Appendix Table VIII.1.(9) Future Demand of Base Traffic by Zone (medium & heavy trucks, off-peak hours)

Vehicles, %

Zone No.	Name of Zone	Originating Traffic										Terminating Traffic									
		1977		1982		1987		1992		2002		1977		1982		1987		1992		2002	
01	Port Louis	843	43.8	1100	41.2	1356	38.3	1642	35.0	2808	33.8	866	45.0	1136	42.5	1404	39.7	1711	36.5	2939	35.4
02-A	Coromandel	56	2.9	121	4.5	280	7.9	561	12.0	1044	12.6	56	2.9	122	4.6	281	7.9	564	12.0	1057	12.7
02-B	Petit Malabar	14	0.7	28	1.0	57	1.6	98	2.1	149	1.8	13	0.7	26	1.0	53	1.5	94	2.0	140	1.7
03-A	Beau Bassin	15	0.8	22	0.8	30	0.8	38	0.8	71	0.9	17	0.9	26	1.0	35	1.0	44	0.9	83	1.0
03-B		22	1.1	33	1.2	42	1.2	54	1.2	99	1.2	23	1.2	33	1.2	45	1.3	58	1.2	105	1.3
03-C		17	0.9	21	0.8	23	0.7	26	0.6	37	0.4	18	0.9	22	0.8	26	0.7	27	0.6	40	0.5
04-A	Rose Hill	59	3.1	70	2.6	74	2.1	77	1.6	95	1.1	68	3.5	80	3.0	87	2.5	90	1.9	110	1.3
04-B		11	0.6	17	0.6	23	0.7	31	0.7	59	0.7	12	0.6	18	0.7	26	0.7	33	0.7	64	0.8
04-C		18	0.9	29	1.1	42	1.2	54	1.2	115	1.4	22	1.1	36	1.3	50	1.4	69	1.5	140	1.7
05-A	Quatre Bornes	51	2.7	64	2.4	73	2.1	82	1.7	123	1.5	46	2.4	58	2.2	67	1.9	75	1.6	111	1.3
05-B		27	1.4	40	1.5	54	1.5	70	1.5	135	1.6	25	1.3	36	1.3	50	1.4	65	1.4	126	1.5
05-C		33	1.7	42	1.6	53	1.5	62	1.3	101	1.2	30	1.6	39	1.5	47	1.3	56	1.2	93	1.1
06-A	Vacoas/Phoenix	27	1.4	43	1.6	60	1.7	80	1.7	164	2.0	17	0.9	27	1.0	39	1.1	50	1.1	105	1.3
06-B		139	7.2	179	6.7	212	6.0	239	5.1	370	4.5	88	4.6	113	4.2	135	3.8	154	3.3	238	2.9
06-C		3	0.2	5	0.2	8	0.2	12	0.3	26	0.3	2	0.1	4	0.2	6	0.2	8	0.2	18	0.2
07-A	Pailles	13	0.7	31	1.2	60	1.7	111	2.4	269	3.2	12	0.6	28	1.0	56	1.6	103	2.2	254	3.1
07-B	Moka	147	7.6	204	7.6	262	7.4	331	7.1	518	6.2	126	6.5	175	6.6	223	6.3	281	6.0	446	5.4
08-A	Pointe aux Sables	29	1.5	55	2.1	87	2.5	162	3.5	290	3.5	31	1.6	59	2.2	94	2.7	176	3.8	316	3.8
08-B	Petite Rivière	30	1.6	40	1.5	51	1.4	72	1.5	116	1.4	31	1.6	42	1.6	52	1.5	75	1.6	122	1.5
09	Le Bosquet	11	0.6	15	0.6	17	0.5	21	0.4	47	0.6	3	0.2	4	0.2	4	0.1	6	0.1	11	0.1
10	Bambous	19	1.0	22	0.8	24	0.7	25	0.5	37	0.4	30	1.6	37	1.4	39	1.1	41	0.9	59	0.7
11	Tamarin	12	0.6	20	0.7	29	0.8	42	0.9	99	1.2	-	-	-	-	-	-	-	-	-	-
12	Herrietta	6	0.3	9	0.3	14	0.4	21	0.4	48	0.6	5	0.3	7	0.3	11	0.3	18	0.4	40	0.5
13-A	Curepipe	64	3.3	90	3.4	115	3.3	141	3.0	260	3.1	77	4.0	108	4.0	140	4.0	172	3.7	319	3.8
13-B	Coriolis	5	0.3	9	0.3	13	0.4	18	0.4	41	0.5	7	0.4	12	0.4	19	0.5	25	0.5	58	0.7
14	Savanne	21	1.1	27	1.0	33	0.9	38	0.8	57	0.7	48	2.5	62	2.3	75	2.1	87	1.9	133	1.6
15	Grand Port	60	3.1	82	3.1	100	2.8	121	2.6	214	2.6	88	4.6	119	4.5	150	4.2	179	3.8	319	3.8
16	Quartier Militaire	18	0.9	24	0.9	32	0.9	39	0.8	72	0.9	23	1.2	32	1.2	40	1.1	50	1.1	93	1.1
17	Flacq	26	1.4	40	1.5	58	1.6	89	1.9	172	2.1	16	0.8	25	0.9	37	1.0	52	1.1	108	1.3
18	Pamplemousses	128	6.7	189	7.1	257	7.3	336	7.2	663	8.0	124	6.4	185	6.9	248	7.0	330	7.0	652	7.9
	Total	1924	100.0	2671	100.0	3539	100.0	4693	100.0	8299	100.0	1924	100.0	2671	100.0	3539	100.0	4693	100.0	8299	100.0

Appendix Table VIII 2 (1) OD Table of 1992 Traffic (Cars, morning-peak hour)

	01	02-A	02-B	03-A	03-B	03-C	04-A	04-B	04-C	05-A	05-B	05-C	06-A	06-B	06-C	07-A	07-B	08-A	08-B	09	10	11	12	13-A	13-B	14	15	16	17	18	Total
01	0	304	52	25	35	19	6	17	31	15	12	11	16	45	6	84	125	2	25	-	6	-	17	105	12	12	5	12	-	-	999
02-A	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100
02-B	41	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	166	-	-	-	-	-	-	-	-	-	-	-	-	-	207
03-A	373	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	398
03-B	250	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18	268
03-C	158	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11	169
04-A	215	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	218
04-B	302	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8	310
04-C	246	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	250
05-A	239	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	19	258
05-B	251	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20	271
05-C	365	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	27	392
06-A	128	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11	139
06-B	346	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	26	372
06-C	65	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	69
07-A	125	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	137
07-B	651	-	-	-	-	-	59	-	-	-	-	-	-	-	-	-	-	84	-	-	-	-	-	-	-	-	-	-	-	56	850
08-A	231	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	231
08-B	124	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	124
09	17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	17
10	30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	30
11	43	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	43
12	79	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	79
13-A	777	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	777
13-B	122	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	122
14	109	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	48	157
15	176	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	176
16	86	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	86
17	1	63	21	-	-	-	-	-	-	-	-	-	-	-	-	26	11	-	-	-	-	-	-	-	-	-	-	-	-	-	122
18	0	75	10	4	4	3	1	5	5	13	8	9	-	-	-	25	34	-	-	-	-	-	-	26	5	-	9	-	-	-	236
Total	5650	442	83	29	39	22	66	22	36	28	20	20	16	45	6	135	336	86	25	-	6	-	17	131	17	12	14	12	-	292	7607

Appendix Table VIII·2·(2) OD Table of 1992 Traffic (Vans, morning-peak hour)

	01	02-A	02-B	03-A	03-B	03-C	04-A	04-B	04-C	05-A	05-B	05-C	06-A	06-B	06-C	07-A	07-B	08-A	08-B	09	10	11	12	13-A	13-B	14	15	16	17	18	Total
01		53	15	11	13	8	11	4	10	4	4	2	4	5		10	13	50	22	-	-	-	8	17	4	4	28	5	-	-	305
02-A	91	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	91
02-B	16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16
03-A	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8
03-B	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	12
03-C	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5
04-A	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7
04-B	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3
04-C	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7
05-A	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	11
05-B	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	12
05-C	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	11
06-A	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3
06-B	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8
06-C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
07-A	11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11
07-B	-	44	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	44
08-A	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7
08-B	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5
09	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
13-A	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12
13-B	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3
14	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
15	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	22
16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	24	-	-	-	-	-	-	-	-	-	-	-	-	-	24
18	-	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	15
Total	242	109	15	11	13	8	11	4	10	4	4	2	4	5	-	10	37	50	22	-	-	-	8	17	4	4	31	5	-	14	644

Appendix Table VIII-2-(3) OD Table of 1992 Traffic (medium & heavy trucks, morning-peak hour)

	01	02-A	02-B	03-A	03-B	03-C	04-A	04-B	04-C	05-A	05-B	05-C	06-A	06-B	06-C	07-A	07-B	08-A	08-B	09	10	11	12	13-A	13-B	14	15	16	17	18	Total
01	-	24	-	-	3	-	2	-	-	3	3	2	3	9	-	15	45	-	3	2	-	5	-	9	-	3	7	4	-	-	142
02-A	72	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	27	99
02-B	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	17
03-A	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3
03-B	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	7
03-C	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3
04-A	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	9
04-B	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		3
04-C	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		5
05-A	14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	15
05-B	13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13
05-C	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9
06-A	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5
06-B	13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13
06-C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
07-A	13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13
07-B	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	4	34
08-A	15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	19
08-B	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	10
09	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6
12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13-A	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9
13-B	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3
14	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6
15	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6
16	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7
17	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	17
18	-	13	-	-	-	-	-	-	-	1	-	-	-	2	-	-	2	-	-	-	-	-	32	-	1	-		-	-	-	51
Total	264	37	-	-	3	-	2	-	-	4	3	2	3	11	-	15	47	13	3	-	2	8	37	-	10	-	3	7	4	46	524

