO CRUZ	Roxas Blvd. - Taft Ave.	0.8	10.0 (2)	611	397	86	483	1,094	1,422	44.1		1,040	1.37
	Taft Ave. - SSH	0.9	11.2 (2)	1,039		163	163	1,202	1,447	13.6	one-way	720/lane	1.00
SAN ANDRES	Roxas Blvd. - Taft Ave.	0.9	10.6 (2)	772		32	32	804	852	4.0	one-way	720/lane	0.59
U.N. AVENUE	Roxas Blvd.-Taft Ave.	0.8	13.1 (4)	1,945	4	12	16	1,961	1,981	0.8	57.0	720/lane	0.78
	Taft Ave.-P. Quirino	1.0	13.1 (4)	1,633		15	15	1,648	1,671	0.9	68.6	720/lane	0.80
T.M. KALAW	Roxas Blvd.-Taft Ave.	0.8	25.0 (8)	1,093	1,455	205	1,660	2,753	3,789	60.3	56.1	900/lane	0.59
T. CLAUDIO	Roxas Blvd.-Quirino Ave.	0.3	7.0 (2)	90	791	0	791	881	1,227	50	one-way	720/lane	0.85
LEVERIZA	Remedios-Rizal Memorial	0.3	5.0 (2)	46	0	1	1	47	50	2.1	53.2	720/lane	0.03
	Vito Cruz - Buendia	0.8	8.5 (2)	208	16	0	16	224	232	7.1	one-way	720/lane	0.16
	Buendia - Libertad	0.7	6.1 (2)	208	208	0	208	416	520	50	one-way	720/lane	0.36
PARK AVENUE	Libertad - Mexico Rd.	1.1	6.0 (2)	394	394	0	394	788	985	50	one-way	720/lane	0.68
A. LUNA	Buendia - Libertad	0.6	7.3 (2)	208	0	0	0	208	208	0	one-way	720/lane	6.14
ADRIATICO	P. Faura - P. Gil	0.4	9.0 (2)	242	0	0	0	242	242	0		1,040	0.23
	P. Gil - P. Qurino	1.0	11.0 (2)	242	242	0	242	484	605	50		1,040	0.58
	P.Quirino-Vito Cruz	0.7	10.5 (2)	242	42	0	42	284	305			1,040	0.29
LEON GUINTO	P. Faura - P. Quirino	1.1	12.0 (2)	476	476	0	476	952	1,190	50		1,040	1.14

(App.9.2 cont'd.)

Road Name	Section Name	Section Lenght (kms.)	Width of Carriageway (No. of Lanes)	Peak Hour Traffic Volume: Private Car, Van Jeep	Public Transport: Jeepney	Public Transport: Bus/Truck	Public Transport: Total	Total (Vehicle)	Total (P.C.U.)	PT Total Ratio(%)	Heavy Direction Percentage (%)	Hourly Capacity	V/C Ratio
	P. Quirino-Vito Cruz	0.9	12.0 (2)	466	466	0	466	932	1,165	50		1,040	1.12
DOMINGA	Vito Cruz - Buendia	1.0	6.4 (2)	217	17	0	17	234	243		one-way	720/lane	0.17
P. BURGOS	Buendia - Libertad	0.7	6.4 (2)	217	17	0	17	234	243		one-way	720/lane	0.17
ZAMORA	Libertad - EDSA	1.0	6.4 (2)	217	217	0	217	434	543	50	one-way	720/lane	0.38
P. FAURA	Roxas Blvd. - Paco Park	1.0	11.0 (2)	622	24	41	65	687	761	9.5	one-way	720/lane	0.53
GEN. LUNA	Taft Ave. - P. Gil	1.0	10.0 (2)	490	0	0	0	490	490	0	one-way	720/lane	0.34
DEL PAN BRIDGE		0.2	(4)	2,602	174	7	181	2,783	2,881	6.5	57.5	900/lane	0.92
JONES BRIDGE		0.1	(4)	2,662	884	40	924	3,586	4,088	25.8	67.5	900/lane	1.53
MCARTHUR BRIDGE		0.1	(4)	1,736	1,802	107	1,909	3,645	4,707	52.4	50.3	900/lane	1.32
QUEZON BRIDGE		0.1	(4)	1,656	2,207	218	2,425	4,081	5,512	59.4	51.2	900/lane	1.57
AYALA BRIDGE		0.1	(6)	2,832	16	156	172	3,004	3,246	5.7	54.3	900/lane	0.65
NAGTAHAN BRIDGE		0.2	(6)	4,397	248	11	259	4,656	4,797	5.6	52.9	900/lane	0.94
C. M. RECTO	Del Pan - J.A. Santos	1.3	36.6 (10)	690	1,671	255	1,926	2,616	3,833	73.6	52.6	900/lane	0.45
	J.A. Santos-Quezon Blvd.	1.0	23.0 (6)	1,376	2,823	273	3,096	4,472	6,294	69.2	69.2	900/lane	1.61
	Quezon Blvd.-Legarda	0.7	23.0 (6)	900	1,292	77	1,269	2,269	3,031	60.3	50.1	900/lane	0.56
QUEZON BLVD.	Quezon Bridge - Lerma	0.8	23.2 (6)	2,590	1,688	495	2,183	4,773	6,359	45.7	61.4	900/lane	1.45
ANDALUCIA	Lerma - V. Fugoso	0.3	23.2 (6)	1,457	1,546	290	1,836	3,293	4,501	55.8	60.6	900/lane	1.01
	V. Fug so - Bambang	0.3	23.2 (4)	1,459	1,668	243	1,911	3,370	4,569	56.7	59.0	900/lane	1.50
	Bambang - Laon Laan	0.1	23.2 (4)	1,153	1,035	391	1,426	2,579	3,682	55.3	53.4	900/lane	1.09
LERMA	Quezon Blvd. - N. Reyes	0.2	24.8 (8)	797	2,139	102	2,241	3,038	4,260	73.8	56.9	900/lane	0.67
ESPAÑA	Lerma - A. Mendoza	0.7	24.8 (8)	1,762	2,392	108	2,500	4,262	5,620	58.7	62.3	900/lane	0.97

(App.9.2 cont'd.)

Road Name	Section Name	Section Lenght (kms.)	Width of Carriageway (No. of Lanes)	Peak Hour Traffic Volume: Private Car, Van Jeep	Public Transport: Jeepney	Public Transport: Bus/Truck	Public Transport: Total	Total (Vehicle)	Total (P.C.U.)	PT Total Ratio(%)	Heavy Direction Percentage (%)	Hourly Capacity	V/C Ratio
LAONG-LAAN	Andalucia - A. Mendoza	0.3	18.0 (4)	376	57	184	241	617	921	39.1	78.3	720/lane	0.50
DIMASALANG	A. Mendoza-Blumentritt	1.3	14.6 (4)	1,079	832	308	1,140	2,219	3,097	51.4	63.9	720/lane	1.37
BLUMENTRITT	Rizal Ave.-A.Bonifacio	0.7	14.0 (4)	130	1,755	7	1,762	1,892	2,780	93.1	67.3	900/lane	1.04
V. FUGUSO	T. Mapua - Andalucia	0.4	10.0 (2)	171	74	8	82	253	302	32.4	63.2	1,040	0.29
BAMBANG	Rizal Ave. - Andalucia	0.4	12.0 (2)	642	3	28	31	673	717	4.6	57.9	1,040	0.69
A. MENDOZA	España - Laong-Laan	0.6	18.0 (4)	1,300	320	428	748	2,048	2,850	36.5	51.9	900/lane	0.82
	Laong-Laan - Rizal Ave.	0.8	18.0 (4)	733	205	421	626	1,359	2,094	46.1	52.2	900/lane	0.61
TAYUMAN	Rizal Ave. - J. Luna	1.2	8.6 (2)	651	308	146	454	1,105	1,478	41.1	50.4	1,040	1.42
RIZAL AVENUE	McArthur Br.-C.M.Recto	0.6	15.0 (4)	400	2,125	80	2,205	2,605	3,787	84.6	62.6	720/lane	1.65
	C. M. Recto - Tayuman	1.4	15.0 (4)	483	1,891	114	2,005	2,488	3,605	80.6	57.7	720/lane	1.44
	Tayuman - Solis	1.3	15.0 (4)	266	1,646	75	1,721	1.987	2,923	86.6	54.9	720/lane	1.11
RIZAL AVENUE EXT.	Solis - EDSA	2.6	20.0 (6)	1,147	2,156	182	2,338	3,485	4,836	67.0	51.7	900/lane	0.93
MCARTHUR HWY.	EDSA- Mal-Val Bridge	2.9	12.4 (4)	1,032	1,417	358	1,775	2,834	4,052	62.6	67.9	720/lane	1.91
AURORA	Dimasalang - Rizal Ave.	0.8	18.0 (6)	1,857	718	61	779	2,636	3,086	29.6	56.1	720/lane	0.80
REINA REGENTE	Binondo - C.M. Recto	0.5	16.5 (4)	1,786	93	29	122	1,908	1,997	6.4	55.3	720/lane	0.77
J. A. SANTOS	C.M. Recto - Tayuman	1.1	25.7 (6)	2,225	116	89	205	2,430	2,621	8.4	59.8	720/lane	0.73
	Tayuman - Rizal Ave.	1.6	25.7 (6)	2,355	423	142	565	2,920	3,344	19.3	59.5	720/lane	0.92
J. LUNA	Jones Bridge - Binondo	0.5	12.0 (2)	1,421	561	16	577	1,998	2,302	28.9		720/lane	1.60
	Binondo - C.M. Recto	0.6	12.0 (2)	38	403	8	411	449	662	91.5		720/lane	0.92
	C.M. Recto - Tayuman	1.4	12.0 (2)	93	149	3	152	245	323	62.0		720/lane	0.45
	Tayuman - Hermosa	1.6	16.2 (4)	1,163	1,246	113	1,359	2,522	3,315	53.9	58.8	720/lane	1.35
HERMOSA	J.A. Santos - J. Luna	0.6	7.9 (2)	527	27	27	54	581	636	9.3	98.3	1,040	0.61
10TH AVENUE	Rizal Ave. Ext.-A. Boni.	1.5	12.0 (2)	485	342	64	406	891	1,158	45.6	51.6	1,040	1.11
	Rizal Ave. Ext.-J. Luna	1.1	11.0 (2)	498	411	70	481	979	1,289	49.1	63.5	1,040	1.24

(App.9.2 cont'd.)

