

## APPENDIX



THE FEASIBILITY STUDY ON THE URBAN DEVELOPMENT OF  
THE CENTRAL DISTRICT OF BARRANQUILLA

APPENDIX

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LIST OF MEMBERS FOR THE STUDY



## APPENDIX A: DEVELOPMENT FRAMEWORK

### A-1 Land Area

In the Masterplan Study, 10 areas have been selected as the "Strategic Project Areas", of which five areas (from No. 1 to No. 5) are "Sub-study Area" and the others (from No. 6 to No. 10) comprise "Main Study Area" in this Study.

The Land Area of those 10 areas is measured in this Study on the basis of new 1:1,000 scale maps of the central district prepared by IGAC in 1985. On the otherhand, the information of the lot area in each strategic project area is compiled from the cadastral data arranged also by IGAC. The result is summarized in TABLE A-1.

The settled coverage of "Main Study Area" of this Study is a little wider than the assumed area of the strategic project areas (from No. 6 to No. 10) because of the inclusion of the fringes as shown in FIG. 14-2 and TABLE 14-4.

### A-2 Population and Employment

The assumed total population and employment for the Main Study Area are broken down to each block in accordance with the proposed configuration of urban functions. TABLE A-2 shows the allotment of the population and the workers by block with their semi-gross density.

TABLE A-1 PROJECT AREAS

No.	Total Area	Canal Area	Area without Canal	Land Area	Public Area
1	128,497		128,497	95,223	33,274
2	50,086		50,086	35,084	15,002
3	102,380		102,380	61,989	40,391
4	60,788		60,788	44,623	16,165
5	197,885		197,885	120,987	76,898
6	80,434		80,434	43,813	36,621
7	306,740	21,507	285,233	194,215	112,525
8	306,630	16,207	290,423	214,597	92,033
9	233,859	13,583	220,276	174,912	58,947
10	312,732		312,732	259,552	53,180
Total	1,780,031	51,297	1,728,734	1,244,995	535,036

TABLE A-2 POPULATION AND EMPLOYMENT

No.	Population	Secondary E.	Tertiary E.
1	0	0	0
2	0	0	0
3	0	0	0
4	0	0	0
5	0	0	200
6	0	0	750
7	0	0	1,160
8	1,500	0	1,045
9	0	0	1,045
10	0	0	1,800
11	2,160	0	0
12	0	0	740
13	0	0	1,185
14	2,320	0	0
15	500	0	510
16	1,000	0	770
17	0	0	0
18	0	0	3,210
19	0	0	400
20	0	0	890
21	0	0	2,650
22	0	0	570
23	0	0	1,450
24	0	0	0
25	0	0	0
26	0	0	1,000
27	0	0	250
28	0	0	715
29	0	0	0
30	0	0	875
31	0	0	0
32	0	0	0
33	0	200	0
34	0	200	0
35	4,000	0	0
36	0	0	0
37	0	655	0
38	0	655	0
39	0	0	0
40	0	0	1,200
41	0	0	1,200
42	0	0	0
43	0	0	0
44	0	0	0
45	0	0	0
46	0	0	0
47	0	0	0
48	0	0	0
49	0	0	0
50	0	0	0
Total	11,480	1,710	23,615

APPENDIX B: GENERATION/ATTRACTION BY ZONE IN 2000

TABLE B-1 GENERATION/ATTRACTION BY ZONE IN 2000  
(Person Trip/Day)

Zone No.	Generation				Attraction			
	Walk	Bus	Car	Total	Walk	Bus	Car	Total
9	4,785 11.5%	29,083 70.2%	7,564 18.3%	41,432	4,825 11.2%	29,736 68.8%	8,678 20.1%	43,239
10	2,088 5.5%	24,478 65.0%	11,117 29.5%	37,683	2,256 5.7%	25,028 63.7%	11,989 30.5%	39,273
11	868 8.5%	6,875 67.5%	2,443 24.0%	10,186	869 8.5%	6,867 67.6%	2,428 23.9%	10,164
89	2,406 12.3%	13,654 69.6%	3,559 18.1%	19,619	2,417 11.9%	13,899 68.5%	3,972 19.6%	20,288
90	929 6.9%	8,616 63.9%	3,930 29.2%	13,475	983 7.0%	8,769 62.9%	4,192 30.1%	13,944
91	497 17.5%	1,766 62.2%	576 20.3%	2,839	493 16.7%	1,807 61.3%	649 22.0%	2,949
92	829 12.7%	4,095 62.6%	1,622 24.8%	6,546	815 12.7%	4,045 63.0%	1,558 24.3%	6,418
93	1,138 10.1%	7,454 66.1%	2,678 23.8%	11,270	1,133 10.1%	7,411 66.2%	2,655 23.7%	11,199
94	2,449 13.4%	11,559 63.3%	4,255 23.3%	18,263	2,479 19.0%	11,855 62.0%	4,790 25.0%	19,124
	15,989 9.9%	107,580 66.7%	37,744 23.4%	161,313	16,270 9.8%	109,417 65.7%	40,911 24.5%	166,598



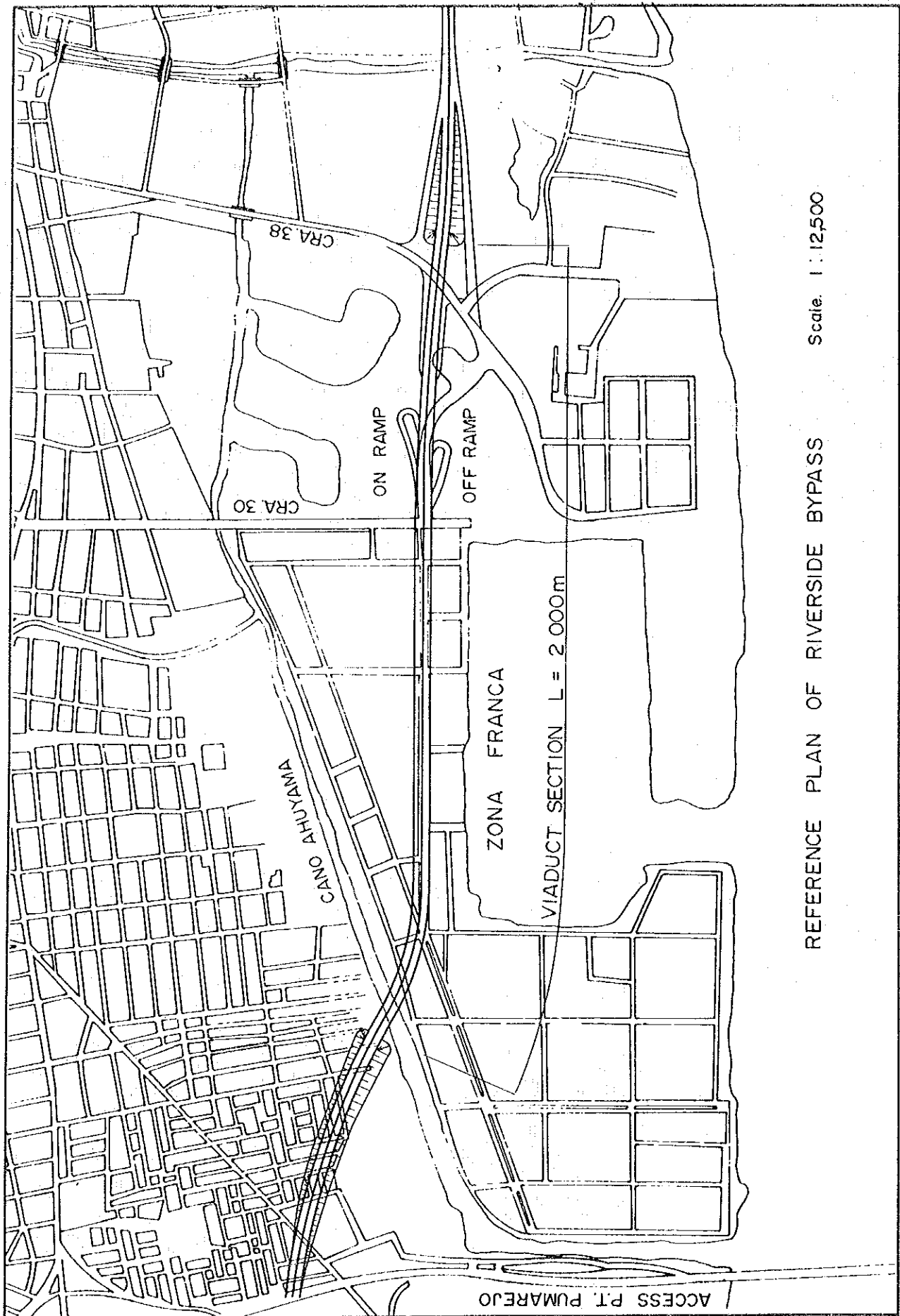
## APPENDIX C: REFERENCE PLAN OF RIVERSIDE BYPASS ROUTE

The section II has a reference plan for the horizontal alignment. This route passes through Zona Franca and the entrance of the Port as shown in FIG. C-1.

The idea of this alignment is to give direct access to those two facilities for their activities, and from the view point of engineering, the straight alignment is more preferable.

However, because of the characteristics of Zona Franca, the route has to be elevated to keep access control to Zona Franca. The cost of construction is comparatively high on account of the soil conditions and there are some institutional problems to pass through Zona Franca even with a viaduct.

Thus, although there is some possibility to realize this alignment in the future, this is for now no more than an idea for future reference.



REFERENCE PLAN OF RIVERSIDE BYPASS Scale. 1 : 12,500

FIG. C-1 REFERENCE PLAN OF RIVERSIDE BYPASS

APPENDIX D: COST COMPARISON OF COMPAÑIA-C BRIDGE

MOPT requires 13.0 m of clearance for the compañía-C bridge of the Riverside Bypass to maintain port function using this canal. However, if this function can be removed in the future, the clearance might possibly be reduced to 5.0 m.

The comparative study of the cost of construction with various clearance heights shows that the factor which affects the total cost is embankment as shown in TABLE D-1. FIG. D-1 illustrates a proportional relation between the clearance height and the total construction cost.