Appendix Table VIII·2·(4) OD Table of 1992 Traffic (cars, evening-peak hour)

	01	02-A	02-B	03-A	03-B	03-C	04-A	04-B	04-C	05-A	05-B	05-C	06-A	06-B	06-C	07-A	07-B	08-A	08-B	09	10	11	12	13-A	13-B	14	15	16	17	18	Total
01	1	90	160	198	120	75	124	92	173	265	275	396	146	404	75	69	405	180	96	-	13	94	-	832	133	-	112	43	10	-	4581
02-A	385	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	50	435
02-B	72	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	84
03-A	58	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	58
03-B	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	75
03-C	35	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	35
04-A	70	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	70
04-B	24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	24
04-C	52	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	52
05-A	84	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13	97
05-B	71	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	21	92
05-C	61	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	73
06-A	14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9	23
06-B	51	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	22	73
06-C	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	10
07-A	128	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	41	169
07-B	77	-	-	63	56	41	85	61	66	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18	467
08-A	73	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	70	5	148
08-B	18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	54	4	76
09	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10
10	11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9	20
11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13-A	195	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	75	270
13-B	27	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	39
14	15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11	26
15	45	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	46	91
16	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	22	32
17	44	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		44
18		-	-	11	8	6	6	3	6	3	3	7	11	26	4	6	33	25	8	-	-	10	-	-	-	-	-	-	-	-	176
Total	1710	90	160	272	184	122	215	156	245	268	278	403	157	430	79	75	438	205	104		13	104		832	133		112	43	134	388	7350

Appendix Table VIII·2·(5) OD Table of 1992 Traffic (vans, evening-peak hour)

	01	02-A	02-B	03-A	03-B	03-C	04-A	04-B	040C	05-A	05-B	05-C	06-A	06-B	06-C	07-A	07-B	08-A	08-B	09	10	11	12	13-A	13-B	14	15	16	17	18	Total
01		104	22	7	11	5	14	7	7	7	7	7	3	12	—	9	11	7	5	—	-	11	—	30	3	7	12	5	—	—	313
02-A	46	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	46
02-B	9	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9
03-A	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-B	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3
03-C	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2
04-A	7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7
04-B	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3
04-C	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3
05-A	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3
05-B	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3
05-C	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3
06-A	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3
06-B	9	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9
06-C		—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
07-A	10	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	10
07-B	25	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	25
08-A	12	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	12
08-B	9	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9
09	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3
11	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
13-A	33	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	33
13-B	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3
14	9	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9
15	21	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	21
16	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
17	7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7
18	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	226	104	22	7	11	5	14	7	7	7	7	7	3	12	—	9	11	7	5	—	-	11	—	30	3	7	12	5	—	—	539

Appendix Table VIII·2·(6) OD Table of 1992 Traffic (medium & heavy trucks, evening-peak hour)

	01	02-A	02-B	03-A	03-B	03-C	04-A	04-B	04-C	05-A	05-B	05-C	06-A	06-B	06-C	07-A	07-B	08-A	08-B	09	10	11	12	13-A	13-B	14	15	16	17	18	Total
01	-	-	-	3	3	2	9	3	7	16	5	3	7	14	-	17	27	11	3	-	-	-	-	14	3	7	14	7	-	-	175
02-A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
02-B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
03-A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
03-B	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	4
03-C	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	4
04-A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
04-B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
04-C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
05-A	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4
05-B	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4
05-C	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
06-A	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4
06-B	11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11
06-C	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5
07-A	14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15	29
07-B	17	24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	33	74
08-A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
09-B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
08-C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4
11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13-A	17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	17
13-B	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4
14	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	9
15	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5
16	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5
17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	12
18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	101	24	-	3	3	2	9	3	7	16	5	3	7	14	-	17	39	11	3	-	-	-	-	14	3	7	14	7	-	60	372

Appendix Table VIII.2.(7) OD Table of 1992 Traffic (cars, off-peak hours)

	01	02-A	02-B	03-A	03-B	03-C	04-A	04-B	04-C	05-A	05-B	05-C	06-A	06-B	06-C	07-A	07-B	08-A	08-B	09	10	11	12	13-A	13-B	14	15	16	17	18	Total
01	15	337	571	545	380	232	667	458	762	608	644	897	293	865	179	305	1669	847	501	27	108	34	24	304	3176	249	370	130	76	2	15275
02-A	436	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	198	-	-	-	-	-	-	-	-	-	-	-	-	59	693
02-B	702	-	-	-	-	-	-	-	-	-	-	-	-	-	-	131	284	-	-	-	-	-	-	-	-	-	-	-	-	94	1211
03-A	783	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	116	-	-	-	-	-	-	-	-	-	-	-	21	75	995
03-B	496	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	107	-	-	-	-	-	-	-	-	-	-	-	19	48	670
03-C	333	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	42	-	-	-	-	-	-	-	-	-	-	-	15	32	422
04-A	619	-	-	-	-	-	-	-	-	-	-	-	-	-	-	61	89	-	-	-	-	-	-	-	-	-	-	-	32	66	867
04-B	486	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	68	-	-	-	-	-	-	-	-	-	-	-	24	50	628
04-C	749	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	123	-	-	-	-	-	-	-	-	-	-	-	44	79	995
05-A	756	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	120	876
05-B	797	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	127	924
05-C	1142	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	180	1322
06-A	454	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	55	509
06-B	1249	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	155	1404
06-C	228	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	28	256
07-A	236	68	68	124	84	60	-	-	-	-	-	-	-	-	-	-	-	-	41	-	-	-	-	-	-	-	-	-	15	17	713
07-B	1676	256	513	155	79	56	43	57	56	45	47	91	71	89	-	-	-	469	194	-	-	60	-	-	-	-	-	-	128	112	4197
08-A	687	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	452	-	-	-	-	-	-	182	-	-	199	-	80	67	1667
08-B	381	-	-	-	-	-	-	-	-	-	-	-	-	-	-	49	212	-	-	-	-	-	-	142	-	-	62	-	25	38	909
09	107	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	38	145
10	260	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15	275
11	60	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	125	-	23	208
12	16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	103	119
13-A	2143	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	381	2524
13-B	114	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	216	71	-	-	-	-	-	-	-	-	-	-	20	421
14	325	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14	339
15	641	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	83	724
16	231	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	50	281
17	44	23	46	14	14	10	15	20	20	16	17	33	-	32	-	-	-	-	28	-	-	-	-	-	-	-	-	-	-	-	332
18	5	71	120	73	52	31	102	72	117	79	82	115	20	53	8	54	283	146	83	23	24	-	42	182	52	-	63	-	-	-	1952
Total	16171	755	1318	911	609	389	827	607	955	748	790	1136	384	1039	187	600	3643	1678	918	50	132	94	66	810	3228	249	694	255	479	2131	41853

Appendix Table VIII·2·(8) OD Table of 1992 Traffic (vans, off-peak hours)

	01	02-A	02-B	03-A	03-B	03-C	04-A	04-B	04-C	05-A	05-B	05-C	06-A	06-B	06-C	07-A	07-B	08-A	08-B	09	10	11	12	13-A	13-B	14	15	16	17	18	Total
01	1	449	98	53	54	28	113	40	80	68	59	48	45	138	6	95	232	87	40		15	12	12	127	46	76	164	52	8	-	2246
02-A	531	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	91	622
02-B	91	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	21	112
03-A	42	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8	50
03-B	55	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11	66
03-C	29	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7	36
04-A	78	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	30	12	120
04-B	36	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	40
04-C	37	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	46	7	90
05-A	68	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	80
05-B	58	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8	66
05-C	52	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9	61
06-A	52	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	57
06-B	154	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11	165
06-C	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	6
07-A	6	182	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	189
07-B	24	273	59	-	23	13	-	-	-	-	-	-	-	-	-	-	-	38	17	-	18	-	-	-	-	-	-	-	22	2	489
08-A	52	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	140	-	-	-	-	-	12	204
08-B	14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	75	-	-	-	-	-	3	92
09	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12
10	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20
11	32	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11	43
12	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10
13-A	284	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	48	332
13-B	37	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	42
14	34	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8	42
15	151	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	151
16	28	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	28
17	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	47	20	-	-	38	-	-	-	-	-	-	-	-	109
18	-	52	15	12	12	5	6	4	5	5	4	6	5	11	-	26	53	-	-	-	2	4	15	-	-	8	-	-	-	-	250
Total	1998	956	172	65	89	46	119	44	85	73	63	54	50	149	6	121	285	172	77		35	54	27	342	46	84	164	52	106	296	5830

Appendix Table VIII-2-(9) OD Table of 1992 Traffic (medium & heavy trucks, off-peak hours)