Road Name	Section		Width of Carriageway (No. of Lanes)	Peak Hour Traffic Volume						PT Total Ratio(%)	Heavy Direction Percentage (%)	Hourly Capacity	V/C Ratio
				Private Car, Van Jeep	Public Transport			Total (Vehicle)	Total (P.C.U.)				
	Name	Lenght (kms.)			Jeepney	Bus/Truck	Total						
EDSA	Rizal Ave. Ext.- A. Boni.	1.5	36.0 (6)	699	542	629	1,171	1,870	3,085	62.6	57.7	900/lane	0.66
SAMSON ROAD	Rizal Ave. Ext.- Sangandaan	1.3	15.0 (4)	514	703	375	1,078	1,592	2,507	67.7	63.7	720/lane	1.11
LOPE DE VEGA	P.Guevarra-Rizal Ave.	1.5	12.0 (2)	159	41	4	45	204	231	22.1	one-way	720/lane	0.16
P. GUEVARRA	Blumentritt - Antipolo	0.3	8.0 (2)	200	350	0	350	550	725	63.6	one-way	720/lane	0.50
ANTIPOLO	P.Guevarra-F. Huertas	0.8	9.0 (2)	35	157	0	157	192	271	81.8	one-way	720/lane	0.19
F. HUERTAS	Antipolo - Lope de Vega	1.7	12.0 (2)	365	365	0	365	730	913	50		720/lane	0.63
OROQUIETA	Antipolo-C.M. Recto	2.1	12.0 (2)	378	378	0	378	756	945	50		720/lane	0.66
T. MAPUA	Cavite - Laguna	0.3	12.0 (2)	378	0	0	0	378	378			1,040	0.36
	V. Fuguso - C.M. Recto	0.4	10.0 (2)	378	0	0	0	378	378			1,040	0.36
	C.M. Recto-McArthur Br.	0.7	7.0 (2)	378	0	0	0	378	378			1,040	0.36
CAVITE	Rizal Ave.-Dimasalang	0.6	12.0 (2)	378	378	0	378	756	945			1,040	0.91
	Rizal Ave.-J.A. Santos	0.4	12.0 (2)	378	378	0	378	756	945			1,040	0.91
LAGUNA	Ipil - F. Huertas	0.5	12.0 (2)	107	276	9	285	392	544	72.7	84.2	1,040	0.52
BATANGAS	Ipil - F. Huertas	0.5	12.0 (2)	346	105	22	127	473	526	26.8	55.8	1,040	0.51
BUGALLON	Cavite - J.A. Santos	0.3	11.0 (2)	378	378	0	378	756	945			1,040	0.91
3RD AVENUE	Rizal Ave. Ext.- D. Aquino	0.5	6.0 (2)	327	21	39	60	387	457	15.5	59.4	690	0.66
5TH AVENUE	Rizal Ave. Ext. - D. Aquino	0.5	7.0 (2)	327	21	39	60	387	457	15.5	59.4	1,040	0.44
6TH AVENUE	Rizal Ave. Ext. - A. Bonifacio	1.0	6.0 (2)	451	204	55	259	710	895	36.5	one-way	720/lane	0.62
7TH AVENUE	Rizal Ave. - Ext. - A. Bonifacio	1.0	7.0 (2)	451	204	55	259	710	895	36.5	one-way	720/lane	0.62
A. DEL MUNDO	3rd Ave. - 10th Avenue	1.0	6.0 (2)	226	104	28	130	356	449	36.5		690	0.65
P. SEVILLA	3rd Ave.-10th Avenue	1.0	6.0 (2)	226	102	28	130	356	(449)	36.5		690	0.65
5TH STREET	10th Ave. - EDSA	0.6	10.0 (2)	451	204	55	259	710	(895)	36.5		1,040	0.86
HEROES DEL 96	10th Ave. - Samson Rd.	0.6	10.0 (2)	451	204	55	259	710	(895)	36.5		1,040	0.86

Appendix 9.3
Traffic Conditions by Road Section
Along LRT Corridor (After Rerourting)

Road Name	Section Name	Section Lenght (kms.)	Width of Carriageway (No. of Lanes)	Peak Hour Traffic Volume: Private Car, Van Jeep	Public Transport: Jeepney	Public Transport: Bus/Truck	Public Transport: Total	Total (Vehicle)	Total (P.C.U.)	PT Total Ratio(%)	Heavy Direction Percentage (%)	Hourly Capacity	V/C Ratio
ROXAS BLVD.	MIA Rd. - Libertad	3.0	28.0 (6)	2,753	550	696	1,246	3,999	5,318	31.2	55.0	900/lane	1.08
	Libertad - Buendia	0.7	28.0 (6)	2,740	8	106	114	2,854	3,017	4.0	58.7	900/lane	0.66
	Buendia - P. Quirino	1.3	28.0 (6)	3,677	23	718	741	4,418	5,506	16.8	50.6	900/lane	1.03
	P. Quirino - P. Burgos	2.3	28.0 (8)	3,621	32	993	1,025	4,646	6,152	22.1	53.7	900/lane	0.92
QUIRINO AVENUE	Redemptorist - MIA Rd.	1.6	14.4 (4)	108	1,410	640	2,050	2,158	3,823	95.0	64.2	720/lane	1.33
	MIA Road - Real	7.4	14.0 (4)	1,471	860	128	988	2,459	3,081	40.2	60.0	720/lane	1.28
TAFT AVENUE	City Hall - P. Gil	1.2	26.3 (8)	2,901	1,950	284	2,234	5,135	6,536	43.5	55.5	900/lane	1.01
	P. Gil - P. Quirino	0.7	26.3 (8)	3,296	700	248	948	4,244	4,966	22.3	55.9	900/lane	0.77
	P. Quirino - Vito Cruz	0.9	13.8 (4)	3,465	0	160	160	3,625	3,865	4.4	65.1	720/lane	1.75
	Vito Cruz - Buendia	0.9	13.0 (4)	2,312	0	166	166	2,478	2,727	6.7	53.3	720/lane	1.01
	Buendia - EDSA	4.6	13.0 (4)	2,851	0	132	132	2,983	3,181	4.4	50.5	720/lane	1.11
BUENDIA	Roxas Blvd.-Taft Ave.	0.8	14.4 (4)	1,876	260	78	338	2,214	2,461	15.3	57.8	720/lane	0.99
	Taft Ave. - SSH	0.6	14.4 (4)	3,191	260	310	570	3,761	4,356	15.2	52.9	720/lane	1.60
PRES. QUIRINO	Roxas Blvd.-Taft Ave.	1.1	22.8 (6)	1,900	50	381	431	2,331	2,928	18.5	63.8	900/lane	0.69
	Taft Ave. - SSH	0.9	22.8 (6)	2,988	8	288	296	3,284	3,720	9.0	63.8	900/lane	0.68
PEDRO GIL	Roxas Blvd.-Taft Ave.	0.9	10.1 (2)	311	360	0	360	671	851	53.7		1,040	0.82
	Taft Ave. - SSH	1.1	10.5 (2)	146	360	156	516	662	1,076	77.9		1,040	1.03
MIA ROAD	Quirino Ave. - MIA Rd.	2.5	14.8 (4)	1,512	276	34	310	1,822	2,011	17.0	51.0	720/lane	0.71
REDEMPTORIST	Roxas Blvd.-Mexico Rd.	0.3	14.0 (4)	100	350	640	990	1,090	2,225	90.8	68.5	720/lane	1.06
F. B. HARRISON	Mexico Rd. - Libertad	1.5	10.1 (2)	6	660	0	660	666	996	99.1		1,040	0.96
	Libertad - Buendia	0.7	10.1 (2)	481	1,290	0	1,290	1,771	2,416	72.8	61.3	1,040	2.32
	Buendia - P. Quirino	1.4	10.1 (2)	210	810	34	844	1,054	1,510	80.1	one-way	720/lane	1.05
A. MABINI	P. Quirino - P. Gil	1.1	9.0 (2)	431	430	34	464	895	1,161	51.8	one-way	720/lane	0.81
	P. Gil - T.M. Kalaw	0.9	9.0 (2)	765	430	34	464	1,229	1,495	37.8	one-way	720/lane	1.04
M.H. DEL PILAR	P. Quirino - P. Gil	2.0	7.1 (2)	504	550	0	550	1,054	1,329	52.2	one-way	720/lane	0.92

(App.9.3 cont'd.)