TABLE D-1 QUANTITY AND COST BETWEEN STA5+300 AND STA6+925 (Compañia-C Bridge) FOR DIFFERENT VERTICAL HEIGHT

THE CASE OF H=13.0m

(Direct Cost)

Item	Unit	Quantity	Unit Cost	Cost	Remarks
Embankment	m <sup>3</sup>	328,054.80	1,034.86	339,490,790.30	
Slope Protection	m <sup>2</sup>	27,514.13	83.11	2,286,699.34	
Land Acquisition	m <sup>2</sup>	80,330.90	1,500.00	120,496,350.00	
Bridge	U	1		300,348,000.00	
Total				762,621,839.60	

THE CASE OF H=12.0m

Item	Unit	Quantity	Unit Cost	Cost	Remarks
Embankment	m <sup>3</sup>	277,720.11	1,034.87	287,404,210.20	
Slope Protection	m <sup>2</sup>	23,770.13	83.11	1,975,535.50	
Land Acquisition	m <sup>2</sup>	77,210.90	1,500.00	115,816,350.00	
Bridge	m <sup>2</sup>	1		297,733,000.00	
Total				702,929,095.70	

THE CASE OF H=5.0m

Item	Unit	Quantity	Unit Cost	Cost	Remarks
Embankment	m <sup>3</sup>	128,704.73	1,034.87	133,192,663.90	
Slope Protection	m <sup>2</sup>	17,224.35	83.11	1,431,515.73	
Land Acquisition	m <sup>2</sup>	63,779.25	1,500.00	95,668,875.00	
Bridge	m <sup>2</sup>			177,249,000.00	
<b>Total</b>				<b>407,542,054.60</b>	

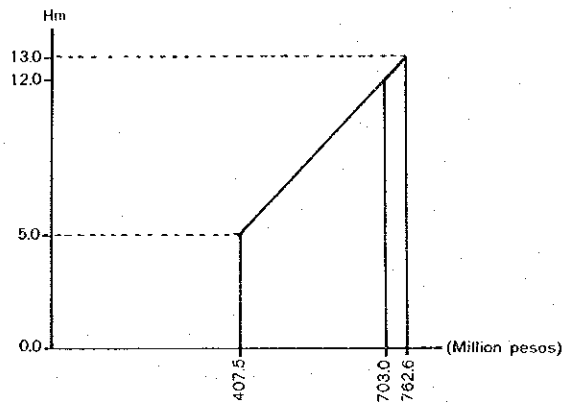


FIG. D-1 THE COMPANIA-C BRIDGE COMPARISON BETWEEN BRIDGE HEIGHT AND COST

APPENDIX E: MATERIAL VOLUME FOR STRUCTURES OF RIVERSIDE BYPASS

The required material volumes for culverts, super structures and substructures of the bridges in the Riverside Bypass are summarized in the following tables.

TABLE E-1 MATERIAL VOLUME OF CULVERT

Sect.	Place	Concrete (m <sup>3</sup> )	Form (m <sup>2</sup> )	R.Bar (t)	Ex. (m <sup>3</sup> )	Fill. (m <sup>3</sup> )	Pump (m <sup>3</sup> )	Pile (m)	Support (m <sup>3</sup> )
	La Chinita	251.5	863.3	22.64	401.0	-	401.0	-	679.0
	Las Nieves	136.7	511.5	12.30	162.0	-	162.0	-	274.0
I	Cra 17B	129.5	484.6	11.66	160.0	-	160.0	-	257.0
	Cra 20	129.5	484.6	11.66	160.0	-	160.0	-	257.0
	Cra 30	144.7	717.9	13.02	193.0	-	193.0	-	333.0
	Cra 32	138.8	713.4	12.49	174.0	-	174.0	-	298.0
	Sub-total	930.7	3,775.3	83.77	1,250.0	-	1,250.0	-	2,098.0
III	Radio Olimpica	236.3	808.8	21.27	373.0	-	373.0	-	631.0
Total		1,167.0	4,584.1	105.04	1,623.0	-	1,623.0	-	2,729.0

TABLE E-2 MATERIAL VOLUME OF SUPER STRUCTURE

Sect.	Place	Conc.(A) (m <sup>3</sup> )	Conc.(B) (m <sup>3</sup> )	Form (m <sup>2</sup> )	R.Bar (t)	PC Cable (t)	Support (m <sup>3</sup> )	Remark
I	Arroyo Rebolo	-	208.6	1,208.9	46.92	-	1,344.0	1=21 RC
	Caño Ahuyama	970.2	62.4	5,883.3	89.52	47.73	-	1=30*3 PC
	Sub-total	970.2	271.0	7,092.2	136.44	47.73	1,344.0	
II	Caño Arriba	285.8	20.8	1,741.4	26.32	12.80	-	1=27 PC
Total		1,256.0	291.8	8,833.6	162.76	60.53	1,344.0	
III		-	468.9	2,617.6	105.50	-	4,655.0	1=21*2 RC
	Caño Tramposos	417.4	23.7	2,596.6	38.56	22.16	-	1=35 PC
		-	468.9	2,617.6	105.50	-	4,655.0	1=21*2 RC
	Sub-total	417.4	961.5	7,831.8	249.56	22.16	9,310.0	
		-	703.2	3,926.4	158.25	-	17,150.0	1=21*3 RC
	Caño Companias	528.4	27.1	3,334.4	48.95	25.31	-	1=40 PC
	(A)	-	703.2	3,926.4	158.25	-	17,150.0	1=21*3 RC
	Sub-total	528.4	1,433.5	11,187.2	365.45	25.31	34,300.0	
	Caño Companias	-	750.8	4,061.4	168.93	-	4,725.0	1=22*3 RC
	(B)							
Total		945.8	3,145.8	23,080.4	783.94	47.47	48,335.0	

TABLE E-3 MATERIAL VOLUME OF SUB STRUCTURE

Sect.	Place		Conc.(B) (m <sup>3</sup> )	Form (m <sup>3</sup> )	R.Bar (t)	Ex. (m <sup>3</sup> )	Fill. (m <sup>3</sup> )	Pump (m <sup>3</sup> )	Pile (m)	Support (m <sup>3</sup> )	
I	Arroyo Rebolo	A1	225.1	348.5	7.88	337.0	204.0	133.0	192.0	-	
		A2	225.1	348.5	7.88	337.0	204.0	133.0	192.0	-	
	Caño Ahuyama	A1	299.4	512.0	10.48	408.0	256.0	152.0	256.0	-	
		P1	100.7	129.1	6.04	-	-	-	256.0	77.0	
		P2	100.7	129.1	6.04	-	-	-	256.0	77.0	
		A2	299.4	512.0	10.48	408.0	256.0	152.0	256.0	-	
	Sub-total			1,250.4	1,979.2	48.80	1,490.0	920.0	570.0	1,408.0	154.0
	II	Caño Arriba	A1	242.5	372.4	8.49	362.0	218.0	144.0	256.0	-
			A2	242.5	372.4	8.49	362.0	218.0	144.0	256.0	-
		Sub-total			485.0	744.8	16.98	724.0	436.0	288.0	512.0
Total			1,735.4	2,724.0	65.80	2,214.0	1,356.0	858.0	1,920.0	154.0	
	Caño Tranposos	A1	260.4	411.7	9.11	343.0	207.0	136.0	352.0	-	
		P1	101.8	209.6	6.11	253.0	164.0	89.0	264.0	69.0	
		P2	188.2	320.9	14.11	-	-	-	352.0	127.0	
		P3	188.2	320.9	14.11	-	-	-	352.0	127.0	
		P4	101.8	209.6	6.11	253.0	164.0	89.0	264.0	69.0	
		A2	260.4	411.7	9.11	343.0	207.0	136.0	352.0	-	
	Sub-total			1,100.8	1,884.4	58.66	1,192.0	742.0	450.0	1,936.0	392.0
	III	Caño Companias (A)	A1	862.5	2,093.6	86.25	586.6	355.1	231.5	672.0	-
			P1	230.3	394.9	14.97	224.0	153.5	70.5	336.0	216.0
			P2	235.1	406.0	15.28	224.0	153.5	70.5	336.0	225.0
P3			285.1	425.3	18.53	864.0	864.0	864.0	420.0	231.0	
P4			285.1	425.3	18.53	864.0	864.0	864.0	420.0	231.0	
P5			235.1	406.0	15.28	224.0	153.5	70.5	336.0	225.0	
P6			230.3	394.9	14.97	224.0	153.5	70.5	336.0	216.0	
A2			862.5	2,093.6	86.25	586.6	355.1	231.5	672.0	-	
Sub-total			3,226.0	6,639.6	270.06	3,797.2	3,052.2	2,473.0	3,528.0	1,344.0	
Caño Companias (B)		A1	255.8	406.0	8.95	337.0	204.0	133.0	384.0	-	
	P1	188.6	256.1	6.60	-	-	-	240.0	-		
	P2	188.6	256.1	6.60	-	-	-	240.0	-		
	A2	251.9	399.8	8.82	332.0	201.0	131.0	384.0	-		
Sub-total			884.9	1,318.0	30.97	669.0	405.0	264.0	1,248.0	-	
Total			5,211.7	9,842.0	359.69	5,658.2	4,199.2	3,187.0	6,712.0	1,736.0	

APPENDIX F: FLOOR AREA RATIO BY BLOCK

The floor area ratio is an important instrument to control the spatial formation of a project area. Due consideration is given to set up floor area ratio for each block in the Main Study Area to meet the future allotment of urban functions and to secure active urban scenes.

TABLE F-1 shows the relation between floor area ratio and land use of each block.

TABLE F-1 FLOOR AREA RATIO

Zone No.	Block Area	Floor Area Ratio (2000)	Total Floor Area by Block	Remarks
5	17,352	300	50,490	Business
6	5,947	300	17,904	Business
7	9,568	300	28,040	Business
8	28,292	200	56,140	Mixed
9	9,628	300	26,460	Business
10	15,360	300	43,648	Business
11	26,729	200	50,780	Housing
12	8,894	300	26,268	Business
13	14,276	300	41,719	Business
14	29,019	200	54,500	Housing
15	9,674	300	28,360	Mixed
16	15,516	300	47,213	Mixed
18	15,072	200	30,036	Commercial
19	4,912	200	9,600	Commercial
20	7,910	300	21,728	Commercial
22	8,052	200	14,120	Commercial
23	18,932	200	36,561	Commercial
26	25,212	100	23,788	Commercial
32	197,878	60	113,640	Housing
35	64,552	200	109,088	Housing
40	15,928	200	30,060	Commercial



## APPENDIX G: ESTIMATION OF WATER CONSUMPTION AND SEWAGE DISCHARGE

The future demand of water consumption and sewage discharge is estimated on the basis of unit water consumption by type of land use. TABLE G-1 summarizes unit water consumption based on the data of EPM, and TABLE G-2 shows the relation between those demands and the proposed water supply and sewage systems. FIG. G-1 is the illustration of the estimated demands by block.