	01	02-A	02-B	03-A	03-B	03-C	04-A	04-B	04-C	05-A	05-B	05-C	06-A	06-B	06-C	07-A	07-B	08-A	08-B	09	10	11	12	13-A	13-B	14	15	16	17	18	Total
01	1	285	64	35	46	22	57	16	41	62	53	45	40	127	8	83	53	87	47	6	10		18	143	21	76	156	40			1642
02-A	276	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	162	-	-	-	-	-	-	-	-	-	-	-	123	561	
02-B	70	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	28	98	
03-A	33	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	38	
03-B	38	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7	9	54	
03-C	21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	26	
04-A	53	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	21	-	-	-	-	-	-	-	-	-	-	-	3	77	
04-B	28	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	31	
04-C	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	54	
05-A	66	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	31	-	-	-	-	-	-	-	-	-	-	-	16	82	
05-B	57	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13	70	
05-C	49	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13	62	
06-A	65	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15	80	
06-B	196	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	43	239	
06-C	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	
07-A	73	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	24	14	111
07-B	22	131	-	-	-	-	26	15	20	-	-	-	-	-	-	-	-	67	17	-	26	-	-	-	-	-	-	-	4	3	331
08-A	135	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	17	10	162
08-B	65	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7	72
09	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	19	-	-	-	21
10	24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	25
11	42	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	42
12	11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	21
13-A	137	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	141
13-B	18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18
14	38	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	38
15	117	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	121
16	39	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	39
17	1	61	14	-	-	-	4	-	5	-	-	-	-	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-	89
18	-	87	16	9	12	5	3	2	3	13	12	11	10	27	-	20	10	22	11	-	5	-	-	29	4	11	4	10	-	-	336
Total	1711	564	94	44	58	27	90	33	69	75	65	56	50	154	8	103	281	176	75	6	41		18	172	25	87	179	50	52	330	4693

Appendix Table VIII·2·(10) OD Table of 1992 Traffic (all types of vehicles, evening-peak hour)

	01	02-A	02-B	03-A	03-B	03-C	04-A	04-B	04-C	05-A	05-B	05-C	06-A	06-B	06-C	07-A	07-B	08-A	08-B	09	10	11	12	13-A	13-B	14	15	16	17	18	Total
01	0	381	67	36	51	27	19	21	41	22	19	15	23	59	6	109	183	52	50	2	6	5	25	131	16	19	40	21	-	-	1446
02-A	263	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	27	290
02-B	69	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	166	-	-	-	-	-	-	-	-	-	-	-	-	5	240
03-A	384	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	409
03-B	263	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	24	287
03-C	166	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11	177
04-A	230	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	234
04-B	308	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8	316
04-C	258	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	262
05-A	261	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	23	284
05-B	272	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	24	296
05-C	382	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	30	412
06-A	136	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11	147
06-B	367	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	26	393
06-C	65	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	69
07-A	149	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	161
07-B	673	44	-	-	-	-	59	-	-	-	-	-	-	-	-	-	-	84	-	-	8	-	-	-	-	-	-	-	-	-	60	928
08-A	253	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	257
08-B	137	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	139
09	17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	17
10	30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	30
11	49	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	49
12	79	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	79
13-A	798	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	798
13-B	128	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	128
14	117	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	48	165
15	204	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	204
16	93	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	93
17	5	63	21	-	-	-	-	-	-	-	-	-	-	-	-	26	35	13	-	-	-	-	-	-	-	-	-	-	-	-	163
18	0	100	10	4	4	3	1	5	5	14	8	9	-	2	-	25	36	-	-	-	-	32	-	27	5	-	12	-	-	-	302
Total	6156	588	98	40	55	30	79	26	46	36	27	24	23	61	6	160	420	149	50	2	14	37	25	158	21	19	52	21	-	352	8775

Appendix Table VIII-2-(11) OD Table of 1992 Traffic (all types of vehicles, evening-peak hour)

	01	02-A	02-B	03-A	03-B	03-C	04-A	04-B	04-C	05-A	05-B	05-C	06-A	06-B	06-C	07-A	07-B	08-A	08-B	09	10	11	12	13-A	13-B	14	15	16	17	18	Total
01	1	194	188	208	134	84	147	102	187	288	287	406	156	430	75	95	443	198	104	-	13	105	-	876	139	14	138	55	10	-	5069
02-A	431	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	50	481
02-B	81	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	93
03-A	58	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	58
03-B	79	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	82
03-C	38	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	41
04-A	77	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	77
04-B	27	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	27
04-C	55	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	55
05-A	91	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13	104
05-B	78	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	21	99
05-C	66	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	78
06-A	21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9	30
06-B	71	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	22	93
06-C	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	15
07-A	152	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	56	208
07-B	119	24	-	63	56	41	85	61	66	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	51	566
08-A	85	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	70	5	160
08-B	27	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	54	4	85
09	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10
10	18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9	27
11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13-A	245	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	75	320
13-B	34	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	46
14	27	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11	44
15	71	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	46	117
16	15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	22	37
17	51	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-	-	-	-	-	-	-	-	-	-	-	-	63
18	-	-	-	11	8	6	6	3	6	3	3	7	11	26	4	6	33	25	8	-	-	10	-	-	-	-	-	-	-	-	176
Total	2037	218	188	282	198	129	238	166	259	291	290	413	167	456	79	101	488	223	112	-	13	115	-	876	139	14	138	55	134	448	8261

Appendix Table VIII·2·(12) OD Table of 1992 Traffic (all types of vhicles, off-peak hours)

	01	02-A	02-B	03-A	03-B	03-C	04-A	04-B	04-C	05-A	05-B	05-C	06-A	06-B	06-C	07-A	07-B	08-A	08-B	09	10	11	12	13-A	13-B	14	15	16	17	18	Total
01	17	1071	733	633	480	282	837	514	883	738	756	990	378	1130	193	483	1954	1021	588	33	133	46	54	574	3243	401	690	222	84	2	19163
02-A	1243	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	360	-	-	-	-	-	-	-	-	-	-	-	-	273	1876
02-B	863	-	-	-	-	-	-	-	-	-	-	-	-	-	-	131	284	-	-	-	-	-	-	-	-	-	-	-	-	143	1421
03-A	858	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	116	-	-	-	-	-	-	-	-	-	-	-	21	88	1083
03-B	589	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	107	-	-	-	-	-	-	-	-	-	-	-	26	68	790
03-C	383	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	42	-	-	-	-	-	-	-	-	-	-	-	15	44	484
04-A	750	-	-	-	-	-	-	-	-	-	-	-	-	-	-	61	110	-	-	-	-	-	-	-	-	-	-	-	62	81	1064
04-B	550	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	68	-	-	-	-	-	-	-	-	-	-	-	24	57	699
04-C	808	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	154	-	-	-	-	-	-	-	-	-	-	-	90	87	1139
05-A	890	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	148	1038
05-B	912	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	148	1060
05-C	1243	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	202	1445
06-A	571	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	75	646
06-B	1599	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	209	1808
06-C	246	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	28	274
07-A	315	250	68	124	84	60	-	-	-	-	-	-	-	-	-	-	-	-	41	-	-	-	-	-	-	-	-	-	39	32	1013
07-B	1722	660	572	155	102	69	69	72	76	45	47	91	71	89	-	-	-	574	228	-	44	60	-	-	-	-	-	-	154	117	5017
08-A	874	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	452	-	-	-	-	-	-	322	-	-	199	-	97	89	2033
08-B	460	-	-	-	-	-	-	-	-	-	-	-	-	-	-	49	212	-	-	-	-	-	-	217	-	-	62	-	25	48	1073
09	121	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	19	-	-	38	178
10	304	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16	320
11	134	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	125	-	34	293
12	37	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	113	150
13-A	2564	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	433	2997
13-B	169	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	216	71	-	-	-	-	-	-	-	-	-	-	25	481
14	397	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	22	419
15	909	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	87	996
16	298	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	50	348
17	49	84	60	14	14	10	19	20	25	16	17	33	-	32	-	-	4	47	48	-	-	38	-	-	-	-	-	-	-	-	530
18	5	210	151	94	76	41	111	78	125	97	98	132	35	91	8	100	346	168	94	23	31	4	57	211	56	19	67	10	-	-	2538
Total	19880	2275	1584	1020	756	462	1036	684	1109	896	918	1246	484	1342	201	824	4209	2026	1070	56	208	148	111	1324	3299	420	1037	357	637	2757	52376

Appendix Table VIII·2·(13) OD Table of 1992 Traffic (all types of vehicles, 12 hours)