Road Name	Section Name	Section Lenght (kms.)	Width of Carriageway (No. of Lanes)	Peak Hour Traffic Volume: Private Car, Van Jeep	Public Transport: Jeepney	Public Transport: Bus/Truck	Public Transport: Total	Total (Vehicle)	Total (P.C.U.)	PT Total Ratio(%)	Heavy Direction Percentage (%)	Hourly Capacity	V/C Ratio
DONADA	Vito Cruz - Buendia	0.8	6.5 (2)	208	220	0	220	428	538	51.4	one-way	720/lane	0.37
SAN JUAN	Leveriza - F.B.Harrison	0.3	6.5 (2)	137	480	0	480	617	857	77.8	one-way	720/lane	0.60
EDSA	Taft Ave. - SSH	1.6	36.0 (8)	3,098	960	520	1,480	4,578	5,838	32.3	54.7	900/lane	0.89
MEXICO ROAD	Taft Ave.-Quirino Ave.	0.8	13.0 (4)	770	500	560	1,060	1,830	2,920	57.9	53.7	720/lane	1.09
LIBERTAD	Roxas Blvd.-Taft Ave.	0.8	7.0 (2)	250	330	0	330	580	745	56.7		1,040	0.72
	Taft Ave. - SSH	1.1	7.0 (2)	250	540	0	540	790	1,060	68.4		1,040	1.02
VITO CRUZ	Roxas Blvd. - Taft Ave.	0.8	10.0 (2)	597	300	112	412	1,009	1,327	40.8		1,040	1.28
	Taft Ave. - SSH	0.9	11.2 (2)	789	-	163	163	952	1,197	17.1	one-way	720/lane	0.83
SAN ANDRES	Roxas Blvd.-Taft Ave.	0.9	10.6 (2)	522	1,130	0	1,130	1,652	2,217	68.4	one-way	720/lane	1.54
U.N. AVENUE	Roxas Blvd.-Taft Ave.	0.8	13.1 (4)	2,000	4	0	4	2,004	2,006	0.2	57.0	720/lane	0.79
	Taft Ave. - P. Quirino	1.0	13.1 (4)	1,650	0	36	36	1,686	1,740	2.1	68.6	720/lane	0.83
T.M. KALAW	Roxas Blvd.-Taft Ave.	0.8	25.0 (8)	820	430	0	430	1,250	1,465	34.4	56.1	900/lane	0.23
T. CLAUDIO	Roxas Blvd.-Qurino Ave.	0.3	7.0 (2)	90	550	0	550	640	915	85.9	one-way	720/lane	0.64
LEVERIZA	Remedios - Rizal Mem.	0.3	5.0 (2)	46	580	0	580	626	916	92.7	one-way	720/lane	0.64
	Vito Cruz - Buendia	0.8	8.5 (2)	208	220	0	220	428	538	51.4	one-way	720/lane	0.37
	Buendia - Libertad	0.7	6.1 (2)	208	220	0	220	428	538	51.4	one-way	720/lane	0.37
PARK AVENUE	Libertad - Mexico Rd.	11.1	6.0 (2)	394	350	0	350	744	919	47.0	one-way	720/lane	0.64
A. LUNA	Buendia - Libertad	0.6	7.3 (2)	208	130	0	130	338	403	38.5	one-way	720/lane	0.28
ADRIATICO	P. Faura - P. Gil	0.4	9.0 (2)	242	360	0	360	602	782	59.8		1,040	0.75
	P. Gil - P. Quirino	1.0	11.0 (2)	120	700	0	700	820	1,170	85.4		1,040	1.13
	P.Quirino - Vito Cruz	0.7	12.0 (4)	120	1,280	0	1,280	1,400	2,040	91.4	60	900/lane	0.68
LEON GUINTO	P.Faura - P. Quirino	1.1	12.0 (2)	0	820	0	820	820	1,230		one-way	720/lane	0.85
	P.Quirino-Vito Cruz	0.9	12.0 (2)	0	670	0	670	670	1,005			1,040	0.97
DOMINGA	Vito Cruz - Buendia	1.0	6.4 (2)	217	550	0	550	767	1,042	71.7	one-way	720/lane	0.72

(App.9.3 cont'd.)

Road Name	Section Name	Section Lenght (kms.)	Width of Carriageway (No. of Lanes)	Peak Hour Traffic Volume: Private Car, Van Jeep	Public Transport: Jeepney	Public Transport: Bus/Truck	Public Transport: Total	Total (Vehicle)	Total (P.C.U.)	PT Total Ratio(%)	Heavy Direction Percentage (%)	Hourly Capacity	V/C Ratio
P. BURGOS	Buendia - Libertad	0.7	6.4 (2)	217	550	0	550	767	1,042	71.7	one-way	720/lane	0.72
ZAMORA	Libertad - EDSA	1.0	6.4 (2)	2,117	350	0	350	567	742	61.7	one-way	720/lane	0.52
P. FAURA	Roxas Blvd.-Paco Park	1.0	11.0 (3)	622	360	0	360	982	1,162	36.7	one-way	720/lane	0.81
GEN. LUNA	Taft Ave. - P. Gil	1.0	10.0 (2)	490	360	156	516	1,006	1,420	51.3	one-way	720/lane	0.99
DEL PAN BRIDGE		0.2	(6)	2,373	139	0	139	2,512	2,582	5.5	57.5	900/lane	0.55
JONES BRIDGE		0.1	(4)	2,937	560	28	588	3,525	3,847	16.7	60.0	900/lane	1.28
MCARTHUR BRIDGE		0.1	(4)	3,959	1,280	22	1,302	5,261	5,934	24.7	50.3	900/lane	1.66
QUEZON BRIDGE		0.1	(4)	1,272	2,400	216	2,616	3,888	5,412	67.3	51.2	900/lane	1.54
AYALA BRIDGE		0.1	(6)	1,408	16	188	204	1,612	1,902	12.7	54.3	900/lane	0.38
NAGTAHAN BRIDGE		0.2	(6)	2,973	248	130	378	3,351	3,670	11.3	52.9	647/lane	0.72
C.M. RECTO	Del Pan - J.A.Santos	1.3	36.6 (10)	592	1,150	100	1,250	1,842	2,567	67.9	52.6	900/lane	0.75
	J.A.Santos-Quezon Blvd	1.0	23.0 (6)	609	1,244	58	1,302	1,911	2,620	68.1	69.2	900/lane	0.67
	Quezon Blvd.-Legarda	0.7	23.0 (6)	567	1,006	160	1,166	1,733	2,476	67.3	50.1	900/lane	0.45
QUEZON BLVD.	Quezon Bridge - Lerma	0.8	23.2 (6)	2,590	1,350	326	1,676	4,266	5,430	39.3	61.4	900/lane	1.23
ANDALUCIA	Lerma - V. Fugoso	0.3	23.2 (6)	939	1,237	234	1,471	2,410	3,380	61.0	60.6	900/lane	0.76
	V. Fugoso - Bambang	0.3	23.2 (4)	941	1,334	178	1,512	2,453	3,387	61.6	59.0	900/lane	1.11
	Bambang - Laong Laan	0.1	23.2 (4)	635	932	78	1,010	1,645	2,228	61.4	53.4	900/lane	0.66
LERMA	Quezon Blvd.-N.Reyes	0.2	24.8 (8)	579	1,925	56	1,981	2,560	3,607	77.4	56.9	900/lane	0.57
ESPAÑA	Lerma-A. Mendoza	0.7	24.8 (8)	1,544	2,153	56	2,209	3,753	4,914	58.9	62.3	900/lane	0.85
LAONG LAAN	Andalucia - A.Mendoza	0.3	18.0 (4)	188	51	262	313	501	920	62.5	78.3	720/lane	0.50
DIMASALANG	A.Mendoza-Blumentritt	1.3	14.6 (4)	336	749	134	883	1,219	1,795	72.4	63.9	720/lane	0.80
BLUMENTRITT	Rizal Ave.-A.Bonifacio	0.7	14.0 (4)	0	870	0	870	870	1,305		69.3	900/lane	0.36
V. FUGOSO	Rizal Ave.-Andalucia	0.4	10.0 (2)	171	750	8	750	921	1,296	81.4		720/lane	0.90