TABLE G-1 UNIT CONSUMPTION OF WATER

Land Use	Unit Consumption	Remarks
Residential	0.35m <sup>3</sup> /person/day	*1)
Industrial	63m <sup>3</sup> /ha/day	*1) ha: Land Area
Park & Green	15m <sup>3</sup> /ha/day	*2) ha: Land Area
Bus Terminal	70m <sup>3</sup> /ha/day	*1) ha: Land Area
Market	110m <sup>3</sup> /ha/day	*1) ha: Floor Area
Commercial	70m <sup>3</sup> /ha/day	*1) ha: Floor Area
Business	80m <sup>3</sup> /ha/day	*1) ha: Floor Area

The above unit consumption of water is based on

\* 1) The water consumption data of EPM and

\* 2) Water supply and sewer design by Luis Felipe Silva Garavito

TABLE G-2 WATER CONSUMPTION AND SEWAGE DISCHARGE

Block No.	Land Use	Area or Population	Unit Consumption (m <sup>3</sup> /day/ha or prs)	Consumption (m <sup>3</sup> /day)	Coverage of New System	
					Water Supply	Sewer
A	CO	f-4.7 ha	70	330	*	*
	MA	f-2.9 ha	110	320	*	*
B	CO	f-1.5 ha	70	110	0	0 (II)
	MA	f-1.6 ha	110	180	0	0 (I)
C	PG	2.0 ha	15	30	0	-
	CO	f-2.6 ha	70	180	0	0 (II)
D	PG	2.5 ha	15	40	0	-
	BU	f-4.7 ha	80	380	0	0 (III)
E	PG	2.2 ha	15	30	0	-
	BU	f-5.2 ha	80	420	0	0 (II)
F	PG	1.3 ha	15	20	0	-
	MA	f-1.9 ha	110	210	0	0 (I)
G	CO	f-5.4 ha	70	380	0	0 (II)
H	BU	f-7.5 ha	80	600	0	0 (III)
I	CO	f-1.7 ha	70	120	0	0 (II)
	RE	1,500 prs	0.35	530	0	0 (II)
J	PG	1.8 ha	15	30	0	-
K	PG	0.8 ha	15	10	0	-
	MA	f-1.3 ha	110	140	0	0 (I)
L	BT	5.4 ha	70	380	0	0 (I)
M	RE	1,500 prs	0.35	530	0	0 (III)
	BU	f-9.2 ha	80	740	0	0 (IV)
N	RE	6,000 prs	0.35	2,100	0	0 (II)
O	IN	10.3 ha	65	670	0	0 (I)
P	IN	9.4 ha	65	610	0	0 (IV)
Q	RE	6,000 prs	0.35	2,100	0	0 (IV)
R	IN	3.8 ha	65	250	0	0 (IV)
	Philips	Existing Consumption		80	0	0 (IV)
S	RE	5,000 prs	0.35	1,750	0	0 (III)
T	PG	5.4 ha	15	80	0	-
U	El Rio					
	Sub-station	Existing Consumption		750	0	*
Total		20,000 prs f-50.2 ha 44.9 ha		14,100 m <sup>3</sup> /day		

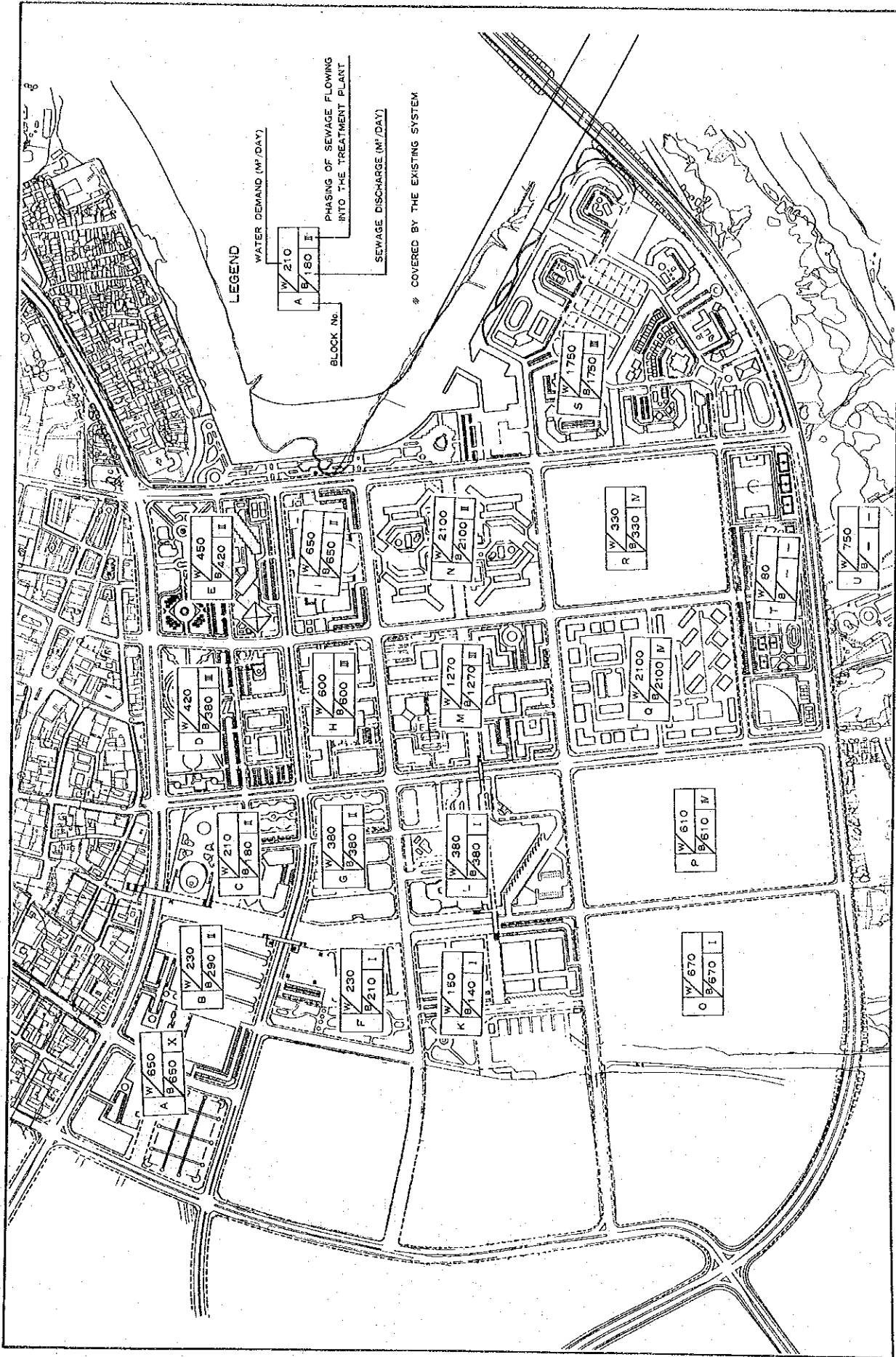


FIG. G-1 MAP OF WATER DEMAND AND SEWAGE DISCHARGE

APPENDIX H: EVALUATION OF PROJECTS

H-1 Foreign/Local Portion of Direct Construction Cost

TABLE H-1 FOREIGN/LOCAL PORTION OF DIRECT CONSTRUCTION COST

(in million pesos)

Project	Foreign Portion	Local Portion	Tax	Total Construction Cost
Bus Terminal	98.2	215.4	32.2	381.8
Public Market	87.5	366.7	41.8	496.0
Open Market	72.0	312.5	34.5	419.0
Urban Park	52.0	265.1	28.7	345.8
Recreation Park	24.6	126.2	13.6	164.4
Calle 30	98.3	224.6	66.7	389.6
Riverside Bypass	531.5	1,040.6	318.9	1,891.0
Land Preparation	258.8	301.0	178.9	738.7
Drainage	100.4	460.5	70.8	631.7
Water Supply	11.0	62.8	7.4	81.2
Sewers	66.9	125.0	27.8	219.7
Sewage Treatment Plant	346.5	208.3	93.0	647.8
Electricity	963.0	168.0	304.2	1,435.2
Telephone	446.1	98.2	191.7	736.0
Street Pavement	125.9	280.5	79.4	485.8
Urban Bus Plaza	9.2	33.3	4.4	46.9
Pedestrian Streets	29.9	118.5	14.3	162.7
Pedestrian Bridge	15.5	82.3	10.7	108.5
<b>Total</b>	<b>3,337.3</b>	<b>4,525.5</b>	<b>1,519.0</b>	<b>9,381.8</b>
<b>Percentage</b>	<b>35.6</b>	<b>48.2</b>	<b>16.2</b>	<b>100.0</b>

H-2 Material, Equipment and Labor Cost

TABLE H-2 MATERIAL, EQUIPMENT AND LABOR COST

(in million pesos)

Project	Material Cost	Equipment Cost	Labor Cost		Total Construction Cost
			Skilled	Unskilled	
Bus Terminal	305.6	22.9	22.8	30.5	381.8
Public Market	380.5	34.7	34.6	46.2	496.0
Open Market	313.3	31.7	31.7	42.3	419.0
Urban Park	259.4	26.1	25.9	34.4	345.8
Recreation Park	123.3	12.3	12.3	16.5	164.4
Calle 30	310.4	45.3	21.4	12.5	389.6
Riverside Bypass	1,298.5	347.4	170.6	74.5	1,891.0
Land Preparation	401.0	276.4	54.8	6.5	738.7
Drainage	473.1	48.0	61.9	48.7	631.7
Water Supply	69.1	3.6	0.9	7.6	81.2
Sewers	138.9	30.1	31.0	19.7	219.7
Sewage Treatment Plant	503.3	54.4	79.7	10.4	647.8
Electricity	1,296.0	58.8	50.2	30.2	1,435.0
Telephone	627.8	30.9	61.8	15.5	736.0
Street Pavement	406.2	41.5	22.7	15.4	485.8
Urban Bus Plaza	40.2	2.0	2.0	2.7	46.9
Pedestrian Streets	130.2	9.8	9.7	13.0	162.7
Pedestrian Bridge	79.3	4.1	15.2	9.9	108.5
<b>Total</b>	<b>7,156.1</b>	<b>1,080.0</b>	<b>709.2</b>	<b>436.5</b>	<b>9,381.8</b>
<b>Percentage</b>	<b>76.3</b>	<b>11.5</b>	<b>7.6</b>	<b>4.6</b>	<b>100.0</b>

H-3 Change of Public Lands and Lots by Development

TABLE H-3 PUBLIC LANDS AND LOTS (BEFORE AND AFTER DEVELOPMENT)

(m<sup>2</sup>)

Before	After	Phase I	Phase II	Phase III	Phase IV	Total
Lots	Public Lands	51,622	84,530	60,596	2,357	199,105
Lots	Lots	211,021	255,823	119,150	181,824	767,818
Public Lands	Lots	22,691	76,384	55,727	44,143	198,945
Public Lands	Public Lands	94,394	201,994	16,001	11,587	323,976
Total		379,728	618,731	251,474	239,911	1,489,844

Note : Excluding areas of Calle 30 and Riverside Bypass.

TABLE H-4 SALEABLE LOTS CLASSIFIED BY USE BEFORE DEVELOPMENT

Use Before Development	Phase I	Phase II	Phase III	Phase IV	Total
Lots	176,042	255,823	119,150	150,464	701,479
Public Lands	22,691	76,384	55,727	40,634	195,436
Total	198,733	332,207	174,877	191,098	896,915
% of Public Lands	11.4	23.0	31.4	21.3	21.8

Note : Excluding the lot for sewage treatment plant (Phase I) and Block 33 (Phillips factory and its adjacent lot, Phase IV).