	01	02-A	02-B	03-A	03-B	03-C	04-A	04-B	04-C	05-A	05-B	05-C	06-A	06-B	06-C	07-A	07-B	08-A	08-B	09	10	11	12	13-A	13-B	14	15	16	17	18	Total
01	18	1646	982	877	665	391	1003	637	1111	1048	1062	1411	557	1619	274	687	2580	1271	742	35	152	156	79	1581	3398	434	868	298	94	2	25678
02-A	1937	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	360	-	-	-	-	-	-	-	-	-	-	-	-	350	2647
02-B	1013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	131	450	-	-	-	-	-	-	-	-	-	-	-	-	160	1754
03-A	1300	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	116	-	-	-	-	-	-	-	-	-	-	-	21	113	1550
03-B	931	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	107	-	-	-	-	-	-	-	-	-	-	-	26	95	1159
03-C	587	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	42	-	-	-	-	-	-	-	-	-	-	-	15	58	702
04-A	1057	-	-	-	-	-	-	-	-	-	-	-	-	-	-	61	110	-	-	-	-	-	-	-	-	-	-	-	62	85	1375
04-B	885	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	68	-	-	-	-	-	-	-	-	-	-	-	24	65	1042
04-C	1121	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	154	-	-	-	-	-	-	-	-	-	-	-	90	91	1456
05-A	1242	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	184	1426
05-B	1262	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	193	1455
05-C	1691	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	244	1935
06-A	728	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	95	823
06-B	2037	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	257	2294
06-C	320	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	38	358
07-A	616	250	68	124	84	60	-	-	-	-	-	-	-	-	-	-	-	-	41	-	-	-	-	-	-	-	-	-	39	100	1382
07-B	2514	728	572	218	158	110	213	133	142	45	47	91	71	89	-	-	-	658	228	-	52	60	-	-	-	-	-	-	132	228	6511
08-A	1212	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	452	-	-	-	-	-	-	322	-	-	199	-	189	98	2450
08-B	624	-	-	-	-	-	-	-	-	-	-	-	-	-	-	49	212	-	-	-	-	-	-	217	-	-	62	-	79	54	1297
09	148	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	19	-	-	38	205
10	352	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	377
11	183	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	125	-	34	342
12	116	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	113	229
13-A	3607	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	508	4115
13-B	331	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	216	71	-	-	-	-	-	-	-	-	-	-	37	655
14	541	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	87	628
15	1184	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	133	1317
16	406	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	72	478
17	105	147	81	14	14	10	19	20	25	16	17	33	-	32	-	26	51	60	48	-	-	38	-	-	-	-	-	-	-	-	756
18	5	310	161	109	88	50	118	86	136	114	109	148	46	119	12	131	415	193	102	23	31	46	57	238	61	19	79	10	-	-	3016
Total	28073	3081	1864	1342	1009	621	1353	876	1414	1223	1235	1683	674	1859	286	1085	5117	2398	1232	58	235	300	136	2358	3459	453	1227	433	771	3557	69412

Appendix Table·VIII 3 Prediction of Bus Traffic for Major Links (Both Directions)
(Vehicles/day)

Road Section No.	1982				1987				1992				2002			
	Morning peak	Evening peak	Off-peak	Total	Morning peak	Evening peak	Off-peak	Total	Morning peak	Evening peak	Off-peak	Total	Morning peak	Evening peak	Off-peak	Total
1 2 3	79	71	466	616	91	82	538	711	97	87	574	758	110	99	648	857
4	53	35	262	350	61	41	302	404	65	44	322	431	74	49	364	487
5	229	221	2076	2526	264	255	2396	2915	282	272	2552	3106	313	307	2884	3504
6	233	240	1929	2402	269	277	2223	2769	287	295	2371	2953	324	334	2680	3338
7	214	222	1799	2235	247	256	2073	2576	263	273	2212	2748	298	309	2500	3107
8	198	202	1592	1992	228	233	1835	2296	243	248	1957	2448	275	280	2211	2766
9	226	228	1925	2379	261	263	2218	2742	278	280	2366	2924	315	316	2674	3305
10	172	228	1925	2325	198	263	2218	2679	211	280	2366	2857	239	316	2674	3229
11	168	218	1881	2267	193	252	2168	2613	206	268	2313	2787	233	303	2613	3149
12	165	218	1881	2264	190	252	2168	2610	203	268	2313	2784	229	303	2613	3145
13	142	150	1495	1787	163	173	1680	2016	174	184	1838	2196	194	208	2073	2475
14 15	4	10	44	58	5	11	50	66	5	12	54	71	6	13	61	80
17	19	18	130	167	22	20	149	191	23	22	159	204	27	25	180	232
18	16	23	220	259	19	27	253	299	20	29	270	319	23	32	305	360
19	38	46	412	496	44	53	475	572	47	57	506	610	53	64	572	689

Appendix Table VIII·4(1) Movement of Sugar

OD	Sugar (tons) 1976	1982	1987	1992	2002	Factory
01-06A	26,200	29,700	32,000	33,600	35,300	Highlands
06B	24,500	27,700	29,800	31,300	32,900	Reunion
07	39,200	44,400	47,800	50,200	52,800	Mon Desert Alma
10	52,100	59,000	63,600	66,800	70,200	Medine
14	94,900	107,400	115,700	121,500	127,800	Britannia, St Felix BFL Ombre, Union Saint Aubin
15	124,400	140,800	151,700	159,400	167,600	Riche en Eau, Rose Belle, Savannah Mon Tresor Mon Desert
TOTAL	361,300	409,000	440,600	462,800	486,600	12 Factories

Appendix Table VIII·4(2) Movement of Molasses

OD	Molasses (tons) 1976	1982	1987	1992	2002	Factory
01-06A	6,900	7,800	8,400	8,900	9,300	Highlands
06B	6,500	7,300	7,900	8,300	8,700	Reunion
07	10,300	11,700	12,600	13,300	13,900	Mon Desert Alma
10	13,800	15,600	16,800	17,600	18,500	Medine
14	25,100	28,400	30,500	32,100	33,700	Britannia, St Felix BFL Ombre, Union Saint Aubin
15	32,800	37,200	40,000	42,100	44,300	Riche en Eau, Rose Belle, Savannah Mon Tresor Mon Desert
TOTAL	95,400	108,000	116,200	122,300	128,400	

Appendix Table VIII·4(3) Distribution of Sugar Traffic (Vehicles)

OD	1976			1982			1987			1992			2002		
	7.5 ton	12 ton	Total	7.5 ton	12 ton	Total	7.5 ton	12 ton	Total	7.5 ton	12 ton	Total	7.5 ton	12 ton	Tota
01-06A	5	12	17	6	14	20	6	15	21	7	15	22	7	16	23
06B	5	11	16	5	13	18	6	14	20	6	14	20	6	15	21
07	8	18	26	9	20	29	9	22	31	10	23	33	10	24	34
10	10	24	34	11	27	38	12	29	41	13	31	44	14	32	46
14	18	43	61	21	49	70	22	53	75	23	55	78	25	58	83
15	24	57	81	27	64	91	29	69	98	31	73	104	32	77	109
TOTAL	70	165	235	79	187	266	84	202	286	90	211	301	94	222	316

Appendix Table VIII·5 Forecast of Airport Generated Traffic

(Vehicles/day)

Zone		Passenger Cars				Trucks			
		1982 1]	1987 2]	1992 2]	2002 2]	1982 1]	1987 2]	1992 2]	2002 2]
01		242.3	412.0	585.6	973.6	7.6	13.2	37.6	127.2
02	A	2.6	12.6	17.8	30.6	0.3	0.5	3.1	5.2
	B	4.5	8.3	14.7	34.3	0.4	0.1	0.6	0.7
	Total	7.1	20.9	32.5	64.9	0.7	0.6	3.7	5.9
03	A	23.7	32.5	46.4	74.4	-	0.5	1.5	5.8
	B	16.2	21.9	31.2	50.3	-	0.7	1.9	7.3
	C	13.9	15.3	19.8	27.2	-	0.4	1.0	2.9
	Total	53.8	69.7	97.4	151.9	-	1.6	4.4	16.0
04	A	35.5	30.1	41.6	63.7	0.3	1.1	2.4	5.8
	B	18.4	20.4	30.5	53.3	0.1	0.3	0.9	3.4
	C	31.1	33.2	48.2	81.0	0.3	0.6	1.7	7.0
	Total	85.0	83.7	120.3	198.0	0.7	2.0	5.0	16.2
05	A	29.4	45.0	60.7	93.8	-	1.0	2.5	7.6
	B	29.9	37.9	52.6	80.5	-	0.8	2.2	8.5
	C	21.5	45.0	75.5	151.9	-	0.7	1.9	6.2
	Total	80.8	127.9	188.8	326.2	-	2.5	6.6	22.3
06	A	15.8	28.8	46.4	91.9	0.1	0.8	2.2	9.2
	B	74.6	91.9	127.5	194.8	0.5	2.8	6.9	21.4
	C	11.6	16.2	23.4	38.9	0.1	0.1	0.4	1.7
	Total	102.0	136.9	197.3	325.6	0.7	3.7	9.5	32.3
07	A	4.5	3.0	4.6	8.5	0.2	0.2	0.9	4.5
	B	33.8	18.9	28.2	47.8	1.2	0.9	2.3	6.7
	Total	38.3	21.9	32.8	56.3	1.4	1.1	3.2	11.2
08	A	0.3	4.3	11.0	17.6	-	0.3	1.4	3.0
	B	1.1	5.6	6.0	10.0	-	0.2	0.6	1.1
	Total	1.4	9.9	17.0	27.6	-	0.5	2.0	4.1
09		-	3.0	4.0	9.3	-	0.1	0.1	4.9
10		4.3	24.8	28.1	34.6	-	0.3	0.7	1.1
11		28.3	101.8	116.6	138.3	-	0.2	0.6	1.7
12		-	24.9	45.3	110.3	-	0.2	0.9	4.7
13	A	201.1	120.2	169.8	268.4	1.3	3.2	8.8	32.2
	B	19.9	14.8	24.8	53.3	0.1	0.4	1.2	5.4
	Total	221.0	135.0	194.6	321.7	1.4	3.6	10.0	37.6

- to be continued -

	Passenger Cars				Trucks			
	1982 1]	1987 2]	1992 2]	2002 2]	1982 1]	1987 2]	1992 2]	2002 2]
14	38.3	70.8	92.8	136.8	-	2.0	5.8	19.6
15	457.6	35.4	51.0	85.2	6.9	2.6	7.3	24.6
16	1.4	27.1	37.5	59.9	-	0.5	1.5	4.5
17	26.9	208.6	293.2	479.9	-	6.4	18.3	62.1
18	76.5	671.2	880.6	1,313.7	2.1	9.3	26.4	89.4
Total	1,465.0	2.185.5	3,015.4	4,813.8	21.5	50.4	143.6	485.4