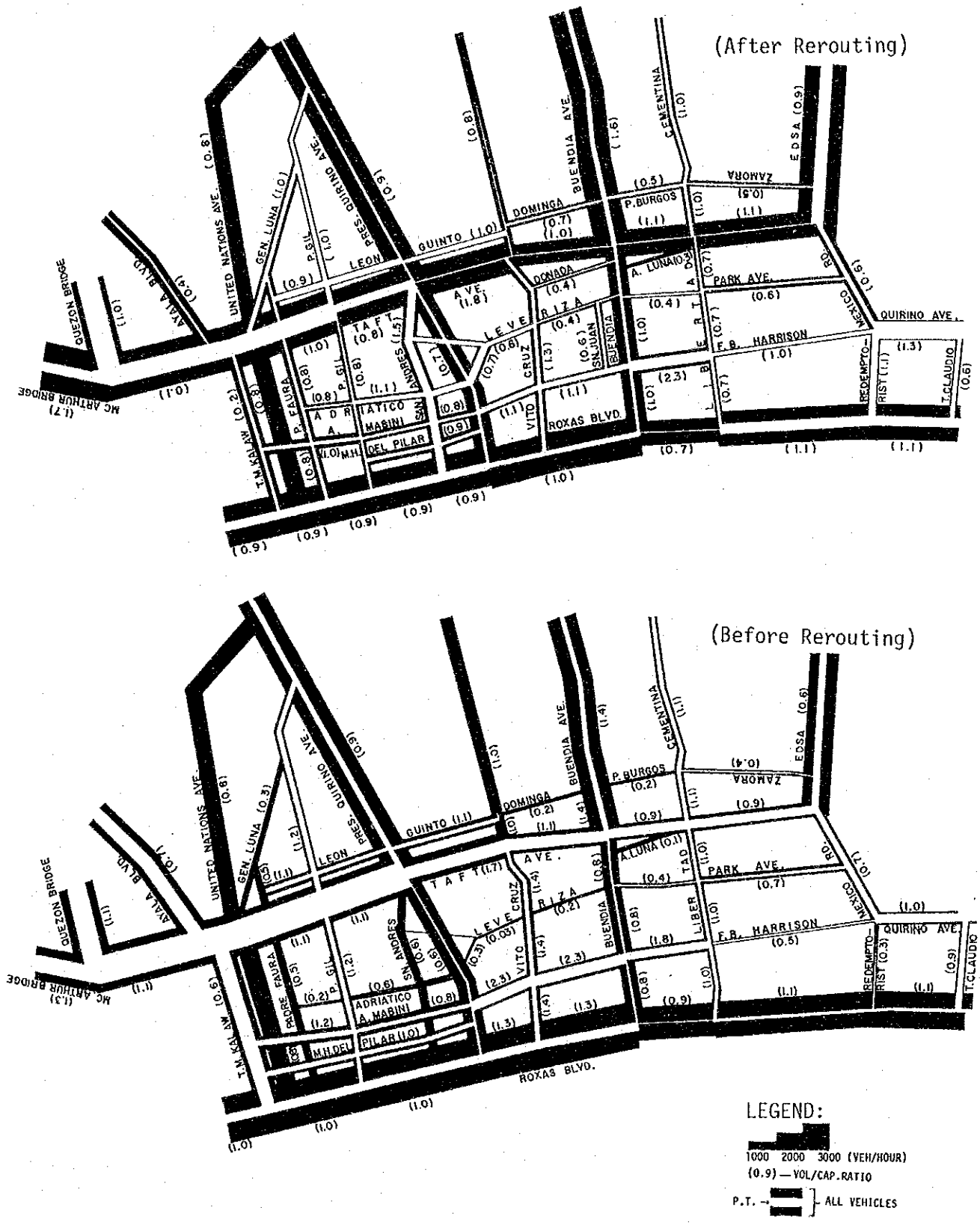
(App.9.3 cont'd.)

Road Name	Section Name	Section Lenght (kms.)	Width of Carriageway (No. of Lanes)	Peak Hour Traffic Volume: Private Car, Van Jeep	Public Transport: Jeepney	Public Transport: Bus/Truck	Public Transport: Total	Total (Vehicle)	Total (P.C.U.)	PT Total Ratio(%)	Heavy Direction Percentage (%)	Hourly Capacity	V/C Ratio
BAMBANG	Rizal Ave.-Andalucia	0.4	12.0 (2)	600	3	29	3	603	605	0.5		1,040	0.58
A. MENDOZA	España - Laong Laan	0.6	18.0 (4)	734	320	130	450	1,184	1,539	38.0	51.9	900/lane	0.44
	Laong Laan - Rizal Ave.	0.8	18.0 (4)	392	226	130	356	748	1,056	47.6	52.2	900/lane	0.31
TAYUMAN	Rizal Ave.-J. Luna	1.2	8.6 (2)	326	339	48	387	713	955	54.3	50.4	1,040	0.92
RIZAL AVENUE	McArthur Br.-C.M.Recto	0.6	15.0 (4)	2,500	750	22	772	3,272	3,680	23.6	62.6	720/lane	1.60
	C.M.Recto-Tayuman	1.4	15.0 (4)	2,383	750	160	910	3,293	3,908	27.6	60.0	720/lane	1.63
	Tayuman - Aurora	1.3	15.0 (4)	1,266	640	24	664	1,930	2,286	34.4	54.9	720/lane	0.87
RIZAL AVE. EXT.	Aurora - EDSA	2.6	20.0 (6)	959	1,509	46	1,555	2,514	3,338	61.9	51.7	900/lane	0.64
MCARTHUR HWY.	EDSA - Mal-Val Bridge	2.9	12.4 (4)	1,071	1,417	54	1,471	2,542	3,332	57.9	60.0	720/lane	1.39
AURORA	Dimasalang - Rizal Ave	0.8	18.0 (6)	2,360	359	24	383	2,743	3,959	14.0	56.1	720/lane	0.77
REINA REGENTE	Binondo - C.M. Recto	0.5	16.5 (4)	1,140	102	0	102	1,242	1,293	8.2	55.3	720/lane	0.50
J.A. SANTOS	C.M.Recto-Tayuman	1.1	25.7 (6)	961	116	138	254	1,215	1,480	20.9	59.8	720/lane	0.41
	Tayuman - Rizal Ave.	1.6	25.7 (6)	1,273	381	128	509	1,782	2,165	28.6	59.5	720/lane	0.60
J. LUNA	Jones Br. - Binondo	0.5	12.0 (2)	1,696	449	28	477	2,173	2,440	22.0		720/lane	1.69
	Binondo - C.M. Recto	0.6	12.0 (2)	829	242	28	270	1,099	1,262	24.6		720/lane	0.88
	C.M. Recto-Tayuman	1.4	12.0 (2)	869	119	0	119	988	1,048	12.0		720/lane	0.73
	Tayuman - Hermosa	1.6	16.2 (4)	1,173	1,121	102	1,223	2,396	3,110	51.0	58.8	720/lane	1.27
HERMOSA	J.A. Santos - J. Luna	0.6	7.9 (2)	527	24	0	24	551	563	4.4		1,040	0.54
10TH AVENUE	Rizal Ave. Ext. - A. Bonifacio	1.5	12.0 (2)	407	342	64	406	813	1,080	49.9	51.6	1,040	1.04
	Rizal Ave. Ext. - J. Luna	1.1	11.0 (2)	460	411	70	481	941	1,252	51.1	63.5	1,040	1.20
EDSA	Rizal Ave. Ext. - A. Bonifacio	1.5	36.0 (6)	790	596	746	1,342	2,132	3,549	62.9	57.7	900/lane	0.76
SAMSON ROAD	Rizal Ave. Ext. -	1.3	15.0 (4)	550	703	375	1,078	1,628	2,542	66.2	63.7	720/lane	1.12

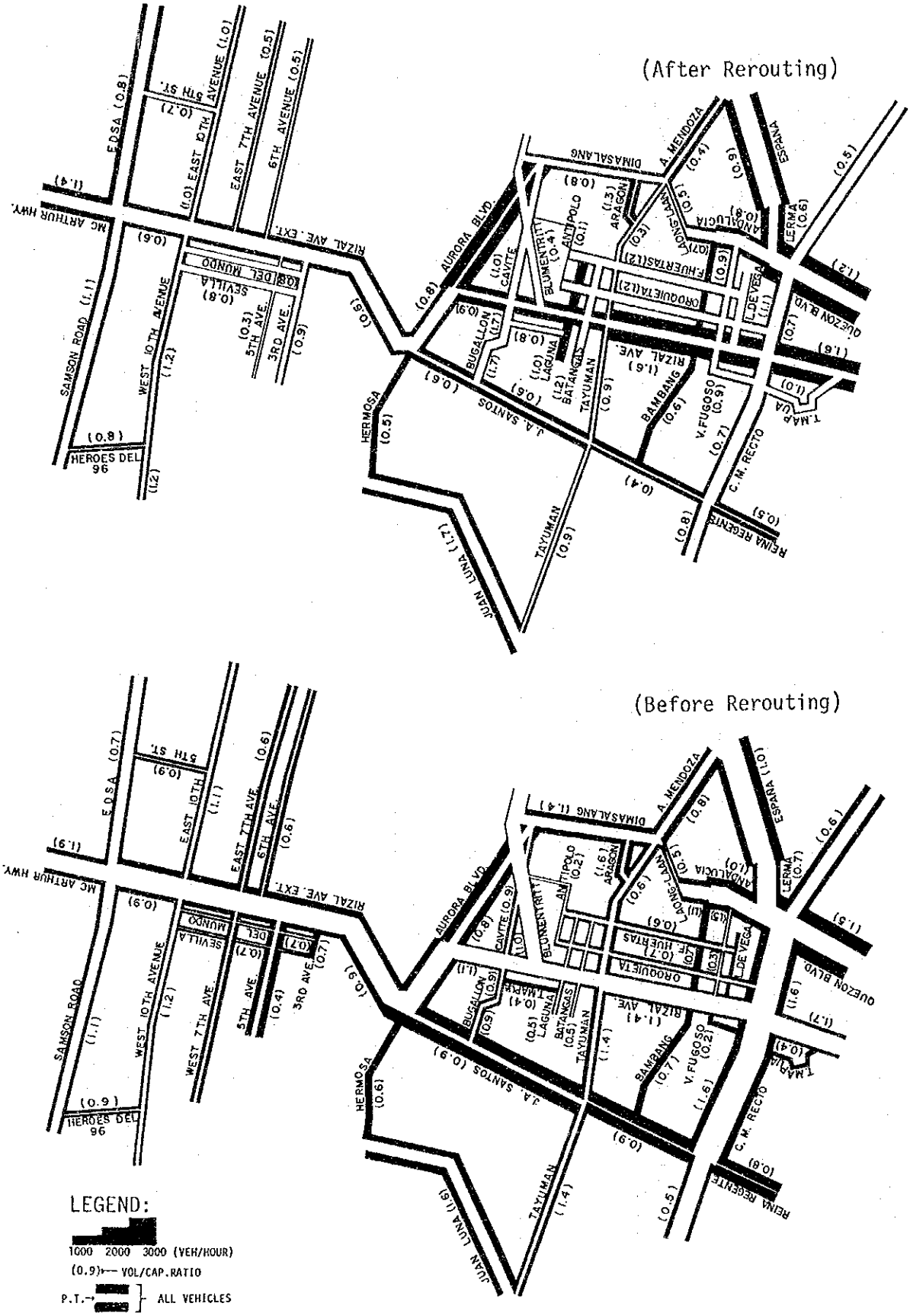
(App.9.3 cont'd.)