H-4 Land and Building Acquisition Cost

TABLE H-5 LAND AND BUILDING ACQUISITION COST

(in million pesos, 1987 market price #1)

	For Lots			For Public Lands			Total		
	Land	Building #2	Total	Land	Building #2	Total	Land	Building #2	Total
Phase I	307.9	167.5	475.4	102.8	56.5	159.3	410.7	224.0	634.7
Phase II	960.5	1,034.6	1,995.1	330.8	353.9	684.7	1,291.3	1,388.5	2,679.8
Phase III	123.3	85.5	208.8	56.9	36.5	93.4	180.2	122.0	302.2
Phase IV	138.9	86.5	225.4	4.5	4.9	9.4	143.4	91.4	234.8
Total	1,530.6	1,374.1	2,904.7	495.0	451.8	946.8	2,025.6	1,825.9	3,851.5

Note : \*1 1.66 times of assessed value by IGAC

\*2 Including 1% of estimated prices for demolition of the building

TABLE H-6 LAND AND BUILDING ACQUISITION COST FOR PUBLIC LAND

(in million pesos, 1987 market price #1)

	Phase I		Phase II		Phase III		Phase IV		Total	
	Land	Building	Land	Building	Land	Building	Land	Building	Land	Building
Parks	26.6	13.4	136.7	126.9	46.0	32.8	-	-	209.3	173.1
Water Area	11.0	-	-	-	-	-	-	-	11.0	0.0
Terminal Plaza	38.8	31.0	-	-	-	-	-	-	38.8	31.0
Streets	26.4	12.1	194.1	227.0	10.9	3.7	4.5	4.9	235.9	247.7
Total	102.8	56.5	330.8	353.9	56.9	36.9	4.5	4.9	495.0	451.8

## H-5 Conditions of Financial Models of Executive Body

Assumption for some items of financial models are summarized as follows:

### 1) Wage/Salary

The total number of the employees of the executive body of the project is estimated to be 22. The salary and social security by position are assumed as shown in TABLE H-7.

TABLE H-7 MONTHLY WAGE OF EXECUTIVE BODY

(in thousand pesos)

Charge	Number of Personnel	Monthly Salary per Person	Total Monthly Security	Social Security	Total Monthly Wage
Director	1	180	180	77.4	257.4
Division Chief	3	118	354	152.2	506.2
Section Chief	5	98	490	210.7	700.7
Subdirector	1	90	90	38.7	128.7
Admin. Chief	1	60	60	25.8	85.8
Subchief	4	40	160	68.8	228.8
Secretary	6	30	180	77.4	257.4
Messenger Boy	1	21	21	9.0	30.0
Total	22		1,535	660.0	2,195.0

### 2) Other Current Expenditures

Other current expenditures are assumed to be a certain percentage of the amounts of some items as shown in TABLE H-8.



TABLE H-8 ASSUMPTION OF CURRENT EXPENDITURES

Items	Description
Publicity	This is an expenditures for various efforts to sell prepared lots according to the land sale schedule.  0.7% of the total prices of unsold lots.
Property Maintenance Cost	1% of the accumulated construction cost.
Other Administration Cost	20% of the wages and salaries.

3) Depreciation

Depreciation is applied to sewers, drainages, water supply facilities and sewage treatment plant. The period of depreciation is assumed to be uniformly 10 years, remaining the residual value of 5%.

4) Amortizing of Interest

Interests for loans during the construction period are amortized in 5 years.

5) Income Tax

When the executive body conducts the development by the total purchase system or by the land trust system as a profit making business, 30% of the profit after depreciation and amortization is paid as the corporation income tax.

## H-6 Profit/Loss Statements and Cash Flows of Land Owners and Executive Body by Proposed Development

Financial statements of land owners are made as if one land owner of the whole project area entrusted his land to the executive body for selling it at a higher price after urban development is completed. It is a little difficult to understand the financial statements of land owner.

### 1) Revenue

The prepared lots by urban development, or the total sales amount of land, is divided into two portions: one is for land owners and the other is for the executive body. The ratio of division is assumed to be proportional to the area by land use before development. TABLE H-4 of the appendix shows the percentage of public lands before development for salable lots by development phase. According to the table, 11.4% for Phase I, 23.0% for Phase II, 31.9% for Phase III and 21.3% for Phase IV of the sales amount of land belong to the executive body.

Land sales for the land owner are determined by deducting the amount for the executive body from the total amount of land sales of each half year according to the sale schedule.

Interest received is a revenue from financial operations of cash flow surplus, for example putting it into a time deposit. In this case, the interest rate is assumed to be 30% per annum.

### 2) Expenditures

Publicity cost is charged on land owners proportionally to their portion of land sales.

Trust fee is set at 5% of the land owners portion of land sales amount.

Payment of valorizacion means the amount of valorizacion contribution paid by land owners for recuperation of construction costs of streets and parks. The influence zone of valorizacion is extended to the whole Metropolitan Area, and it is assumed that the land owner in the Project Area pay 50% of the total amount of valorizacion contribution.

3) Return of Equity Capital

When the executive body decides to invest, the necessary total amount of own capital is prepared by themselves. Land owner does not pay his own capital. As seen in TALBE H-10 CASH FLOW (LAND OWNER), the executive body pays its own capital into the account of land owner. It is only the convenience of caslculatation. Land owner has to pay back this.

4) Interest paid (BCH and other Bank)

These are transferred from the executive body to land owner.

H-7 Discount Cash Flow of Bus Terminal

TABLE H-13 shows the result of discount cash flow analysis at the case in which the bus charge is 40% of passenger fares and the passenger charge is not included.

TABLE H-14 is the case in which the bus charge is 100% of passenger fare and the passenger charge is included.

## H-8 Discount Cash Flow of Markets

TABLE H-15 shows the result of cash flow analysis of the public market.

TABLE H-16 is the case of the open market.

TABLE H-9 PROFIT/LOSS STATEMENT (LAND OWNER)

	1987		1988		1989		1990		1991		1992		1993		1994		1995		1996	
	I	II	I	II	I	II	I	II	I	II	I	II	I	II	I	II	I	II	I	II
Revenue	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	824.8	824.9	920.5	1,156.9	1,088.5	1,688.8	1,720.8	2,389.5	2,975.2	5,281.5	3,754.4	4,957.3
Land Sales	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	812.9	812.9	869.0	1,068.3	995.1	1,594.8	1,582.9	2,225.5	2,715.4	2,885.7	3,449.6	4,615.5
Interest Received	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.9	11.9	51.5	88.6	96.5	93.9	137.9	166.0	259.7	397.9	304.8	343.8
Expenditure	0.0	0.0	0.0	46.6	92.6	151.3	237.9	454.1	414.6	497.7	993.4	928.7	997.6	1,085.4	1,070.8	1,088.9	1,088.9	3,391.0	2,694.8	1,918.6
Publicity Cost	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.0	10.0	7.6	4.4	1.2	4.4	47.3	42.8	36.2	30.1	30.1	21.4	7.6
Trust Fee	0.0	0.0	0.0	0.0	0.0	0.0	0.0	66.1	40.6	43.5	53.4	49.7	79.7	79.1	111.2	135.8	144.2	172.5	230.7	818.1
Payment of Vacation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Return of Equity Capital	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Interest Paid (BOH)	0.0	0.0	0.0	46.6	49.8	54.1	67.1	55.8	58.3	55.3	71.2	50.2	43.8	53.7	18.5	53.4	80.7	80.7	23.6	26.9
Interest Paid (Other Bank)	0.0	0.0	0.0	0.0	0.0	0.0	4.4	57.9	108.9	156.8	165.1	234.8	357.8	451.4	501.3	488.0	523.5	595.5	545.0	292.4
Interest Paid (Short-term)	0.0	0.0	0.0	0.0	33.5	69.4	108.3	156.6	196.8	234.6	265.7	307.8	324.3	351.3	325.7	304.2	300.9	316.9	316.9	292.4
Profit/Loss before Amortization	0.0	0.0	0.0	-46.6	-92.6	-151.3	-237.9	867.8	410.2	422.8	163.5	160.9	691.1	655.4	1,318.8	1,886.3	-109.5	1,059.6	3,038.7	3,038.7
Amortization of Interest	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	53.0	53.0	53.0	53.0	53.0	53.0	53.0	398.9	398.9	398.9
Profit/Loss after Dep. & Amort.	0.0	0.0	0.0	-46.6	-92.6	-151.3	-237.9	867.8	410.2	422.8	110.6	107.9	638.2	582.4	1,265.8	1,833.3	-508.4	660.6	2,639.8	2,639.8
Income Tax	0.0	0.0	0.0	0.0	0.0	0.0	0.0	280.3	123.1	126.8	33.2	32.4	191.5	174.7	579.7	550.0	0.0	0.0	198.2	791.9
Net Income	0.0	0.0	0.0	-46.6	-92.6	-151.3	-237.9	607.5	287.1	295.9	77.4	75.5	446.7	407.7	886.1	1,283.3	-508.4	462.5	1,847.9	1,847.9
Accumulated Net Income	0.0	0.0	0.0	-46.6	-139.2	-290.4	-528.3	79.1	366.3	682.2	739.6	815.2	1,261.9	1,669.6	2,555.7	3,839.0	3,330.6	3,795.0	5,640.9	5,640.9

	1997		1998		1999		2000		2001		2002		2003		2004		Total
	I	II	I	II	I	II	I	II	I	II	I	II	I	II	Total		
4,446.2	5,165.0	4,658.0	6,274.9	8,445.3	8,346.9	6,468.6	6,578.8	6,588.1	4,485.7	4,855.1	5,301.7	5,799.3	6,354.1	6,988.0	7,717.2	124,554.0	
3,863.6	4,375.9	3,645.3	5,057.6	6,848.4	6,131.6	3,194.2	2,659.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	63,511.3	
582.6	789.1	1,012.7	1,207.3	1,596.9	2,215.3	2,871.6	3,384.6	3,929.0	4,485.7	4,855.1	5,301.7	5,799.3	6,354.1	6,988.0	7,717.2	61,042.7	
1,759.6	2,335.7	2,018.7	1,750.1	1,894.3	1,538.7	886.5	772.7	632.5	420.3	202.4	155.6	108.4	33.2	4.0	0.0	30,584.4	
29.3	17.2	6.4	61.1	43.9	27.2	17.6	8.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	481.1	
193.2	218.8	182.3	253.4	342.4	306.6	179.9	159.7	133.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3,175.6	
746.8	1,273.8	973.6	673.5	844.8	637.7	207.2	207.2	178.6	178.6	28.6	28.6	0.0	0.0	0.0	0.0	11,842.1	
32.2	44.9	7.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	879.2	
486.0	521.2	592.4	545.1	472.5	406.4	349.1	293.0	242.3	187.3	138.8	104.1	67.0	27.9	3.3	0.0	8,624.7	
272.0	259.9	257.0	225.0	190.7	160.9	132.7	104.4	78.6	54.4	35.0	22.9	12.9	5.3	0.6	0.0	5,380.8	
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	200.9	
2,686.7	2,829.3	2,639.2	4,516.9	6,551.0	6,808.2	5,582.1	5,806.1	5,955.6	4,065.5	4,652.7	5,146.1	5,690.9	6,320.9	6,984.0	7,717.2	93,969.6	
344.0	455.1	455.1	455.1	563.0	563.0	217.1	217.1	217.1	217.1	107.9	107.9	107.9	0.0	0.0	0.0	5,543.8	
2,340.7	2,374.2	2,184.1	4,061.8	5,987.9	6,245.1	5,365.1	5,589.0	5,738.6	3,848.4	4,544.7	5,036.2	5,585.0	6,320.9	6,984.0	7,717.2	88,425.8	
702.2	712.3	655.2	1,218.5	1,796.4	1,873.5	1,609.5	1,676.7	1,721.6	1,154.5	1,363.4	1,511.5	1,674.9	1,896.3	2,095.2	2,315.2	26,638.8	
1,658.5	1,662.0	1,528.9	2,843.3	4,191.6	4,371.6	3,755.6	3,912.3	4,017.0	2,693.9	3,181.3	3,526.7	3,998.1	4,424.6	4,888.8	5,402.1	61,587.0	
7,279.4	8,941.3	10,470.2	13,313.5	17,505.1	21,876.7	25,632.2	29,544.5	33,561.5	36,235.4	39,436.7	42,965.5	46,871.5	51,296.2	56,185.0	61,587.0	526,468.3	