1] Plaisance Airport

2] New Airport

Appendix Table VIII-6(1) Intra-Link Traffic, 1982 (12 hours daily average)

(Vehicles/day)

Road Section No. 1/	Car				Van, Pick-up				Truck				Motorcycle				Total			
	M. peak	E. peak	Off-peak	Total	M. peak	E. peak	Off-peak	Total	M. peak	E. peak	Off-peak	Total	M. peak	E. peak	Off-peak	Total	M. peak	E. peak	Off-peak	Total
1	3	152	496	651	21	29	112	162	21	21	82	124	67	115	764	946	112	317	1454	1883
1'	0	0	0	0	19	6	37	62	12	0	123	135	117	77	787	981	148	83	947	1178
2,3	21	190	493	704	23	29	116	168	22	21	71	114	67	115	764	946	133	355	1444	1932
2' 3'	0	0	0	0	23	6	10	39	11	0	100	111	117	77	787	981	151	83	897	1131
4	90	294	959	1343	11	19	155	185	40	71	197	308	36	99	375	510	177	483	1686	2346
4'	485	0	503	988	26	0	58	84	39	35	256	330	86	41	460	587	636	76	1277	1989
5	85	110	0	195	60	65	408	533	61	47	203	311	359	613	2607	3579	565	835	3218	4618
6	76	79	0	155	49	65	359	473	58	44	172	274	359	613	2607	3579	542	801	3138	4481
7	112	154	0	266	55	70	385	510	54	43	201	298	315	407	2249	2971	536	674	2835	4045
8,9	113	182	919	1214	37	47	362	446	10	15	410	435	240	339	2211	2790	400	583	3902	4885
10	13	85	996	1094	61	65	659	785	87	53	352	492	141	243	1393	1777	302	446	3400	4148
11,12	204	568	3073	3845	11	44	290	345	33	7	21	61	142	299	1840	2281	390	918	5224	6532
13 -1	684	887	5449	7020	78	86	712	876	84	72	725	881	135	222	1454	1811	981	1267	8340	10588
13 -2	355	506	4313	5174	50	76	684	810	65	82	614	761	135	222	1454	1811	605	886	7065	8556
14,15	232	446	2162	2840	39	21	377	437	35	43	433	511	88	126	719	933	394	636	3691	4721
18	28	0	0	28	0	3	0	3	44	25	227	296	74	27	414	515	146	55	641	842
19	407	477	2392	3276	71	58	379	508	28	11	244	283	90	101	661	852	596	647	3676	4919

1) See Appendix Fig. V.4. The Symbol "'" indicates the direction - from Port Louis.

APPENDIX Table VIII·6(2) Intra-Link Traffic, 1987 (12 hours daily average) (Vehicles/day)

Road Section No. 1/	Car				Van, Pick-up				Truck				Motorcycle				Total			
	M. peak	E. peak	Off-peak	Total	M. peak	E. peak	Off peak	Total	M. peak	E. peak	Off-peak	Total	M. peak	E. peak	Off-peak	Total	M. peak	E. peak	Off-peak	Total
1	4	219	715	938	30	42	161	233	28	28	109	165	106	184	1220	1510	168	473	2205	2846
1 '	0	0	0	0	28	9	54	91	17	0	164	181	187	124	1258	1569	232	133	1476	1841
2 , 3	30	274	711	1015	33	42	168	243	29	28	94	151	106	184	1220	1510	198	528	2193	2919
2 ' 3 '	0	0	0	0	33	9	14	56	15	0	132	147	187	124	1258	1569	235	133	1404	1772
4	129	424	1384	1937	16	28	224	268	53	94	261	408	58	158	599	815	256	704	2468	3428
4 '	700	0	726	1426	37	0	84	121	51	46	340	437	138	66	734	938	926	112	1884	2922
5	123	159	0	282	86	93	587	766	81	63	270	414	573	979	4164	5716	863	1294	5021	7178
6	110	115	0	225	70	93	517	680	77	59	228	364	573	979	4164	5716	830	1246	4909	6985
7	161	223	0	384	79	100	555	734	72	57	267	396	504	650	3592	4746	816	1030	4414	6260
8 , 9	163	263	1326	1752	54	68	522	644	143	20	544	707	383	541	3531	4455	743	892	5923	7558
10	19	123	1437	1579	89	93	948	1130	116	70	467	653	224	389	2225	2838	448	675	5077	6200
11 , 12	295	819	4433	5547	16	63	417	496	44	9	28	81	227	478	2938	3643	582	1369	7816	9767
13 -1	987	1280	7860	10127	112	123	1025	1260	112	96	964	1172	216	354	2323	2893	1427	1853	12172	15452
13 -2	511	730	6222	7463	72	110	986	1168	86	109	817	1012	216	354	2323	2893	885	1303	10348	12536
14 , 15	335	643	3119	4097	56	30	543	629	46	57	576	679	141	201	1148	1490	578	931	5386	6895
18	40	0	0	40	0	5	0	5	59	33	302	394	118	43	662	823	217	81	964	1262
19	588	688	3450	4726	103	84	545	732	37	15	324	376	144	161	1056	1361	872	948	5375	7195

1) See Appendix Fig. V.4. The Symbol "'" indicates the direction - from Port Louis.

Appendix Table VIII·6(3) Intra-Link Traffic, 1992 (12 hours daily average)

(Vehicles/day)

Road Section No. 1/	Car				Van, Pick-up				Truck				Motorcycle				Total			
	M. peak	E. peak	Off-peak	Total	M. peak	E. peak	Off-peak	Total	M. peak	E. peak	Off-peak	Total	M. peak	E. peak	Off-peak	Total	M. peak	E. peak	Off-peak	Total
1	6	308	1007	1321	42	58	224	324	37	37	144	218	114	198	1311	1623	199	601	2686	3486
1 '	0	0	0	0	39	13	75	127	22	0	217	239	201	133	1351	1685	262	146	1643	2051
2 , 3	42	385	1001	1428	45	58	233	336	39	37	125	201	114	198	1311	1623	240	678	2670	3588
2 ' 3 '	0	0	0	0	45	13	19	77	20	0	176	196	201	133	1351	1685	266	146	1546	1958
4	182	598	1948	2728	23	39	311	373	71	125	347	543	62	170	643	875	338	932	3249	4519
4 '	986	0	1022	2008	52	0	117	169	68	61	452	581	148	71	788	1007	1254	132	2379	3765
5	173	224	0	397	120	130	817	1067	107	83	359	549	615	1051	4474	6140	1015	1488	5650	8153
6	155	161	0	316	97	130	720	947	103	78	303	484	615	1051	4474	6140	970	1420	5497	7887
7	227	314	0	541	110	139	772	1021	95	76	354	525	541	699	3859	5099	973	1228	4985	7186
8 , 9	230	371	1868	2469	75	94	726	895	191	27	723	941	411	581	3794	4786	907	1073	7111	9091
10	27	173	2023	2223	123	130	1320	1573	154	93	621	868	241	417	2390	3048	545	813	6354	7712
11 , 12	415	1153	6242	7810	23	80	580	691	59	12	37	108	244	513	3157	3914	741	1766	10016	12523
13 -1	1389	1802	11068	14259	156	172	1427	1755	149	127	1280	1556	232	380	2495	3107	1926	2481	16270	20677
13 -2	720	1028	8761	10509	101	152	1372	1625	115	144	1085	1344	232	380	2495	3107	1168	1704	13713	16585
14 , 15	472	905	4392	5769	78	42	756	876	61	76	765	902	152	216	1234	1602	763	1239	7147	9149
18	57	0	0	57	0	6	0	6	78	44	401	523	127	46	711	884	262	96	1112	1470
19	828	968	4858	6654	143	117	759	1019	49	20	430	499	155	173	1135	1463	1175	1278	7182	9635

1) See Appendix Fig. V.4. The Symbol "'" indicates the direction - from Port Louis.

Appendix Table VIII·6(4) Intra-Link Traffic, 2002 (12 hours daily average)

(Vehicles/day)

Road Section No. 1/	Car				Van, Pick-up				Truck				Motorcycle				Total			
	M. peak	E. peak	Off0 peak	Total	M. peak	E. peak	Off- peak	Total	M. peak	E. peak	Off- peak	Total	M. peak	E. peak	Off- peak	Total	M. peak	E. peak	Off- peak	Total
1	11	573	1875	2459	77	106	407	590	65	65	254	384	129	223	1477	1829	282	967	4013	5262
1 '	0	0	0	0	71	24	136	231	39	0	384	423	226	150	1523	1899	336	174	2043	2553
2 , 3	78	718	1864	2660	83	106	425	614	69	65	220	354	129	223	1477	1829	359	1112	3986	5457
2 ' 3 '	0	0	0	0	83	24	35	142	35	0	311	346	226	150	1523	1899	344	174	1869	2387
4	339	1113	3627	5079	41	71	566	678	125	220	612	957	70	192	725	987	575	1596	5530	7701
4 '	1836	0	1903	3739	94	0	212	306	121	108	798	1027	167	80	888	1135	2218	188	3801	6207
5	323	417	0	740	218	236	1487	1941	190	147	634	971	693	1185	5146	7024	1424	1985	7267	10676
6	289	300	0	589	177	236	1310	1723	181	138	535	854	693	1185	5041	6919	1340	1859	6886	10085
7	423	584	0	1007	201	254	1404	1859	168	134	625	927	610	787	4384	5745	1402	1759	6377	9538
8 , 9	428	690	3477	4595	136	171	1322	1629	336	47	1277	1660	463	655	4275	5393	1363	1563	10351	13277
10	50	323	3766	4139	224	236	2401	2861	272	164	1096	1532	272	470	2693	3435	818	1193	9956	11967
11 , 12	773	2147	11621	14541	41	159	1056	1256	104	22	65	191	275	578	3557	4410	1193	2906	16299	20398
13 -1	2587	3354	20605	26546	283	313	2596	3192	263	224	2260	2747	261	429	2812	3505	3394	4320	28273	35987
13 -2	1341	1914	16311	19566	183	277	2496	2956	203	254	1915	2372	261	429	2812	3502	1988	2874	23534	28394
14 , 15	879	1686	8178	10743	142	77	1375	1594	108	134	1350	1592	171	244	1390	1805	1300	2141	12293	15734
18	106	0	0	106	0	12	0	12	138	78	707	923	143	52	801	996	387	142	1508	2037
19	1263	1802	9045	12110	260	212	1381	1853	86	35	759	880	174	195	1279	1648	1783	2244	12464	16491

1) See Appendix Fig. V.4. The Symbol "'" indicates the direction - from Port Louis.