Road Name	Section Name	Section Lenght (kms.)	Width of Carriageway (No. of Lanes)	Peak Hour Traffic Volume: Private Car, Van Jeep	Public Transport: Jeepney	Public Transport: Bus/Truck	Public Transport: Total	Total (Vehicle)	Total (P.C.U.)	PT Total Ratio(%)	Heavy Direction Percentage (%)	Hourly Capacity	V/C Ratio
LOPE DE VEGA	P. Guevarra - Rizal Ave.	1.5	12.0 (2)	50	970	0	970	1,020	1,505	95.1	one-way	720/lane	1.05
P. GUEVARRA	Blumentritt-Antipolo	0.3	8.0 (2)	200	80	0	80	280	320	28.6		1,040	0.31
ANTIPOLO	P. Guevarra-J.A.Santos	0.8	9.0 (2)	35	40	0	40	75	95	53.3	one-way	720/lane	0.07
F. HUERTAS	Antipolo-Lope de Vega	1.7	12.0 (2)	200	970	0	970	1,170	1,655	82.9	one-way	720/lane	1.15
OROQUIETA	Antipolo-C.M. Recto	2.1	12.0 (2)	200	970	0	970	1,170	1,655	82.9	one-way	720/lane	1.15
T.M. MAPUA	Cavite - Laguna	0.3	12.0 (2)	200	600	0	600	800	1,100	75.0	one-way	720/lane	0.76
	V. Fugoso-C.M. Recto	0.4	10.0 (2)	200	750	0	750	950	1,325	78.9	one-way	720/lane	0.98
	C.M. Recto-McArthur Br.	0.7	7.0 (2)	200	750	0	750	950	1,325	78.9	one-way	720/lane	0.92
CAVITE	Rizal Ave.-Dimasalang	0.6	12.0 (2)	200	860	0	860	1,060	1,490	81.1	one-way	720/lane	1.03
	Rizal Ave.-J.A.Santos	0.4	12.0 (2)	200	1,060	0	1,060	1,260	1,790	84.1		1,040	1.72
LAGUNA	Ipil - F. Huertas	0.5	12.0 (2)	50	930	0	930	980	1,445	94.9	one-way	720/lane	1.00
BATANGAS	Ipil - F. Huertas	0.5	12.0 (2)	200	970	22	992	1,192	1,710	83.2	one-way	720/lane	1.19
BUGALLON	Cavite - J.A. Santos	0.3	11.0 (2)	200	1,060	0	1,060	1,260	1,790	84.1		1,040	1.72
3RD AVENUE	Rizal Ave. Ext. - D. Aquino	0.5	6.0 (2)	150	680	39	719	869	1,268	82.7	one-way	720/lane	0.88
5TH AVENUE	Rizal Ave. Ext. - D. Aquino	0.5	7.0 (2)	150	140	39	179	329	458	54.4	one-way	720/lane	0.32
6TH AVENUE	Rizal Ave. Ext. - A. Bonifacio	1.0	6.0 (2)	451	50	55	105	556	664	18.9	one-way	720/lane	0.46
7TH AVENUE	Rizal Ave. Ext. - A. Bonifacio	1.0	7.0 (2)	451	50	55	105	556	664	18.9	one-way	720/lane	0.46
A. DEL MUNDO	3rd Ave. - 10th Ave.	1.0	6.0 (2)	100	680	28	708	808	1,190	87.6	one-way	720/lane	0.83
R. SEVILLA	3rd Ave. - 10th Ave.	1.0	6.0 (2)	100	680	28	708	808	1,190	87.6	one-way	720/way	0.83
5TH STREET	10th Ave. - EDSA	0.6	10.0 (2)	100	500	55	555	655	987	84.7	one-way	720/way	0.69
HEROES DEL 96	10th Ave. - Samson Rd.	0.6	10.0 (2)	451	140	55	195	646	798	30.2		1,040	0.77

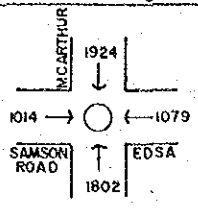
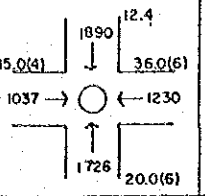
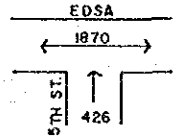
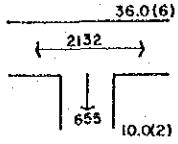
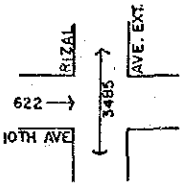
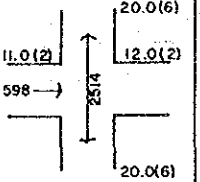
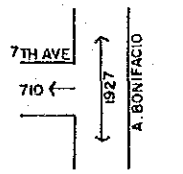
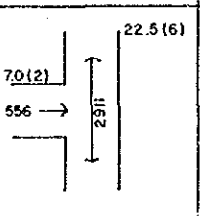
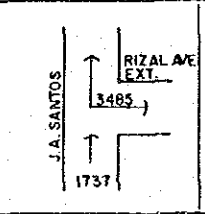
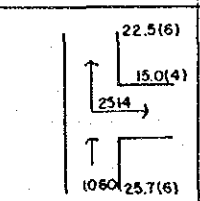
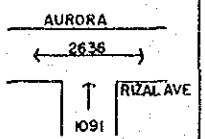
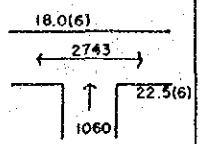
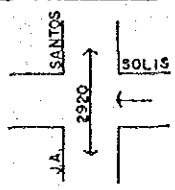
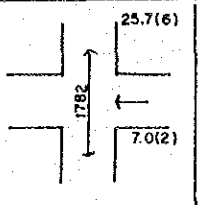
Appendix 9.4
Traffic Volume and Volume Capacity Ratio
by Road Section (South Corridor)



Appendix 9.4
Traffic Volume and Volume Capacity Ratio by Road Section (North Corridor)

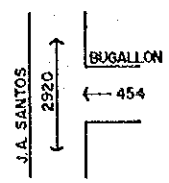
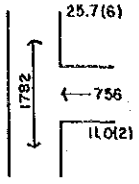
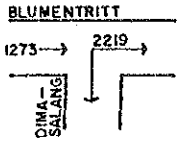
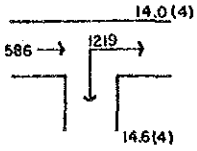
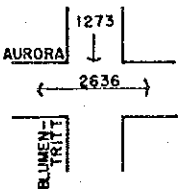
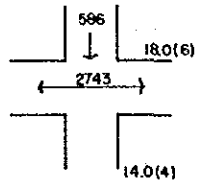
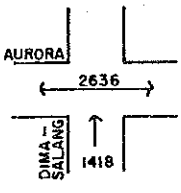
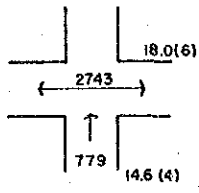
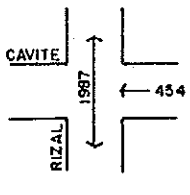
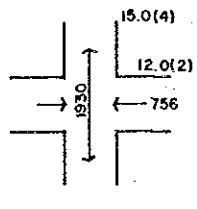
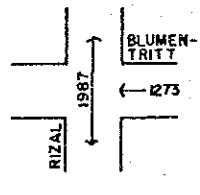
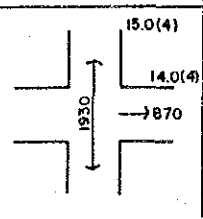
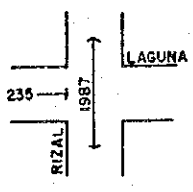
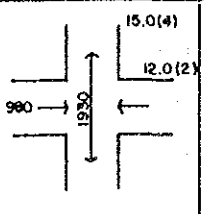