TABLE H-10 CASH FLOW (LAND OWNER)

	1987		1988		1989		1990		1991		1992		1993		1994		1995		1996	
	I	II	I	II	I	II	I	II	I	II	I	II	I	II	I	II	I	II	I	II
Inflow	0.0	0.0	0.0	0.0	232.8	295.4	439.9	1,001.3	1,245.1	915.6	630.6	1,004.4	1,256.5	1,446.6	1,087.9	1,058.5	2,034.7	1,699.2	979.6	2,413.9
Investment Fund	0.0	0.0	0.0	0.0	279.4	388.0	591.2	1,239.1	637.6	628.5	334.6	874.1	1,168.0	946.9	627.3	119.5	698.4	1,803.7	118.2	167.1
Equity Capital	0.0	0.0	0.0	0.0	46.6	49.8	54.1	67.1	55.8	58.3	55.3	77.2	50.2	43.8	33.7	18.5	53.4	80.7	23.6	26.9
Additional Capital	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80% Loan	0.0	0.0	0.0	0.0	186.2	199.1	216.3	268.6	223.3	233.0	221.1	308.9	200.8	175.2	135.0	74.2	213.6	322.6	94.5	107.7
Other Bank Loan	0.0	0.0	0.0	0.0	46.6	139.2	290.4	528.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Short-term Loan	0.0	0.0	0.0	0.0	-46.6	-92.6	-151.3	-237.9	607.5	287.1	295.9	130.3	128.5	499.7	460.7	939.0	1,336.3	-109.5	861.4	2,246.8
Net Income, Dep. & Amort.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Outflow	0.0	0.0	0.0	0.0	232.8	295.4	439.9	1,001.3	1,165.9	651.8	382.8	952.1	1,296.5	1,153.2	900.6	433.8	1,113.8	1,699.2	719.5	821.5
Investment	0.0	0.0	0.0	0.0	232.8	248.9	300.7	710.8	637.6	628.5	334.6	874.1	1,151.1	946.9	627.3	119.5	698.4	1,888.1	118.2	167.1
Construction Cost	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Land Acquisition Cost	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Building Acquisition Cost	0.0	0.0	0.0	0.0	232.8	248.9	266.0	284.4	231.0	246.9	263.9	282.2	67.3	71.9	76.9	82.2	103.5	110.6	118.2	126.4
Repairment of Loan	0.0	0.0	0.0	0.0	0.0	46.6	139.2	290.4	528.3	23.3	48.2	78.0	145.5	206.3	273.3	314.4	415.4	511.1	601.2	654.4
80% Loan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other Bank Loan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Short-term Loan	0.0	0.0	0.0	0.0	0.0	46.6	139.2	290.4	528.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Surplus/Deficit	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	79.1	263.9	247.8	52.4	0.0	293.4	187.3	624.6	920.9	0.0	260.1	1,592.4
Cumulative Surplus	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	79.1	343.0	590.8	643.2	626.2	919.6	1,106.9	1,731.5	2,652.4	2,651.8	2,292.0	3,884.3

	1997		1998		1999		2000		2001		2002		2003		2004		Total
	I	II	I	II	I	II	I	II	I	II	I	II	I	II	I	II	
2,802.2	3,273.5	2,166.3	3,298.3	4,754.6	4,934.6	3,972.6	4,129.4	4,234.0	2,910.9	3,634.7	4,016.0	4,424.6	4,888.8	5,402.1	79,914.0	12,783.2	
817.7	1,156.4	182.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	879.2	637.5	
32.2	44.9	7.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6,745.0	3,516.9	
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1,004.5	0.0	
656.6	932.1	147.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1,004.5	0.0	
128.9	179.5	28.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	67,130.8	0.0	
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
1,984.4	2,117.0	1,984.0	3,298.3	4,754.6	4,934.6	3,972.6	4,129.4	4,234.0	2,910.9	3,634.7	4,016.0	4,424.6	4,888.8	5,402.1	0.0	0.0	
1,426.1	1,782.6	868.7	701.6	631.5	559.6	552.1	500.5	522.2	448.9	317.4	317.3	198.7	27.1	0.0	22,426.1	11,141.1	
817.7	1,156.4	182.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8,328.0	0.0	
817.7	1,156.4	182.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
608.4	626.1	666.3	701.6	631.5	559.6	552.1	500.5	522.2	448.9	317.4	317.3	198.7	27.1	0.0	11,285.0	0.0	
412.0	430.9	479.9	510.9	466.1	403.1	395.1	356.8	387.8	341.2	244.3	244.3	172.7	23.5	0.0	6,783.6	0.0	
196.4	195.2	206.4	190.6	165.5	156.5	157.0	143.7	134.4	107.7	67.4	55.5	42.1	3.5	0.0	3,516.9	0.0	
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1,004.5	0.0	
1,376.0	1,490.9	1,297.7	2,596.8	4,123.0	4,375.1	3,420.5	3,628.9	3,711.8	2,462.0	2,977.6	3,698.7	4,226.0	4,861.7	5,402.1	57,467.9	0.0	
5,260.4	6,751.3	8,048.9	10,645.7	14,768.8	19,143.8	22,564.3	26,193.2	29,905.0	32,367.0	35,344.6	38,661.9	42,360.6	46,586.5	51,448.3	56,850.3	663,801.5	



TABLE H-12 CASH FLOW (EXECUTIVE BODY)

	1987		1988		1989		1990		1991		1992		1993		1994		1995		1996	
	I	II	I	II	I	II	I	II	I	II	I	II	I	II	I	II	I	II	I	II
Inflow	0.0	15.8	36.3	142.6	139.0	150.9	330.7	471.7	471.6	477.3	825.5	826.7	1,124.3	1,987.2	1,957.2	2,150.4	3,741.5	3,475.0	3,140.5	818.8
Investment Fund	15.8	36.3	62.7	133.5	135.9	156.1	340.9	353.7	444.2	483.9	232.0	425.3	720.0	1,581.2	1,622.5	1,799.7	280.6	628.5	628.5	818.8
Equity Capital	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Additional Capital	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BCH Loan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other Bank Loan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Short-term Loan	15.8	36.3	62.7	53.7	50.6	55.8	66.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Net Income, Dep. & Amort.	-15.8	-20.5	-26.4	9.1	3.1	-5.3	-10.2	118.1	33.4	-6.7	593.5	401.5	404.3	406.2	334.7	350.7	3,460.8	2,846.5	2,521.7	0.0
Outflow	0.0	15.8	36.3	142.6	139.0	150.9	330.7	419.7	452.2	477.3	238.5	478.0	806.2	1,711.9	1,800.9	2,011.3	537.4	957.7	1,303.4	818.8
Investment	0.0	0.0	0.0	79.8	85.3	100.3	274.8	353.7	444.2	460.8	232.0	425.3	720.0	1,581.2	1,622.5	1,799.7	280.6	628.5	628.5	818.8
Construction Cost	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Land Acquisition Cost	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Building Acquisition Cost	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Repayment of Loan	0.0	15.8	36.3	62.7	53.7	50.6	55.8	66.1	8.0	16.5	26.5	39.3	52.8	68.5	84.9	98.2	101.1	108.6	130.3	354.3
BCH Loan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other Bank Loan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Short-term Loan	0.0	15.8	36.3	62.7	53.7	50.6	55.8	66.1	8.0	16.5	25.8	39.3	52.8	68.5	84.9	98.2	101.1	108.6	130.3	354.3
Surplus/Deficit	0.0	0.0	0.0	0.0	0.0	0.0	0.0	52.0	25.4	0.0	567.0	348.7	318.1	275.5	156.3	139.0	3,204.1	2,517.5	1,837.1	0.0
Cumulative Surplus	0.0	0.0	0.0	0.0	0.0	0.0	0.0	52.0	77.3	54.2	621.2	969.9	1,288.0	1,563.5	1,719.9	1,858.9	5,063.0	7,580.3	9,417.4	0.0

	1997		1998		1999		2000		2001		2002		2003		2004		Total
	I	II	I	II	I	II	I	II	I	II	I	II	I	II			
3,126.6	3,764.9	3,504.9	3,715.0	4,144.1	4,120.4	3,312.4	3,557.9	3,758.3	3,540.5	3,666.1	4,032.9	4,436.6	4,838.8	5,323.4	5,856.6	86,169.7	
650.8	43.6	120.3	263.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11,349.2	
24.1	2.3	5.9	12.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	552.3	
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	23.2	
530.2	32.3	90.6	199.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8,223.5	
96.4	9.0	23.7	51.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2,209.2	
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	341.0	
2,475.8	3,721.4	3,384.6	3,452.0	4,144.1	4,120.4	3,312.4	3,557.9	3,758.3	3,540.5	3,666.1	4,032.9	4,436.6	4,838.8	5,323.4	5,856.6	74,820.5	
1,269.2	820.2	906.9	1,118.2	954.6	1,031.4	974.6	805.9	614.1	372.8	349.1	268.7	153.4	58.2	55.8	38.2	21,621.1	
650.8	43.6	120.3	263.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10,985.0	
650.8	43.6	120.3	263.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10,127.1	
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	858.0	
618.4	776.6	786.6	855.2	954.6	1,031.4	974.6	805.9	614.1	372.8	349.1	268.7	153.4	58.2	55.8	38.2	10,836.0	
470.0	609.3	629.0	701.9	799.2	874.8	833.0	692.2	525.7	316.8	299.1	230.8	130.9	47.7	46.4	31.9	8,285.8	
148.4	167.3	157.6	153.3	155.5	156.6	141.6	113.6	88.5	56.0	50.0	37.9	22.5	10.5	9.4	6.4	2,209.2	
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	341.0	
1,857.5	2,944.7	2,598.0	2,596.8	3,189.5	3,089.0	2,337.8	2,752.0	3,144.2	3,167.6	3,317.0	3,764.2	4,283.2	4,780.6	5,267.7	5,818.4	64,348.6	
11,274.9	14,219.6	16,817.6	19,414.4	22,603.9	25,692.9	28,030.7	30,782.7	33,926.9	37,094.5	40,441.5	44,175.7	48,458.9	53,239.4	58,507.1	64,325.5	579,241.9	