Appendix VIII. 7 Verification of Traffic Assignment

Correctness of the assignment method has been taken up to compare the result of the present O.D. traffic volume assigned into the existing road network and the actually counted traffic volume. In this process, all necessary factors for assignment, such as P.C.U. conversion rate of heavy vehicles, road capacity, road condition and speed-congestion curve, are determined in terms of those values, though needless to mention will be used for future assignment. Simultaneously, particular attention needs to be paid so as to obtain an accurate speed -congestion curve as may bring amore realistic result of the assignment.

Appendix Table VIII. 7. (1) shows comparison of both assigned and actually counted results, which seems to be acceptable. As noted at A1, estimated volume coming from it is lower than that anticipated in the counted result, for, as far as the location of the survey site is concerned, the traffic volume within the zone has been included in the counted result inevitably to some extent.

Appendix Table VIII·7(1) Comparison of Assigned Traffic with Counted Traffic at O.D. Survey Stations

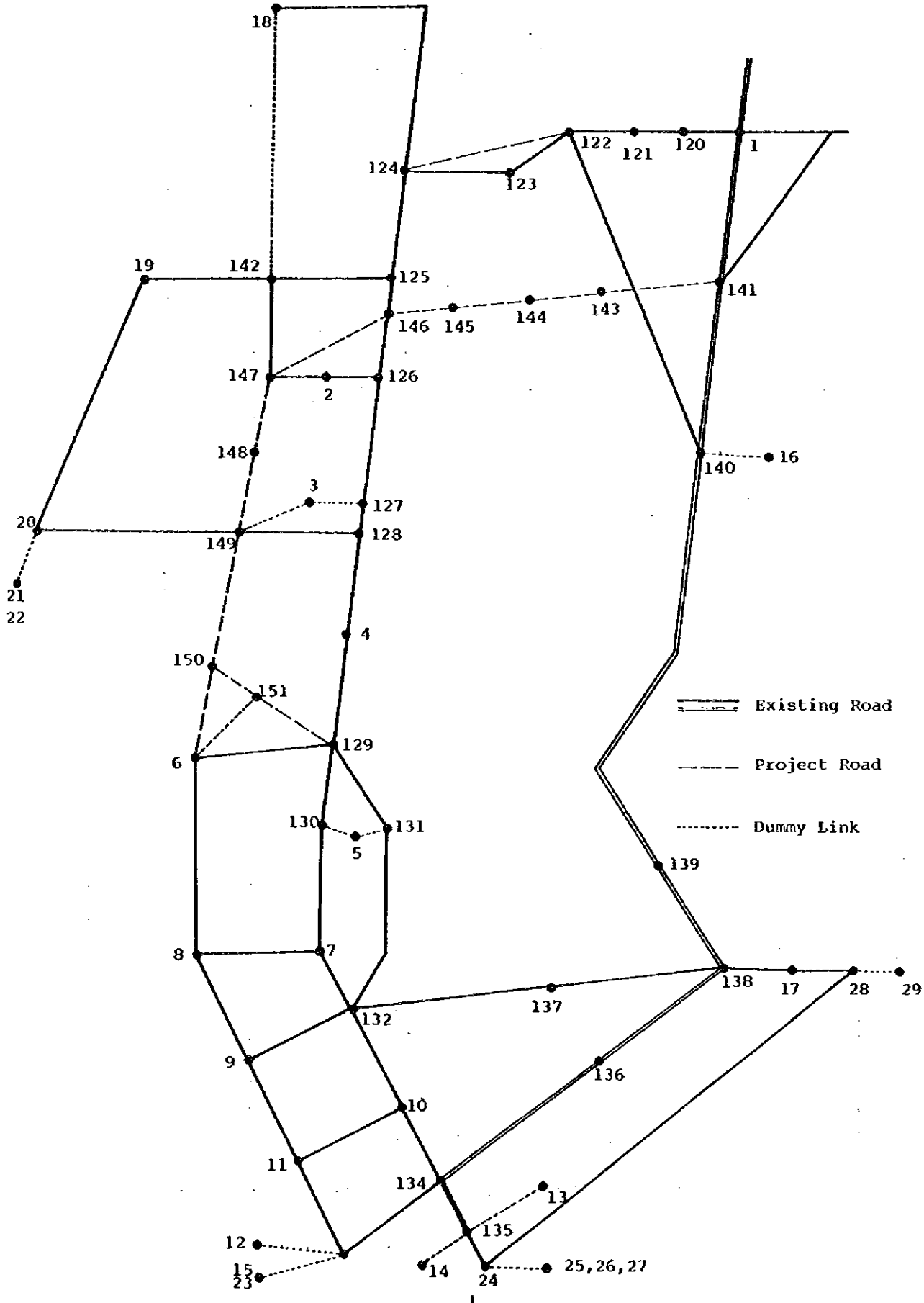
Period of Hour	Type of vehicle	G.R.N.W.Bridge (A_1)			Belle Village (M_2)		
		Assigned Traffic 1	Traffic Count 2	1 / 2	Assigned Traffic 1	Traffic Count 2	1 / 2
Morning peak	Car, Taxi, Van	954	1,027	0.93	1,696	1,729	0.98
	Truck	58	94	0.62	144	155	0.93
Evening peak	Car, Taxi, Van	874	968	0.90	1,711	1,734	0.99
	Truck	26	59	0.44	109	102	1.07
Off-peak	Car, Taxi, Van	5,735	6,717	0.85	9,187	9,655	1.05
	Truck	841	982	0.86	1,153	1.168	1.01

Appendix VIII·8 P.C.U. Conversion Rate of Heavy Vehicles

Gradient	Length of gradient (km)	Two-lane road 1]					multi-lane road 1]				
		10%	30%	50%	70%	90%	10%	30%	50%	70%	90%
Below 3%	-	2.1	2.0	1.9	1.8	1.7	1.8	1.7	1.7	1.7	1.7
4%	0.2	2.8	2.6	2.5	2.3	2.2	2.4	2.3	2.2	2.2	2.2
	0.4	2.8	2.7	2.6	2.4	2.3	2.4	2.4	2.3	2.3	2.2
	0.6	2.9	2.7	2.6	2.4	2.3	2.5	2.4	2.3	2.3	2.3
	0.8	2.9	2.7	2.6	2.5	2.4	2.5	2.4	2.4	2.3	2.3
	1.0	2.9	2.8	2.7	2.5	2.4	2.5	2.4	2.4	2.4	2.3
	1.2	3.0	2.8	2.7	2.5	2.4	2.6	2.5	2.4	2.4	2.4
	1.4	3.0	2.8	2.7	2.5	2.4	2.6	2.5	2.4	2.4	2.4
	1.6	3.0	2.9	2.8	2.6	2.5	2.6	2.5	2.5	2.4	2.4
5%	0.2	3.2	3.0	2.8	2.7	2.6	2.7	2.6	2.6	2.6	2.5
	0.4	3.3	3.1	2.9	2.8	2.7	2.9	2.7	2.7	2.7	2.6
	0.6	3.4	3.2	3.0	2.8	2.7	2.9	2.8	2.7	2.7	2.7
	0.8	3.5	3.2	3.0	2.9	2.8	3.0	2.9	2.8	2.8	2.7
	1.0	3.5	3.3	3.1	2.9	2.8	3.0	2.9	2.8	2.8	2.8
	1.2	3.6	3.4	3.1	3.0	2.9	3.1	3.0	2.9	2-9	2.8
	1.4	3.6	3.4	3.2	3.0	2.9	3.1	3.0	2.9	2.9	2.8
	1.6	3.7	3.4	3.2	3.1	2.9	3.2	3.0	3.0	2.9	2.9
6%	0.2	3.4	3.2	3.0	2.8	2.7	2.9	2.8	2.7	2.7	2.7
	0.4	3.5	3.3	3.1	3.0	2.9	3.1	2.9	2.9	2.8	2.8
	0.6	3.7	3.5	3.3	3.1	3.0	3.2	3.1	3.0	3.0	2.9
	0.8	3.8	3.6	3.4	3.2	3.1	3.3	3.2	3.1	3.0	3.0
	1.0	3.9	3.6	3.4	3.3	3.1	3.3	3.2	3.1	3.1	3.1
	1.2	4.0	3.7	3.5	3.3	3.2	3.4	3.3	3.2	3.2	3.1
	1.4	4.1	3.8	3.6	3.4	3.3	3.5	3.4	3.3	3.2	3.2
	1.6	4.1	3.9	3.7	3.5	3.3	3.6	3.4	3.3	3.3	3.3
7%	0.2	3.5	3.3	3.1	2.9	2.8	3.0	2.9	2.8	2.8	2.8
	0.4	3.7	3.5	3.3	3.1	3.0	3.2	3.1	3.0	3.0	2.9
	0.6	3.9	3.6	3.4	3.3	3.1	3.4	3.2	3.1	3.1	3.1
	0.8	4.0	3.8	3.5	3.4	3.2	3.5	3.3	3.3	3.2	3.2
	1.0	4.2	3.9	3.7	3.5	3.3	3.6	3.4	3.4	3.3	3.3
	1.2	4.3	4.0	3.8	3.6	3.5	3.7	3.5	3.5	3.4	3.4
	1.4	4.5	4.2	3.9	3.7	3.6	3.8	3.7	3.6	3.6	3.5
	1.6	4.6	4.3	4.0	3.8	3.7	3.9	3.8	3.7	3.7	3.6