Appendix 9.5
Studied Intersections Along LRT Corridor

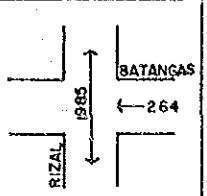
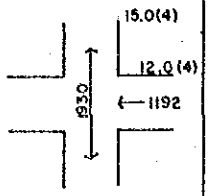
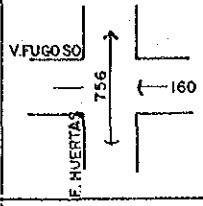
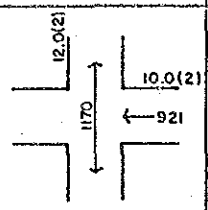
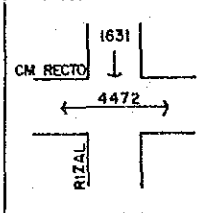
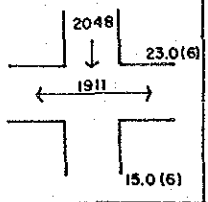
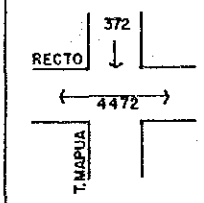
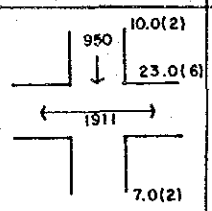
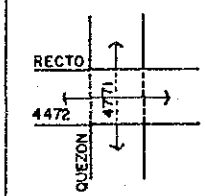
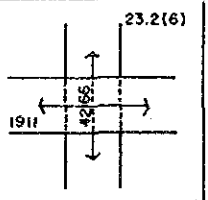
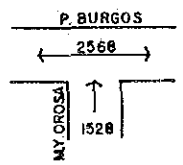
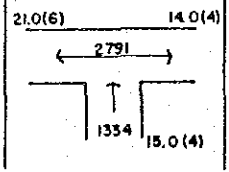
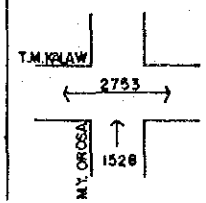
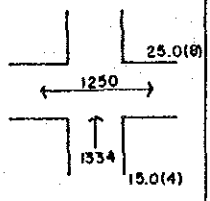
Intersection Name	Traffic Volume		Traffic Signal			Remarks
	Before Rerouting	After Rerouting	Necessity	Present Condition	1/ Plan	
EDSA/ RIZAL AVE. EXT			Yes	None	Phase II	
EDSA/ 5TH STREET			Yes	None		
RIZAL AVE. EXT./ 10TH AVENUE			Yes	Existing		
A. BONIFACIO/ 7TH AVENUE			Yes	None	Phase II	
RIZAL AVE. EXT./ J.A. SANTOS			Yes	Existing		
RIZAL AVE./ AURORA			Yes	Existing		
J.A. SANTOS/ SOLIS			Yes	Existing		

1/ Phase II; MMTEAM Project Phase II

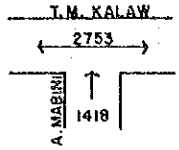
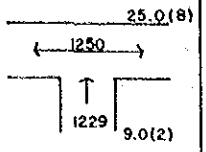
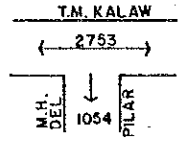
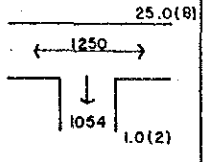
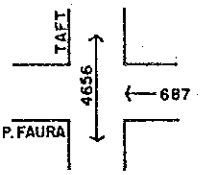
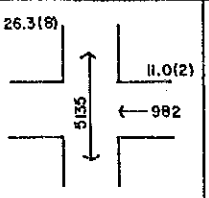
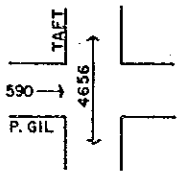
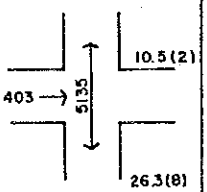
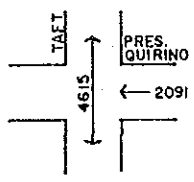
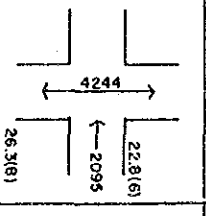
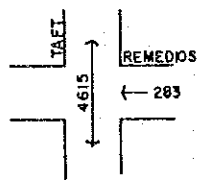
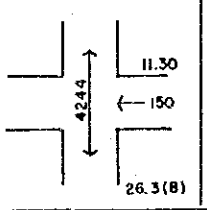
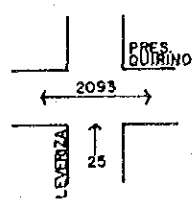
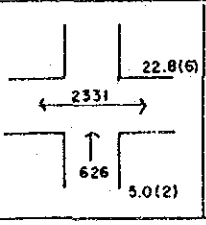
(App.9.5 cont'd.)

Intersection Name	Traffic Volume		Traffic Signal			Remarks
	Before Rerouting	After Rerouting	Necessity	Present Condition	Plan	
J.A.SANTOS/ BUGALLON			Yes	None	Phase II	
BLUMENTRITT/ DIMASALANG			Yes	None	Phase II	
BLUMENTRITT/ AURORA			Yes	Existing		
DIMASALANG/ AURORA			Yes	Existing		
RIZAL AVENUE/ CAVITE			Yes	None	Phase II	
RIZAL AVENUE/ BLUMENTRITT			Yes	Existing		
RIZAL AVENUE/ LAGUNA			Yes	Existing		

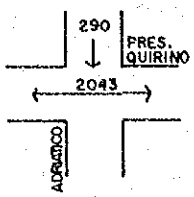
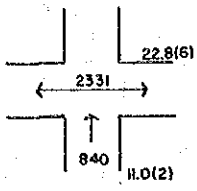
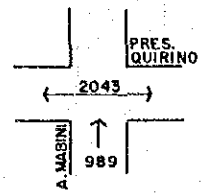
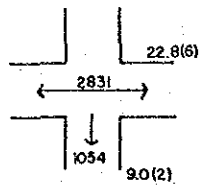
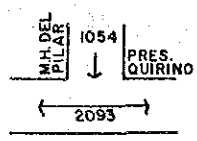
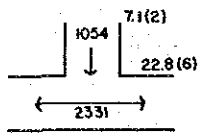
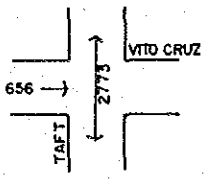
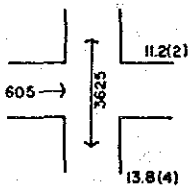
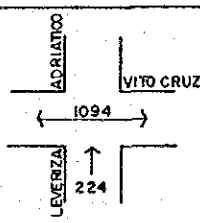
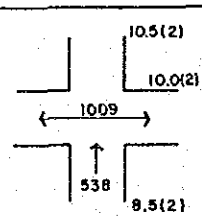
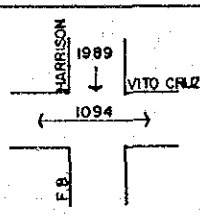
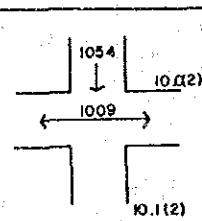
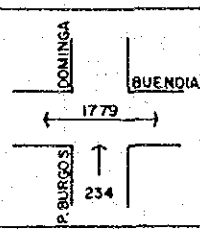
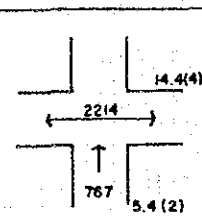
(App.9.5 cont'd.)

Intersection Name	Traffic Volume		Traffic Signal			Remarks
	Before Rerouting	After Rerouting	Necessity	Present Condition	Plan	
RIZAL AVENUE/ BATANGAS			Yes	None	Phase II	
V. FUGOSO/ F. HUERTAS			Yes	None		
RIZAL AVENUE/ C.M. RECTO			Yes	Existing		
MAPUA/ C.M. RECTO			Yes	Existing		
QUEZON BLVD./ C.M. RECTO				None		Grade Inter-section
P. BURGOS/ M.Y. OROSA			Yes	Existing		
T.M. KALAW/ M.Y. OROSA			Yes	Existing		

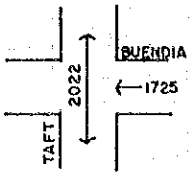
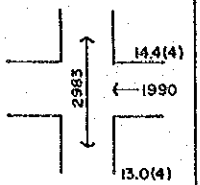
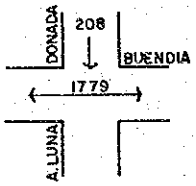
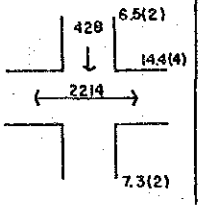
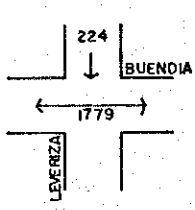
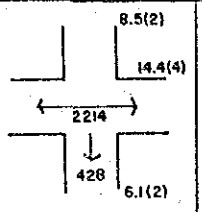
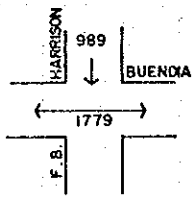
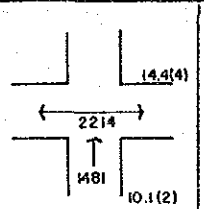
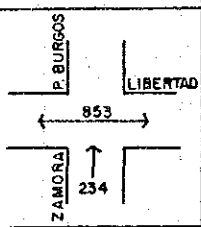
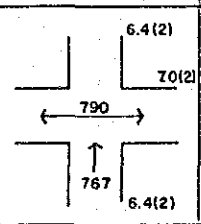
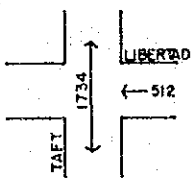
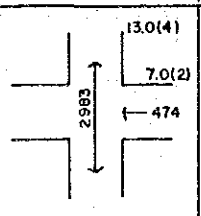
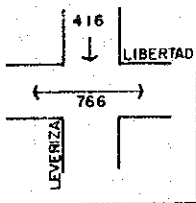
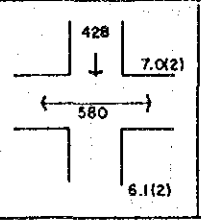
(App.9.5 cont'd.)