TABLE H-14 DISCOUNTED CASH FLOW BUS TERMINAL

	1990		1991		1992		1993		1994		1995		1996	
	1	2	1	2	1	2	1	2	1	2	1	2	1	2
<b>I. REVENUES</b>														
Bus Charge	0.00	0.00	0.00	0.00	123.61	135.77	135.77	74.54	74.54	75.88	75.89	77.29	77.29	77.29
Rental of Shops	0.00	0.00	0.00	0.00	4.34	4.45	4.44	4.58	4.58	4.72	4.72	4.87	4.87	4.87
Rental of Cafeteria	0.00	0.00	0.00	0.00	20.51	20.51	20.51	20.51	20.51	20.51	20.51	20.51	20.51	20.51
Rental of Fuel Station	0.00	0.00	0.00	0.00	8.26	8.26	8.26	8.26	8.26	8.26	8.26	8.26	8.26	8.26
Baggage Fees	0.00	0.00	0.00	0.00	2.40	2.40	2.40	2.40	2.40	2.40	2.40	2.40	2.40	2.40
Sales of shops	0.00	0.00	0.00	0.00	15.90	16.48	16.47	17.05	17.05	17.65	17.66	18.28	18.28	18.28
Sales of Business Section	0.00	0.00	0.00	0.00	24.35	28.41	28.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Advertisement Charges	0.00	0.00	0.00	0.00	29.24	34.11	34.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Passenger Charge	0.00	0.00	0.00	0.00	4.69	4.69	4.69	4.69	4.69	4.69	4.69	4.69	4.69	4.69
II. COSTS	234.52	153.50	153.50	153.50	24.50	24.50	24.50	24.50	24.50	24.50	24.50	24.50	24.50	24.50
Construction Cost	153.50	153.50	153.50	153.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Land Acquisition	81.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Wages / Salaries	0.00	0.00	0.00	0.00	8.48	8.48	8.48	8.48	8.48	8.48	8.48	8.48	8.48	8.48
Insurance	0.00	0.00	0.00	0.00	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31
Public Services	0.00	0.00	0.00	0.00	7.48	7.48	7.48	7.48	7.48	7.48	7.48	7.48	7.48	7.48
Maintenance and Repair	0.00	0.00	0.00	0.00	3.14	3.14	3.14	3.14	3.14	3.14	3.14	3.14	3.14	3.14
Contingency	0.00	0.00	0.00	0.00	2.39	2.39	2.39	2.39	2.39	2.39	2.39	2.39	2.39	2.39
General Expenditure	0.00	0.00	0.00	0.00	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70
Discounted Revenue			-234.52	-153.50	101.11	111.29	111.27	50.04	50.04	51.38	51.39	52.79	52.79	52.79
Discounted Cost			0.00	0.00	0.00	99.49	101.47	95.71	49.57	46.77	44.91	42.38	40.72	38.41
			234.52	144.81	136.61	128.88	19.41	18.31	17.27	16.29	15.37	14.50	13.68	12.18

FIRR = 15.42%  
Discount Rate = 12%  
NPV = 51.138061  
B/C Ratio = 1.06

	1997		1998		1999		2000		2001		2002		2003		TOTAL
	1	2	1	2	1	2	1	2	1	2	1	2	1	2	
78.73	78.73	80.25	80.25	83.47	83.47	85.17	85.16	86.95	86.97	88.79	88.79	87.81	87.81	0.00	2042.02
5.01	5.01	5.17	5.17	5.34	5.34	5.51	5.51	5.68	5.67	5.87	5.87	6.04	6.05	0.00	118.81
20.51	20.51	20.51	20.51	20.51	20.51	20.51	20.51	20.51	20.51	20.51	20.51	20.51	20.51	0.00	411.73
8.26	8.26	8.26	8.26	8.26	8.26	8.26	8.26	8.26	8.26	8.26	8.26	8.26	8.26	0.00	189.98
2.40	2.40	2.40	2.40	2.40	2.40	2.40	2.40	2.40	2.40	2.40	2.40	2.40	2.40	0.00	55.20
18.93	18.93	19.61	19.61	20.31	20.32	21.05	21.05	21.82	21.82	22.61	22.61	23.45	23.45	0.00	450.39
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	81.16
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	97.47
4.69	4.69	4.69	4.69	4.69	4.69	4.69	4.69	4.69	4.69	4.69	4.69	4.69	4.69	0.00	107.87
18.93	18.93	19.61	19.61	30.32	30.32	31.05	31.05	32.84	32.84	34.69	34.69	36.52	36.52	0.00	469.41
24.50	24.50	24.50	24.50	24.50	24.50	24.50	24.50	24.50	24.50	24.50	24.50	24.50	24.50	0.00	881.24
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	317.74
8.48	8.48	8.48	8.48	8.48	8.48	8.48	8.48	8.48	8.48	8.48	8.48	8.48	8.48	0.00	301.04
1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	0	30.13
7.48	7.48	7.48	7.48	7.48	7.48	7.48	7.48	7.48	7.48	7.48	7.48	7.48	7.48	0	172.04
3.14	3.14	3.14	3.14	3.14	3.14	3.14	3.14	3.14	3.14	3.14	3.14	3.14	3.14	0	72.22
2.39	2.39	2.39	2.39	2.39	2.39	2.39	2.39	2.39	2.39	2.39	2.39	2.39	2.39	0	54.97
1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	0	39.10
54.23	54.23	55.75	55.75	67.33	67.34	68.97	68.97	70.66	70.66	72.44	72.44	74.24	74.24	0	377.28
36.91	34.82	33.49	31.59	32.18	32.18	32.63	32.63	33.13	33.13	33.63	33.63	34.13	34.13	0	317.74
11.49	10.82	10.22	9.64	9.10	8.58	8.10	7.64	7.21	6.80	6.41	6.05	5.71	5.39	0.00	949.05
														0.00	897.92

TABLE H-15 DISCOUNTED CASH FLOW (PUBLIC MARKET)

	1990		1991		1992		1993		1994		1995		1996	
	1.	2.	1.	2.	1.	2.	1.	2.	1.	2.	1.	2.	1.	2.
REVENUES														
Rental of Stalls	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Premium	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rental of Warehouse	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rental of Cold Storage	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	304.08	199.39	199.39	199.39	28.80	28.80	28.80	28.80	28.80	28.80	28.80	28.80	28.80	28.80
COST														
Construction Cost	199.39	199.39	199.39	199.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Land Acquisition	104.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Wages/Salaries	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Insurance	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Public Services	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maintenance and Repair	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Contingency	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
General Expenditure	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	-304.08	-199.39	-199.39	-199.39	71.85	71.85	71.85	71.85	71.85	71.85	71.85	71.85	71.85	71.85
Discounted Revenue	0.00	0.00	0.00	0.00	79.72	75.21	70.95	66.94	62.15	59.57	56.20	53.02	50.02	
Discounted Cost	304.08	188.10	177.46	167.41	22.81	21.52	20.30	19.15	18.07	17.05	16.08	15.17	14.31	
	100.65	98.71	98.71	98.71	98.71	98.71	98.71	98.71	98.71	98.71	98.71	98.71	98.71	0.00
	39.83	39.83	39.83	39.83	39.83	39.83	39.83	39.83	39.83	39.83	39.83	39.83	39.83	0.00
	1.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	55.03	55.03	55.03	55.03	55.03	55.03	55.03	55.03	55.03	55.03	55.03	55.03	55.03	0.00
	3.85	3.85	3.85	3.85	3.85	3.85	3.85	3.85	3.85	3.85	3.85	3.85	3.85	0.00
	28.80	28.80	28.80	28.80	28.80	28.80	28.80	28.80	28.80	28.80	28.80	28.80	28.80	-471.59
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	366.90
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	104.69
	13.30	13.30	13.30	13.30	13.30	13.30	13.30	13.30	13.30	13.30	13.30	13.30	13.30	332.50
	1.06	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	27.25
	4.60	4.60	4.60	4.60	4.60	4.60	4.60	4.60	4.60	4.60	4.60	4.60	4.60	115.00
	3.98	3.98	3.98	3.98	3.98	3.98	3.98	3.98	3.98	3.98	3.98	3.98	3.98	99.50
	3.17	3.17	3.17	3.17	3.17	3.17	3.17	3.17	3.17	3.17	3.17	3.17	3.17	79.25
	2.66	2.66	2.66	2.66	2.66	2.66	2.66	2.66	2.66	2.66	2.66	2.66	2.66	66.50
	71.85	69.91	69.91	69.91	69.91	69.91	69.91	69.91	69.91	69.91	69.91	69.91	69.91	471.59
	47.19	43.60	41.19	38.86	36.66	34.58	32.62	30.78	29.04	27.39	25.84	24.38	23.00	21.70
	12.50	12.74	12.02	11.34	10.70	10.09	9.52	8.98	8.47	7.94	7.54	7.11	6.71	6.33
														5.97
														5.63
														-87.04
														1,059.18

FIRR = 12.2%  
 Discount Rate = 12.0%  
 NPV = 12,326,501  
 B/C Ratio = 1.01

TABLE H-16 DISCOUNTED CASH FLOW (OPEN MARKET)