1] % indicate percentage of heavy vehicles

APPENDIX Fig. VIII.9 Network for Traffic Assignment



Appendix Table VIII·10 Conditions of Road Links

Link No.	Node No. From/To	Number of lanes	Link length (km)	Gradient (%)	Lane width (m)	Lateral clearance (%)	Surrounding area	Capacity (Veh./hr.)
Existing Network Motorway								
1 1]	1 -141	2	1.3	+2	7	2.2	3	5750
1 1]	141- 1	2	1.3	-2	7	2.2	3	5750
2	141-140	2	1.2	+2	7	2.2	3	5000
2	140-141	2	1.2	-2	7	2.2	3	5000
3	140-139	2	5.1	+5	7	2.2	3	5000
3	139-140	2	5.1	-5	7	2.2	3	5000
3	139-138	2	1.0	+2	7	2.2	3	5000
3	138-139	2	1.0	-2	7	2.2	3	5000
4	138-136	2	0.9	-3	7	2.2	3	5000
4	136-138	2	0.9	+3	7	2.2	3	5000
4	136-134	2	2.2	+1	7	2.2	3	5000
4	134-136	2	2.2	-1	7	2.2	3	5000
5	134-135	2	2.0	+2	7	2.2	3	5000
5	135-134	2	2.0	-2	7	2.2	3	5000
A1 Road								
6	1 -120	2	0.7	0	7	3.3	1	2000
6	120-121	2	0.3	-5	7	2.2	1	2000
6	121-122	2	0.2	0	7	2.2	1	2000
7	122-123	2	0.2	+2	7	2.2	1	2000
7	123-124	2	0.2	0	5.7	0	3	1440
8	124-125	2	0.7	+4	7	1.7	1	2000
9	125-126	2	1.1	+5	7	3.3	1	2000
10	126-127	2	1.9	+5	7	2.3	1	2000
10	127-128	2	0.5	+2	7	1.8	1	2000
11	128- 4	2	0.7	+2	7	1.8	1	2000
11	4 -129	2	0.7	+2	7	1.8	1	2000
12	129-130	2	0.3	+3	7	3.2	1	2000
13	130- 7	2	1.1	+3	7	3.2	1	2000
13	7- 132	2	0.7	+3	7	3.2	1	2000
14	132- 10	2	1.1	+2	7	1.8	1	2000
14	10 -134	2	0.7	+2	7	1.8	2	2250

1] Link No.1 Includes the 750 vehicles/hr of capacity of Link No. 16.

- to be continued -

Link No.	Node No. From/To	Number of lanes	Link length (km)	Gradient (%)	Lane width (m)	Lateral clearance (%)	Surrounding area	Capacity (Veh./hr.)
Other Major Roads								
15	129-131	2	0.3	+3	7	1.6	1	1920
16	131-132	2	1.8	+3	7	1.6	1	1920
18	18-124	2	1.7	0	5	0.5	2	1160
19	125-142	2	0.7	0	7	1.4	2	2070
19	142- 19	2	1.8	0	7	1.4	2	2070
19	19- 20	2	2.0	0	7	1.2	3	2300
20	132-137	2	2.0	0	7	0.5	3	1900
20	137-138	2	1.3	+3	7	0.5	3	1900
	134-133	2	1.4	0	7	2.7	1	2000
	135- 24	2	5.0	0	7	1.8	1	2000
	138- 17	2	1.3	0	7	1.8	2	2250
	17- 28	2	9.2	0	7	1.8	2	2250
	28-24	2	11.0	0	7	0.5	3	1900
Branch Roads								
21	122-140	2	2.5	+2	5	0	2	1090
	2-126	2	0.3	0	5	0.5	2	1160
	2-142	2	1.3	-4	5	0.5	2	1160
	20-128	2	3.8	0	4.5	1.0	3	1310
24	6-129	2	0.7	0	5	0.5	1	1040
	6- 8	2	1.5	+3	5	0.5	1	1040
	7- 8	2	0.8	0	5	0.5	1	1040
	8- 9	2	1.1	+2	5	0.5	1	1040
	9-132	2	1.0	0	5	0.5	1	1040
	9- 11	2	1.4	+2	5	0.5	1	1040
	10- 11	2	1.4	0	5	0.5	1	1040
	11-133	2	0.5	+2	5	0.5	1	1040

- to be continued -

Link No.	Node No. From/To	Number of lanes	Link length (km)	Gradient (%)	Lane width (m)	Lateral clearance (%)	Surrounding area	Capacity (Veh./hr.)
Alternative Network P_2								
	141-143	2	0.5	-1	7	2.2	3	2500
	143-144	2	0.2	0	7	2.2	3	2500
	144-145	2	0.2	0	7	0.9	3	2250
	145-146	2	0.2	0	7	2.2	3	2500
	146-147	2	1.2	+3	7	2.2	3	2500
	147-148	2	1.0	+1.5	7	2.2	3	2500
	148-149	3	1.0	+5	7	2.2	3	2500
	149-150	2	1.3	+2	7	2.2	3	2500
	150-151	2	1.2	+3.5	7	2.1	2	2000
	151-129	2	0.7	+3.5	7	2.1	2	2000
9	125-146	2	0.1	+5	7	3.3	1	2000
9	146-126	2	1.0	+5	7	3.3	1	2000
	142-147	2	0.9	+5	5	0.5	2	1160
	147- 2	2	0.4	0	5	0.5	2	1160
	20-149	2	1.5	0	5	0.5	3	1310
	149-128	2	2.3	0	5	0.5	3	1310
Alternative Network P_2'								
	141-143	2	0.5	-1	7	2.2	3	2500
	143-144	2	0.2	0	7	2.2	3	2500
	144-145	2	0.2	0	7	0.9	3	2250
	145-146	2	0.2	0	7	2.2	3	2500
	146-147	2	1.2	+3	7	2.2	3	2500
	147-148	2	1.0	+2.4	7	2.2	3	2500
	148-149	3	1.6	+4.6	7	2.2	3	2500
	149-150	2	0.8	0	7	2.2	3	2500
	150-151	2	1.1	+3.5	7	2.1	2	2000
	151-129	2	0.7	+3.5	7	2.1	2	2000
9	125-146	2	0.1	+5	7	3.3	1	2000
9	146-126	2	1.0	+5	7	3.3	1	2000
	142-147	2	0.9	+5	5	0.5	2	1160
	147- 2	2	0.4	0	5	0.5	2	1160
	20-149	2	2.6	0	5	0.5	3	1310
	149-128	2	1.2	0	5	0.5	3	1310