Intersection Name	Traffic Volume		Traffic Signal			Remarks
	Before Rerouting	After Rerouting	Necessity	Present Condition	Plan	
T.M. KALAW A. MABINI			Yes	None		
T.M. KALAW/ M.H. DEL PILAR			Yes	Existing		
TAFT AVENUE/ P. FAURA			Yes	Existing		
TAFT AVENUE/ P. GIL			Yes	Existing		
TAFT AVENUE/ P. QUIRINO			Yes	Existing		
TAFT AVENUE/ REMEDIOS			Yes	Existing		
P. QUIRINO/ LEVERIZA			Yes	None		

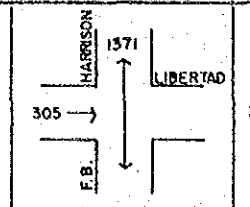
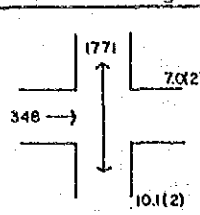
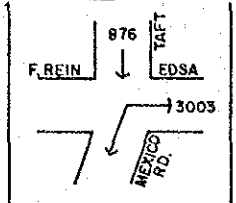
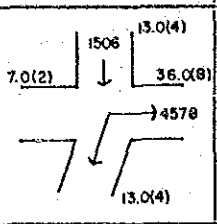
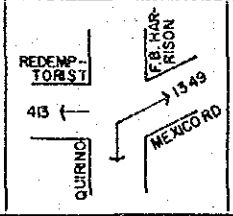
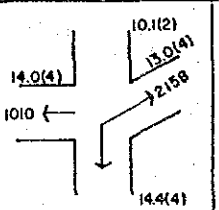
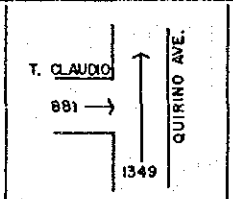
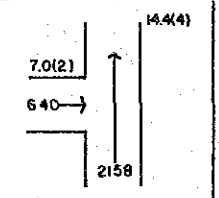
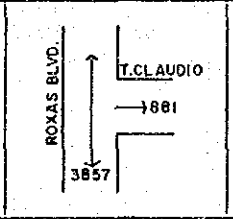
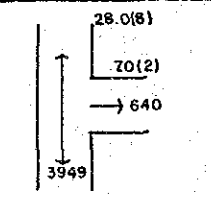
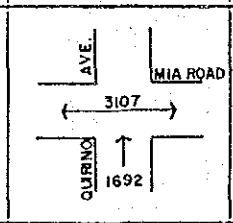
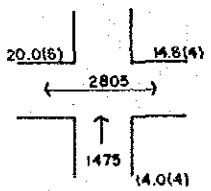
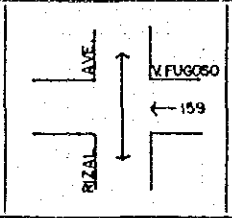
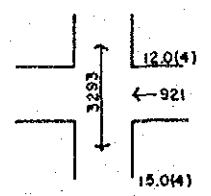
(App.9.5 cont'd.)

Intersection Name	Traffic Volume		Traffic Signal			Remarks
	Before Rerouting	After Rerouting	Necessity	Present Condition	Plan	
P. QUIRINO/ ADRIATICO			Yes	Existing		
P. QUIRINO/ A. MABINI			Yes	Existing		
P. QUIRINO/ M.H. DEL PILAR			Yes	Existing		
VITO CRUZ/ TAFT AVENUE			Yes	Existing		
VITO CRUZ/ ADRIATICO			Yes	None		
VITO CRUZ/ F.B. HARRISON			Yes	Existing		
BUENDIA/ DOMINGA			Yes	None	Phase II	

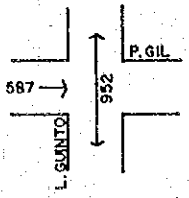
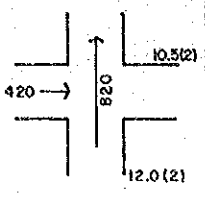
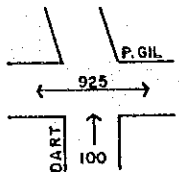
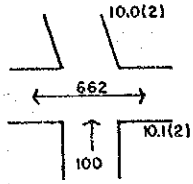
(App.9.5 cont'd.)

Intersection Name	Traffic Volume		Traffic Signal			Remarks
	Before Rerouting	After Rerouting	Necessity	Present Condition	Plan	
BUENDIA/ TAFT AVENUE			Yes	Existing		
BUENDIA/ DONADA			not necessary	none		Right turn only (traffic flow from Donada) Median Island
BUENDIA/ LEVERIZA			Yes	none		
BUENDIA/ F.B. HARRISON			Yes	Existing		
LIBERTAD/ P. BURGOS			Yes	None	Phase II	
LIBERTAD/ TAFT AVENUE			Yes	Existing		
LIBERTAD/ LEVERIZA			Yes	none		

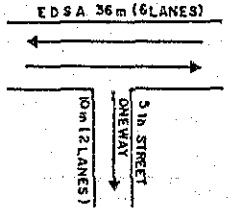
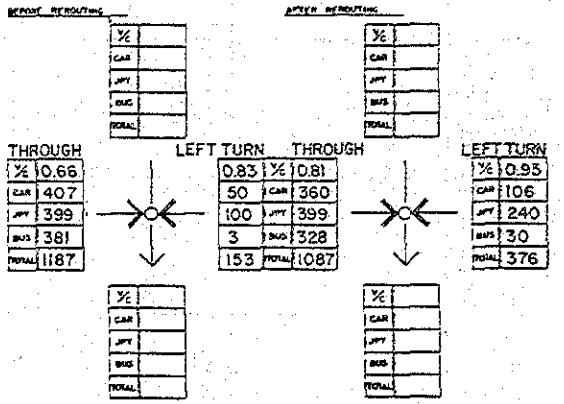
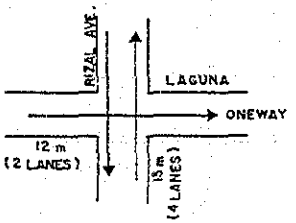
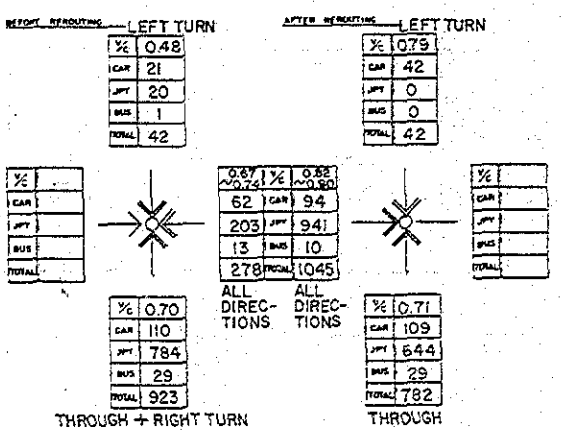
(App.9.5 cont'd.)

Intersection Name	Traffic Volume		Traffic Signal			Remarks
	Before Rerouting	After Rerouting	Necessity	Present Condition	Plan	
LIBERTAD/ F.B. HARRISON			Yes	Existing		
TAFT AVENUE/ EDSA			Yes	Existing *Not in use during LRT Construction	Phase II	
MEXICO ROAD/ REDEMPTORIST			Yes	Existing *not in use during LRT construction	Phase II	
T. CLAUDIO/ QUIRINO AVE.			Yes	none		
T. CLAUDIO/ ROXAS BLVD.			Not Necessary	none		
MIA ROAD/ QUIRINO AVE.			Yes	Existing		
RIZAL AVENUE/ V. FUGOSO			Yes	none	Phase II	

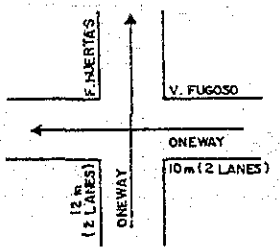
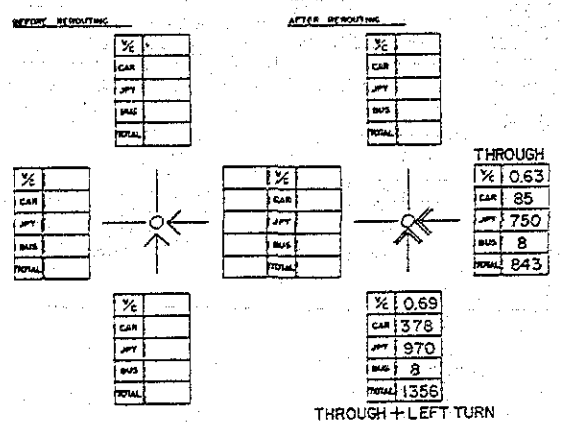
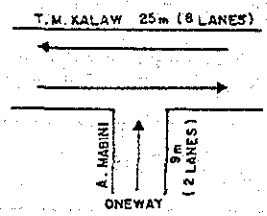
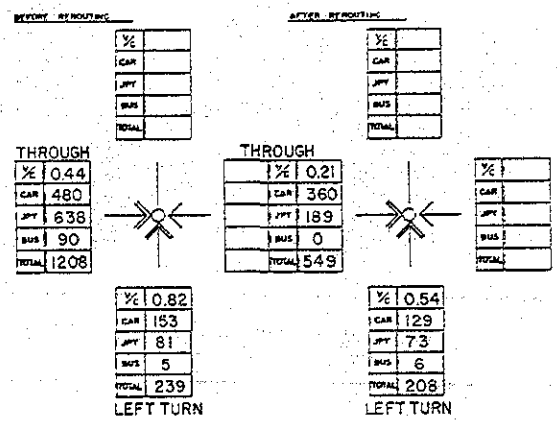
(App.9.5 cont'd.)