	1990		1991		1992		1993		1994		1995		1996		1997		
	1.	2.	1.	2.	1.	2.	1.	2.	1.	2.	1.	2.	1.	2.	1.	2.	
REVENUES	0.00	0.00	0.00	0.00	32.71	32.71	32.71	32.71	32.71	32.71	32.71	32.71	32.71	32.71	32.71	32.71	32.71
Rental of Stalls	0.00	0.00	0.00	0.00	25.13	25.13	25.13	25.13	25.13	25.13	25.13	25.13	25.13	25.13	25.13	25.13	25.13
Premium	0.00	0.00	0.00	0.00	1.44	1.44	1.44	1.44	1.44	1.44	1.44	1.44	1.44	1.44	1.44	1.44	1.44
Rental of Warehouse	0.00	0.00	0.00	0.00	6.14	6.14	6.14	6.14	6.14	6.14	6.14	6.14	6.14	6.14	6.14	6.14	6.14
COST	159.76	73.00	73.01	73.01	6.65	6.65	394.83	135.79	135.79	14.69	14.69	14.69	14.69	14.69	14.69	14.69	14.69
Construction Cost	97.34	73.00	73.01	73.01	0.00	0.00	172.18	129.14	129.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Land Acquisition	62.42	0.00	0.00	0.00	0.00	0.00	116.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Wages/Salaries	0.00	0.00	0.00	0.00	2.85	2.85	2.85	2.85	2.85	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70
Insurance	0.00	0.00	0.00	0.00	0.50	0.50	0.50	0.50	0.50	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21
Public Services	0.00	0.00	0.00	0.00	0.69	0.69	0.69	0.69	0.69	1.36	1.36	1.36	1.36	1.36	1.36	1.36	1.36
Maintenance and Repair	0.00	0.00	0.00	0.00	1.21	1.21	1.21	1.21	1.21	3.15	3.15	3.15	3.15	3.15	3.15	3.15	3.15
Contingency	0.00	0.00	0.00	0.00	0.83	0.83	0.83	0.83	0.83	2.13	2.13	2.13	2.13	2.13	2.13	2.13	2.13
General Expenditure	0.00	0.00	0.00	0.00	0.57	0.57	0.57	0.57	0.57	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14
	-159.76	-73.00	-73.01	-73.01	26.06	26.06	-262.12	-103.08	-103.08	87.85	87.85	87.85	87.85	87.85	87.85	87.85	86.41
Discounted Revenue	0.00	0.00	0.00	0.00	27.46	25.91	24.44	23.06	21.75	64.33	60.69	57.26	54.02	50.96	47.40	44.72	
Discounted Cost	159.76	68.87	64.96	64.96	5.58	5.27	220.21	95.73	90.31	9.22	8.69	8.20	7.74	7.30	6.89	6.50	
	101.10	101.10	99.13	99.13	99.13	99.13	99.13	99.13	99.13	99.13	99.13	99.13	99.13	99.13	99.13	99.13	99.13
	86.84	86.84	86.84	86.84	86.84	86.84	86.84	86.84	86.84	86.84	86.84	86.84	86.84	86.84	86.84	86.84	86.84
	1.97	1.97	1.97	1.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	12.29	12.29	12.29	12.29	12.29	12.29	12.29	12.29	12.29	12.29	12.29	12.29	12.29	12.29	12.29	12.29	12.29
	14.69	14.69	14.69	14.69	14.69	14.69	14.69	14.69	14.69	14.69	14.69	14.69	14.69	14.69	14.69	14.69	14.69
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70
	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21
	1.36	1.36	1.36	1.36	1.36	1.36	1.36	1.36	1.36	1.36	1.36	1.36	1.36	1.36	1.36	1.36	1.36
	3.15	3.15	3.15	3.15	3.15	3.15	3.15	3.15	3.15	3.15	3.15	3.15	3.15	3.15	3.15	3.15	3.15
	2.13	2.13	2.13	2.13	2.13	2.13	2.13	2.13	2.13	2.13	2.13	2.13	2.13	2.13	2.13	2.13	2.13
	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14
	86.41	86.41	84.44	84.44	84.44	84.44	84.44	84.44	84.44	84.44	84.44	84.44	84.44	84.44	84.44	84.44	84.44
	42.19	39.90	37.54	34.73	32.76	30.91	29.16	27.51	25.95	24.48	22.10	21.79	20.56	19.29	0.00	911.87	
	6.13	5.78	5.46	5.15	4.86	4.58	4.32	4.08	3.85	3.63	3.42	3.23	3.05	2.87	0.00	741.69	

(in million pesos at 1987 constant price)

FIRR = 17.2%  
Discount Rate = 12.0%  
NPV = 170.18  
B/C Ratio = 1.23

## H-9 Graphical Explanation of Development System

As the development systems studied in Chapter 15 are new ones except for the total purchase system and the valorization system, there might be some difficulties in understanding the new system. Therefore, an additional explanation using diagrams and equations is considered to be necessary.

FIG diagrammatically shows change in land use in the project area before after development. The development benefit (B) and cost (C) of the project could be defined as follows:

$$\begin{aligned} B &= u'A' - uA + (v' - v)A_0 \\ &= u'(A_e + A_{e'} + A_f + A_{f'}) - u(A_b + A_d + A_f + A_{f'}) + (v' - v)A_0 \end{aligned}$$

$$\begin{aligned} C &= C_1 + C_2 + C_3 \\ &= (C_a + C_b + C_c + C_d) + (C_e + C_{e'}) + (C_f + C_{f'}) \end{aligned}$$

where,

A : Area of total lots before development in project area

A' : Area of total lots after development in project area

A<sub>0</sub> : Area of total lots outside project area

A<sub>b</sub> - A<sub>f</sub> : Area of each section

u : Average unit land value before development in project area

u' : Average unit land value after development in project area

v : Average unit land value before development outside project area

v' : Average unit land value after development outside project area

C<sub>1</sub> : Construction cost for streets and parks

C<sub>2</sub> : Construction cost for lots developed from existing streets

C<sub>3</sub> : Construction cost for lots developed from existing lots

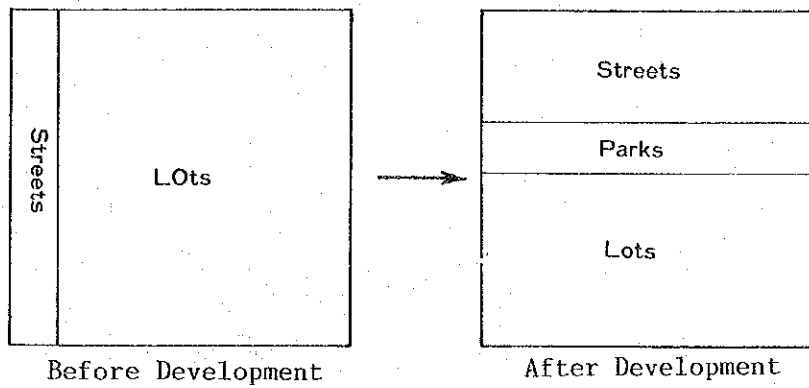
C<sub>a</sub> - C<sub>f</sub>' : Construction cost for each section

Whichever development system is adopted, the total benefit and cost are the same. What is different is who gains the benefit and pays the cost.

Landowner (or receiver of sales) of developed lots is different according to development system as shown in FIG H-2.

When development is made by total purchase system, developed lots will totally belong to the executive body. Valorization system and proposed system are the same from the standpoint that the executive body will keep lots developed from existing public land. Land readjustment system requires that the executive body will keep reserved land for recovering project cost. In land trust system, the executive body will sell all developed lots in behalf of landowners and will receive a trust fee which is a certain percentage of land sales.

The persons interested in development are the executive body, landowners in the project area and landowners outside the project area. TABLE H-17 shows the receiver of benefit and the payer of cost by development system.



a	b
c	d
e	f
e'	f'

- a : Street → Street
- b : Lot → Street
- c : Street → Park
- d : Lot → Park
- e : Street → Lot
- e' : Street → Lot (Reserved Lot in Case of Land Readjustment System)
- f : Lot → Lot
- f' : Lot → Lot (Reserved Lot in Case of Land Readjustment System)