Intersection Name	Traffic Volume		Traffic Signal			Remarks
	Before Rerouting	After Rerouting	Necessity	Present Condition	Plan	
L. GUINTO/ P. GIL			Yes	none		
P. GIL/DART			Not necessary	none		

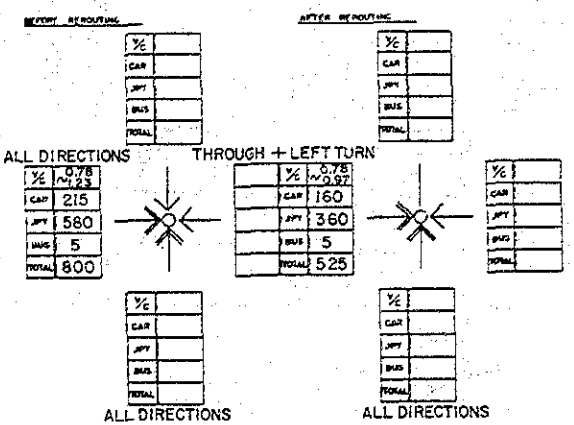
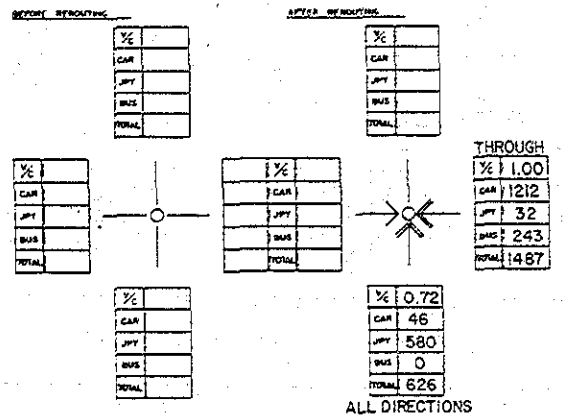
Appendix 9.6
Intersections where Traffic Signal is Needed

Name of Intersection	V/C Ratio by Traffic Signal		Status	Critical Traffic Flow by Direction
	Before Rerouting	After Rerouting		
(1) EDSA/5th St.	0.66 ~ 0.83	0.81 ~ 0.95		
(2) Rizal Avenue/ Laguna	0.48 ~ 0.74	0.71 ~ 0.90	• Both way traffic at Rizal Ave. and Laguna before rerouting. • oneway traffic at Laguna after rerouting. 	

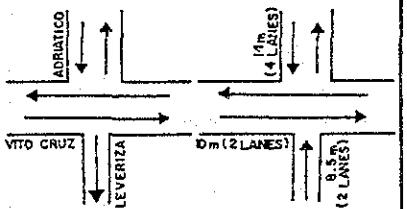
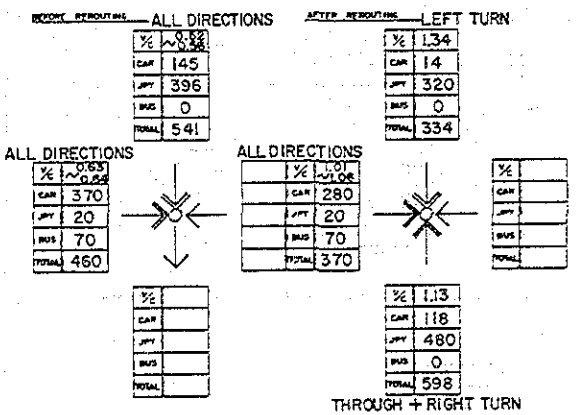
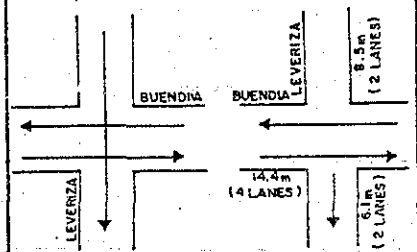
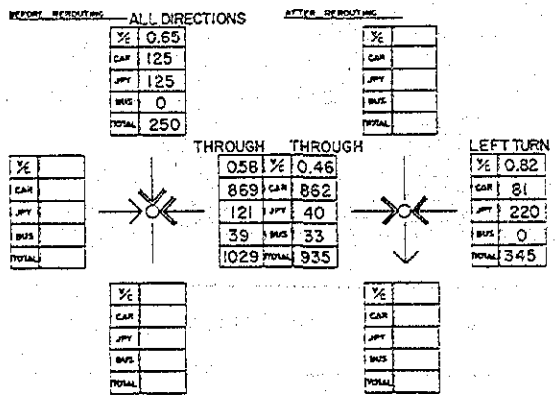
(App.9.6 cont'd.)

Name of Intersection	V/C Ratio by Traffic Signal		Status	Critical Traffic Flow by Direction
	Before Rerouting	After Rerouting		
(3) V. Fugoso/ F. Huertas	Not necessary to install the traffic signal before rerouting	0.63 ~ 0.69	• Not necessary to install the traffic signal before rerouting. 	
(4) T.M. Kalaw/ A. Mabini	0.44 ~ 0.82	0.21 ~ 0.54	• However V/C ratio at T.M. Kalaw is small, it is necessary to install the traffic signal for control the inflow traffic from Mabini. 	

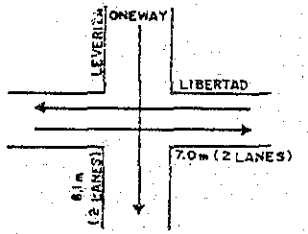
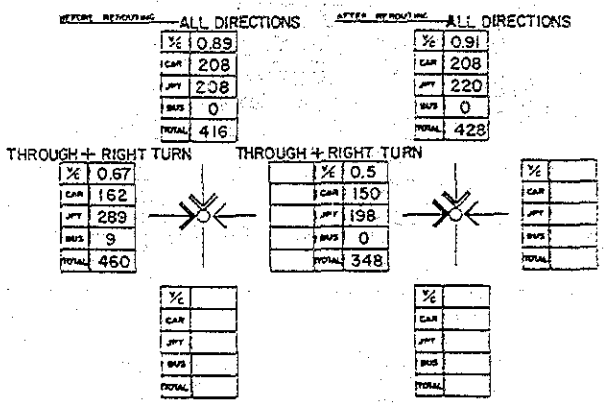
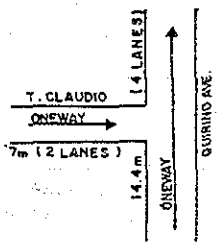
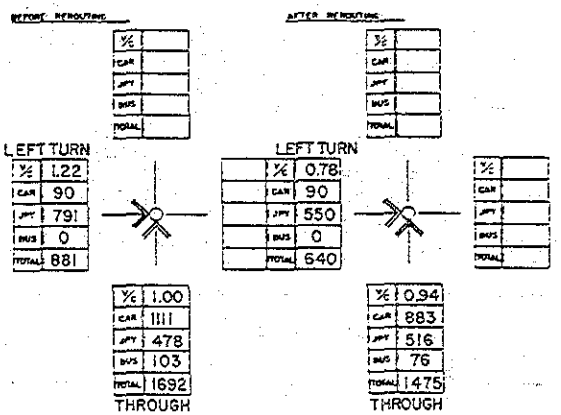
(App.9.6 cont'd.)

Name of Intersection	V/C Ratio by Traffic Signal		Status	Critical Traffic Flow by Direction
	Before Rerouting	After Rerouting		
(5) L. Guinto/ P. Gil	0.78 ~ 1.40	0.75 ~ 0.99	• Both way traffic at L. Guinto and P. Gil before rerouting. • Northbound oneway traffic at Leon Guinto after rerouting.	
(6) Pres. Quirino/Leveriza	Not necessary to install the traffic signal	0.72 ~ 1.00	• Not necessary to install the traffic signal before rerouting.	

(App.9.6 cont'd.)

Name of Intersection	V/C Ratio by Traffic Signal		Status	Critical Traffic Flow by Direction
	Before Rerouting	After Rerouting		
(7) Vito Cruz/ Adriatico	0.52 ~ 0.64	1.01 ~ 1.34	Change the direction of oneway at Leveriza after rerouting. 	
(8) Buendia/ Leveriza	0.58 ~ 0.65	0.46 ~ 0.82	• Southbound oneway at Leveriza • No inflow of jeepney traffic to Buendia from Leveriza after rerouting. 	

(App.9.6 cont'd.)

Name of Intersection	V/C Ratio by Traffic Signal		Status	Critical Traffic Flow by Direction
	Before Rerouting	After Rerouting		
(9) Libertad/ Leveriza	0.67 ~ 0.89	0.50 ~ 0.91		
(10) T. Claudio/ Quirino	1.00 ~ 1.22	0.78 ~ 0.94		

JICA