FIG. H-1 DIAGRAMMATIC CHANGE OF LAND USE AFTER DEVELOPMENT

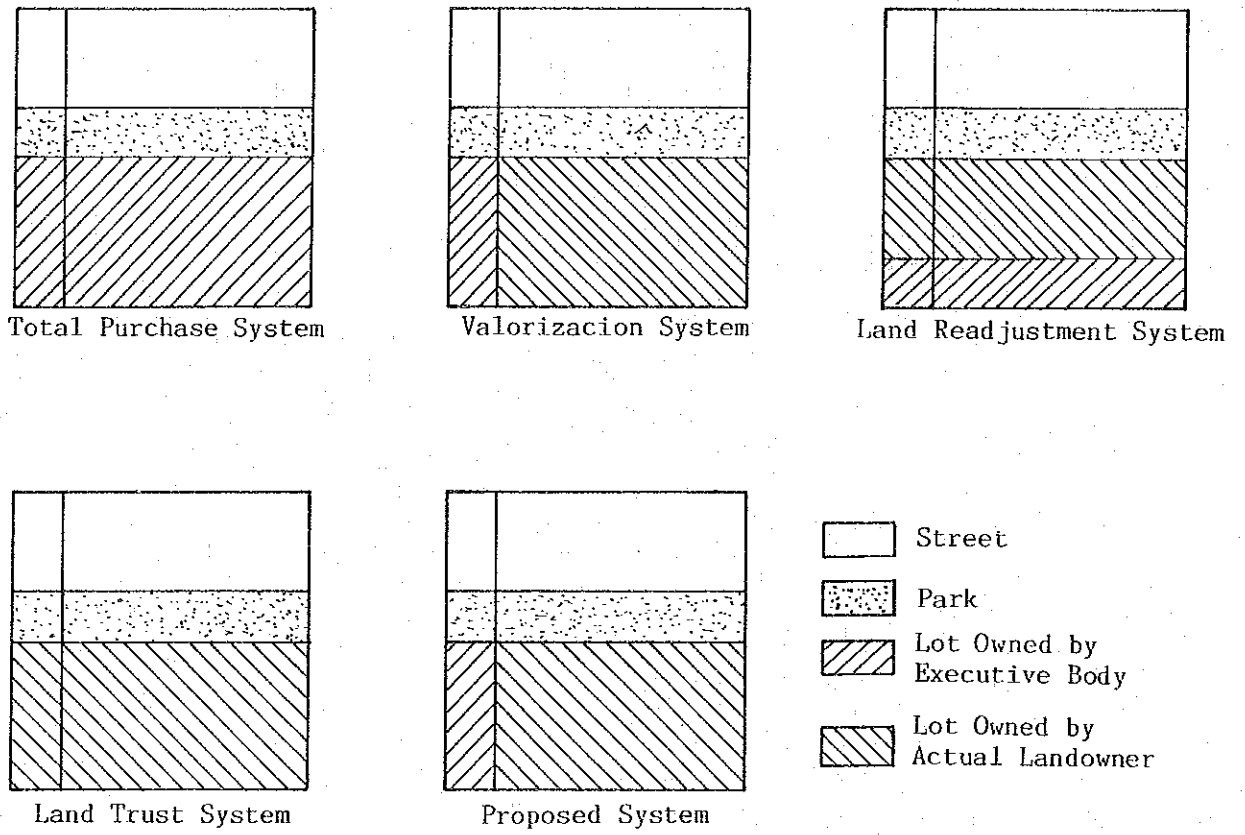


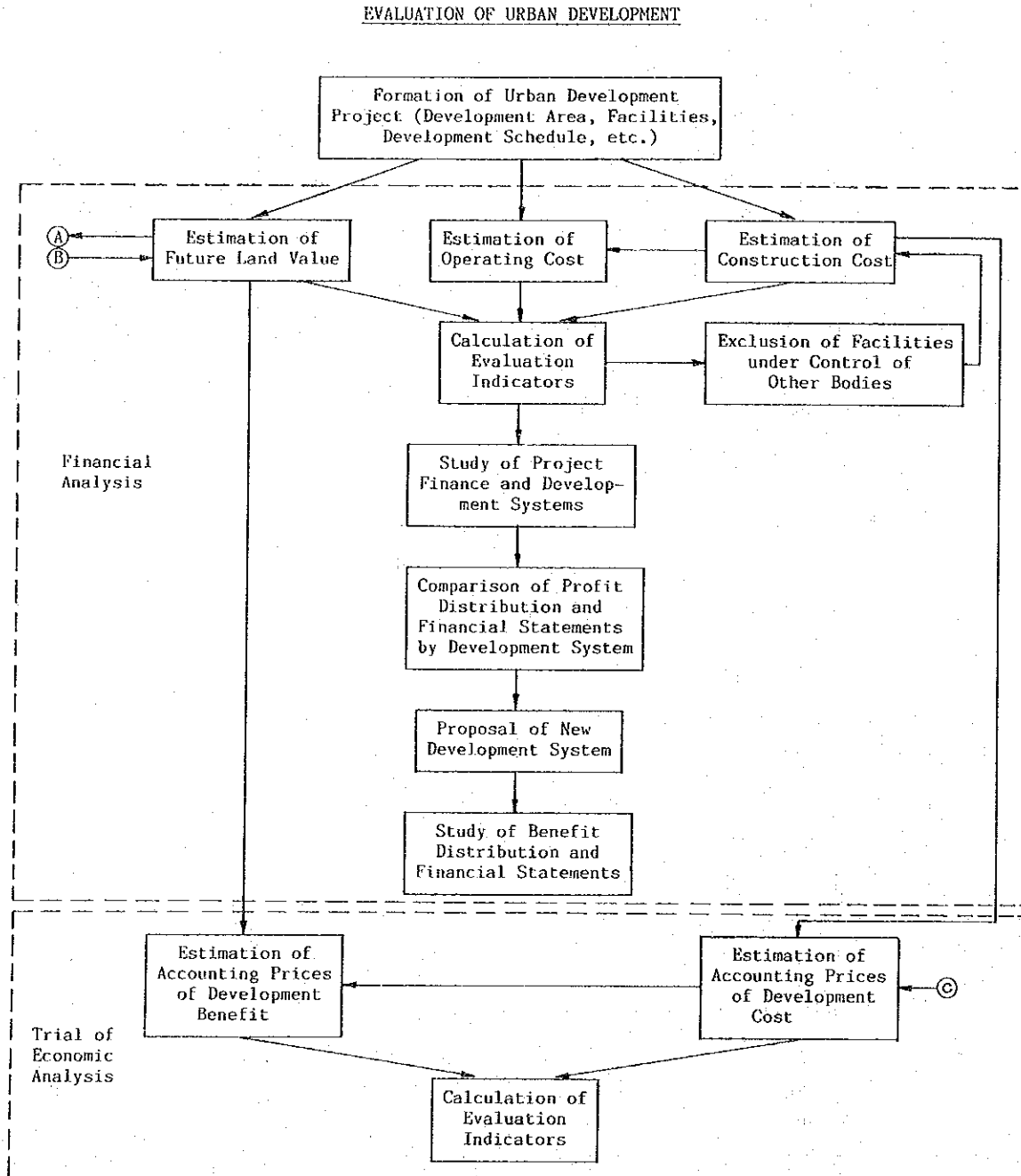
FIG. H-2 DIFFERENCE OF OWNERSHIP OF DEVELOPED LOTS BY SYSTEM



TABLE H-17 RECEIVER OF BENEFIT AND PAYER OF COST BY DEVELOPMENT SYSTEM

Development System	Person Interested	Received Benefit	Paid Cost	Remarks
Total Purchase System	Executive Body	$u'(Ae+Ae'+Af'+Af) - u(Ab+Ad+Af'+Af)$	$Ca+Cd+Cc+Cd+Ce + Ce'+Cf'+Cf$	
	Land Owner in Project Area	$u(Ab+Ad+Af'+Af) - u(Ab+Ad+Af'+Af)=0$	0	Exchange land for cash
	Land owner outside Project Area	$(v'-v)A_o$	0	
Valorizacion System	Executive Body	$Ve - u(Ab+Ad) + u'(Ae+Ae') = u'(Ae+Ae')$ $[ve = u(Ab+Ad)]$	$Ca+Cb+Cc+Cd+Ce + Ce'+Cf'+Cf - Vc = 0$	$Ve$ : Supposed Valorization contribution for land acquisition $Vc$ : Supposed valorization contribution for construction
	Land Owner in Project Area	$u'(Af'+Af) + u(Ab+Ad) - u(Af'+Af) - u(Ab+Ad) - Ve = u'(Af'+Af) - u(Ab+Ad) + Af'+Af$	$Vc = Ca+Cb+Cc+Cd + Ce+Ce'+Cf'+Cf$	
	Land Owner outside Project Area	$(v'-v)A_o$	0	
Land Readjustment System	Executive Body	$u'(Ae'+Af')$	$Ca+Cb+Cc+Cd+Ce+Ce' + Cf'+Cf$	$u'(Ae'+Af') = Ca+Cb+Cc + Cd+Ce+Ce'+Cf'+Cf$
	Land Owner in Project Area	$u'(Ae+Af) - u(Ab+Ad + Af'+Af)$	0	
	Land Owner outside Project Area	$(v'-v)A_o$	0	
Land Trust System	Executive Body	T	0	T : Trust fee
	Land Owner in Project Area	$u'(Ae+Ae'+Af'+Af) - u(Ab+Ad+Af'+Af) - T$	$Ca+Cb+Cc+Cd+Ce+Ce' + Cf'+Cf$	
	Land Owner outside Project Area	$(v'-v) A_o$	0	
Proposed System	Executive Body	$u'(Ae+Ae') + T$	$Ca+Cb+Cc+Cd+Ce+Ce' - Vc = Ce+Ce'$	$Vc = Ca+Cb+Cc+Cd$
	Land Owner in Project Area	$u'(Af'+Af) - u(Ab+Ad + Af'+Af) - T$	$\frac{1}{2}Vc = \frac{1}{2}(Ca+Ce+Cc+Cd)$	
	Land Owner outside Project Area	$(v'-v)A_o$	$\frac{1}{2}Vc = \frac{1}{2}(Ca+Cb+Cc+Cd)$	

FIG. H-3 EVALUATION OF URBAN DEVELOPMENT



EVALUACION DE LOS PROYECTOS DE CONSTRUCCION DE EDIFICIO

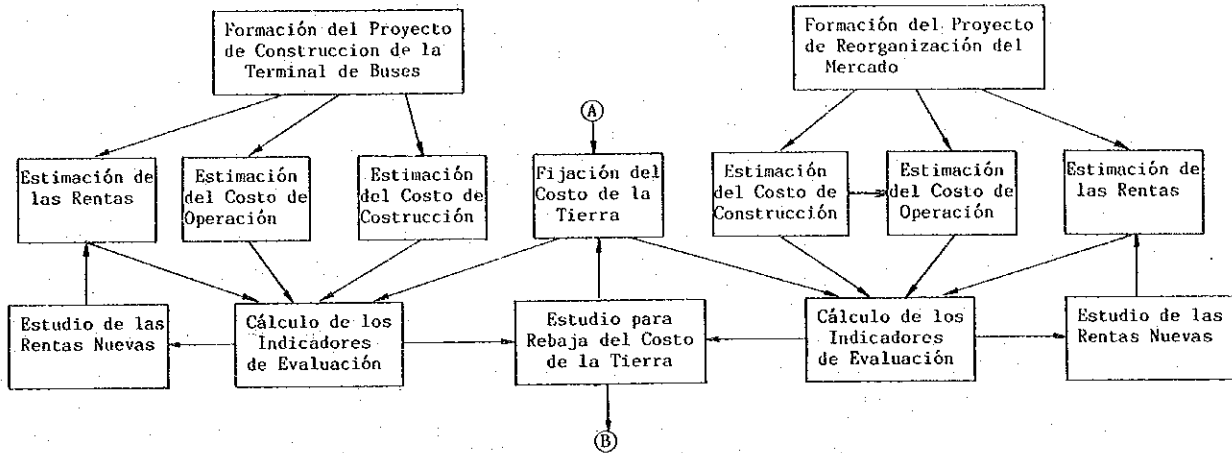


FIG. H-4 EVALUATION OF BUILDING CONSTRUCTION

EVALUACION DE LOS PROYECTOS DE VIA

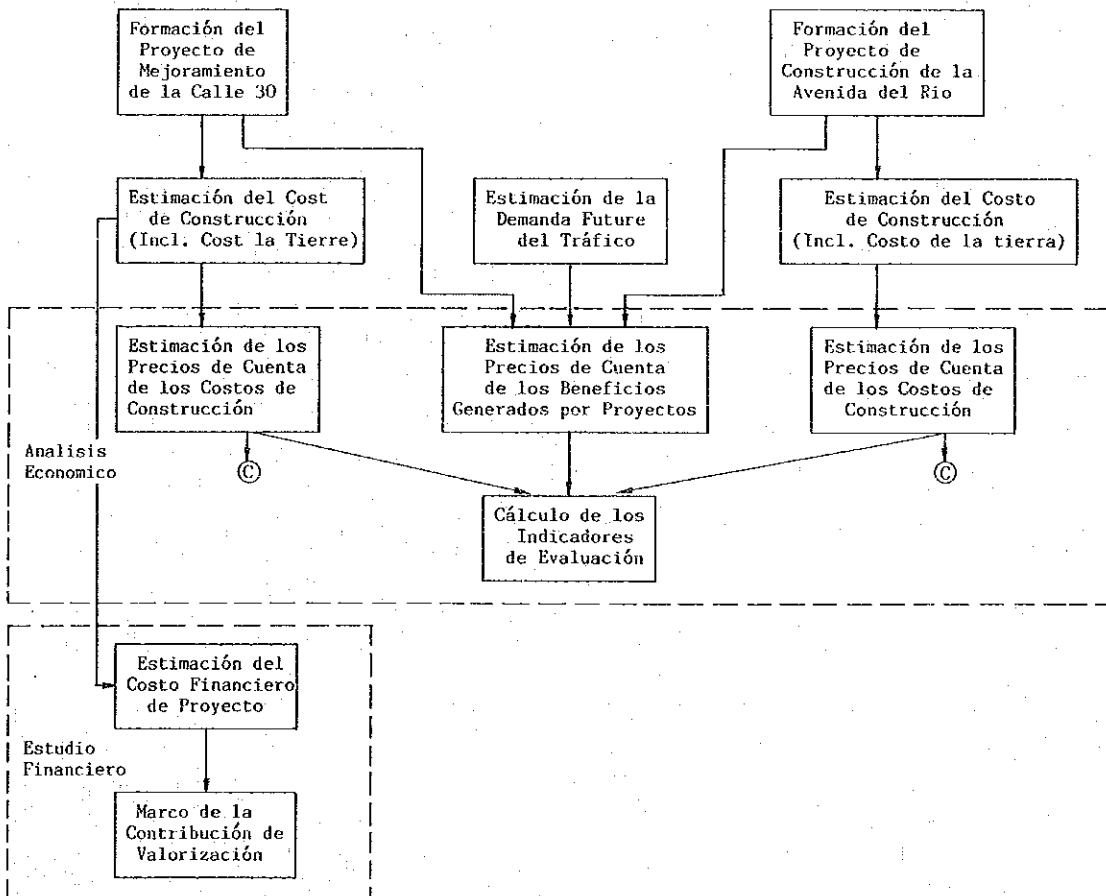


FIG. H-5 EVALUATION OF ROAD PROJECTS

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