- to be continued -

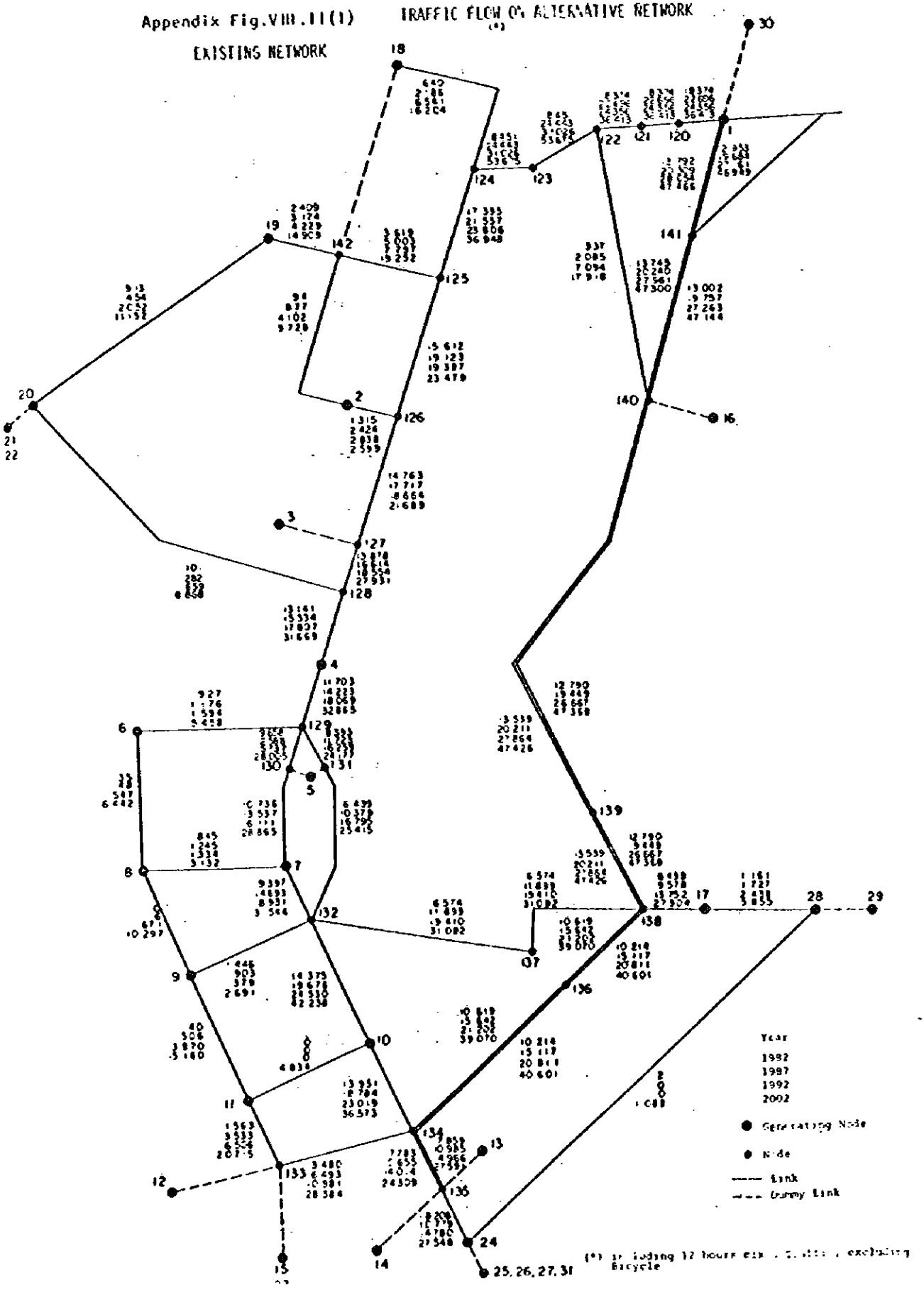
Link No.	Node No. From/To	Number of lanes	Link length (km)	Gradient (%)	Lane width (m)	Lateral clearance (%)	Surrounding area	Capacity (Veh./hr.)
Alternative Network P_4								
	141-143	2	0.5	-1	7	2.2	3	5000
	143-141	2	0.5	+1	7	2.2	3	5000
	143-144	2	0.2	0	7	2.2	3	5000
	144-143	2	0.2	0	7	2.2	3	5000
	144-145	2	0.2	0	7	0.9	3	4500
	145-144	2	0.2	0	7	0.9	3	4500
	145-146	2	0.2	0	7	2.2	3	5000
	146-145	2	0.2	0	7	2.2	3	5000
	146-147	2	1.2	+3	7	2.2	3	5000
	147-146	2	1.2	-3	7	2.2	3	5000
	147-148	2	1.0	+1.5	7	2.2	3	5000
	148-147	2	1.0	-1.5	7	2.2	3	5000
	148-149	3	1.0	+5	7	2.2	3	5000
	149-148	2	1.0	-5	7	2.2	3	5000
	149-150	2	1.3	+2	7	2.2	3	5000
	150-149	2	1.3	-2	7	2.2	3	5000
	150-151	2	1.2	+3.5	7	2.1	2	2000
	151-129	2	0.7	+3.5	7	2.1	2	2000
	151- 6	3	1.5	+3.5	7	2.2	3	2500
9	125-146	2	0.1	+5	7	3.3	1	2000
9	146-126	2	1.0	+5	7	3.3	1	2000
	142-147	2	0.9	+5	5	0.5	2	1160
	147- 2	2	0.4	0	5	0.5	2	1160
	20-149	2	1.5	0	5	0.5	3	1310
	149-128	2	2.3	0	5	0.5	3	1310
Alternative Network P_4'								
	141-143	2	0.5	-1	7	2.2	3	5000
	143-141	2	0.5	+1	7	2.2	3	5000
	143-144	2	0.2	0	7	2.2	3	5000
	144-143	2	0.2	0	7	2.2	3	5000
	144-145	2	0.2	0	7	0.9	3	4500
	145-144	2	0.2	0	7	0.9	3	4500
	145-146	2	0.2	0	7	2.2	3	5000
	146-145	2	0.2	0	7	2.2	3	5000

- to be continued -

Link No.	Node No. From/To	Number of lanes	Link length (km)	Gradient (%)	Lane width (m)	Lateral clearance (%)	Surrounding area	Capacity (Veh./hr.)
	146-147	2	1.2	+3	7	2.2	3	5000
	147-146	2	1.2	-3	7	2.2	3	5000
	147-148	2	1.0	+2.4	7	2.2	3	5000
	148-147	2	1.0	-2.4	7	2.2	3	5000
	148-149	3	1.6	+4.6	7	2.2	3	5000
	149-148	2	1.6	-4.6	7	2.2	3	5000
	149-150	2	0.8	0	7	2.2	3	5000
	150-149	2	0.8	0	7	2.2	3	5000
	150-151	2	1.1	+3.5	7	2.1	2	2000
	151-129	2	0.7	+3.5	7	2.1	2	2000
	150- 6	3	1.5	+3.5	7	2.2	3	2500
9	125-146	2	0.1	+5	7	3.3	1	2000
9	146-126	2	1.0	+5	7	3.3	1	2000
	142-147	2	0.9	+5	5	0.5	2	1160
	147- 2	2	0.4	0	5	0.5	2	1160
	20-149	2	2.6	0	5	0.5	3	1310
	149-128	2	1.2	0	5	0.5	3	1310

Appendix Fig.VIII.11(1) TRAFFIC FLOW ON ALTERNATIVE NETWORK (*)

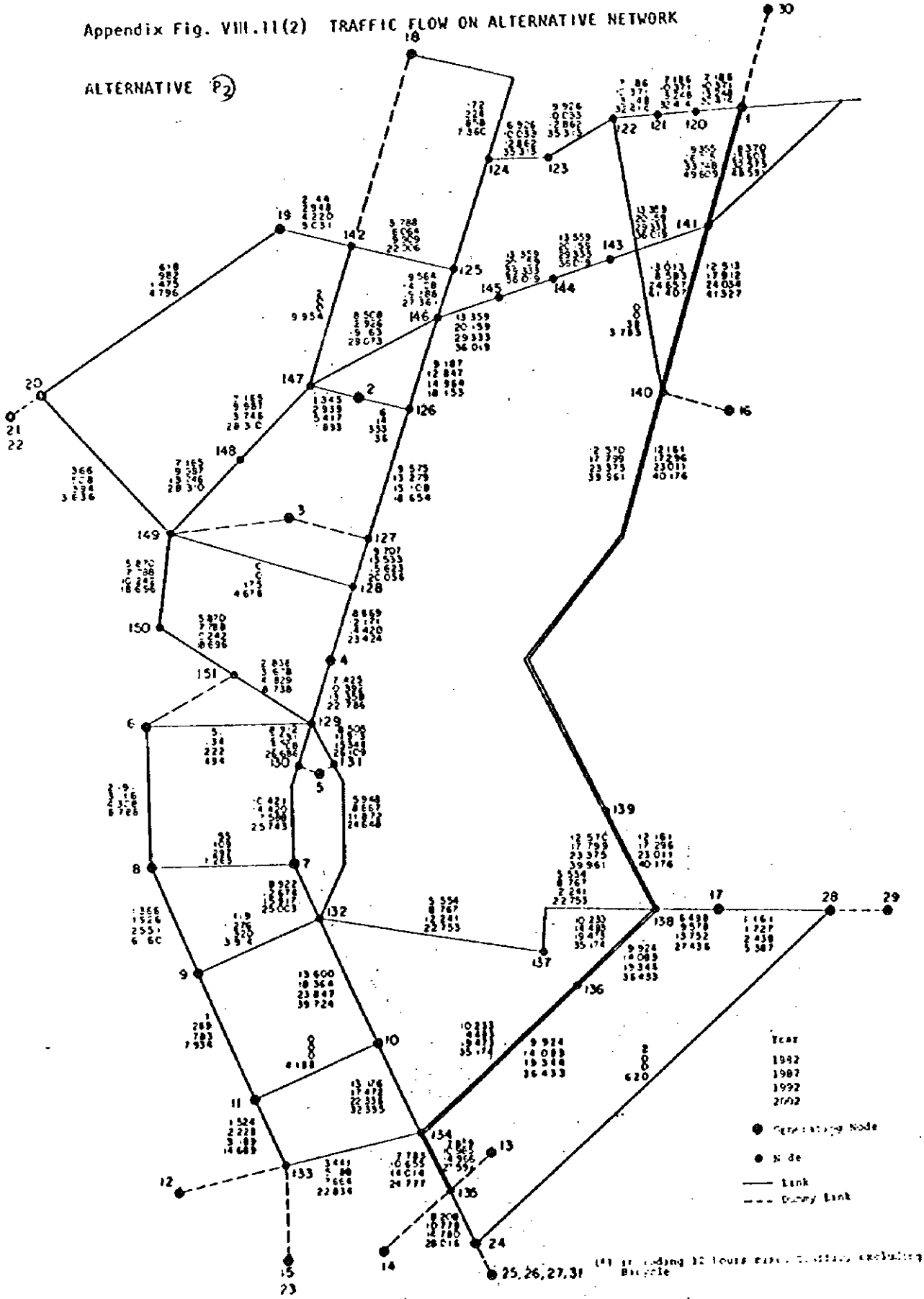
EXISTING NETWORK



(*) Including 12 hours car + taxi + motorcycle + bicycle

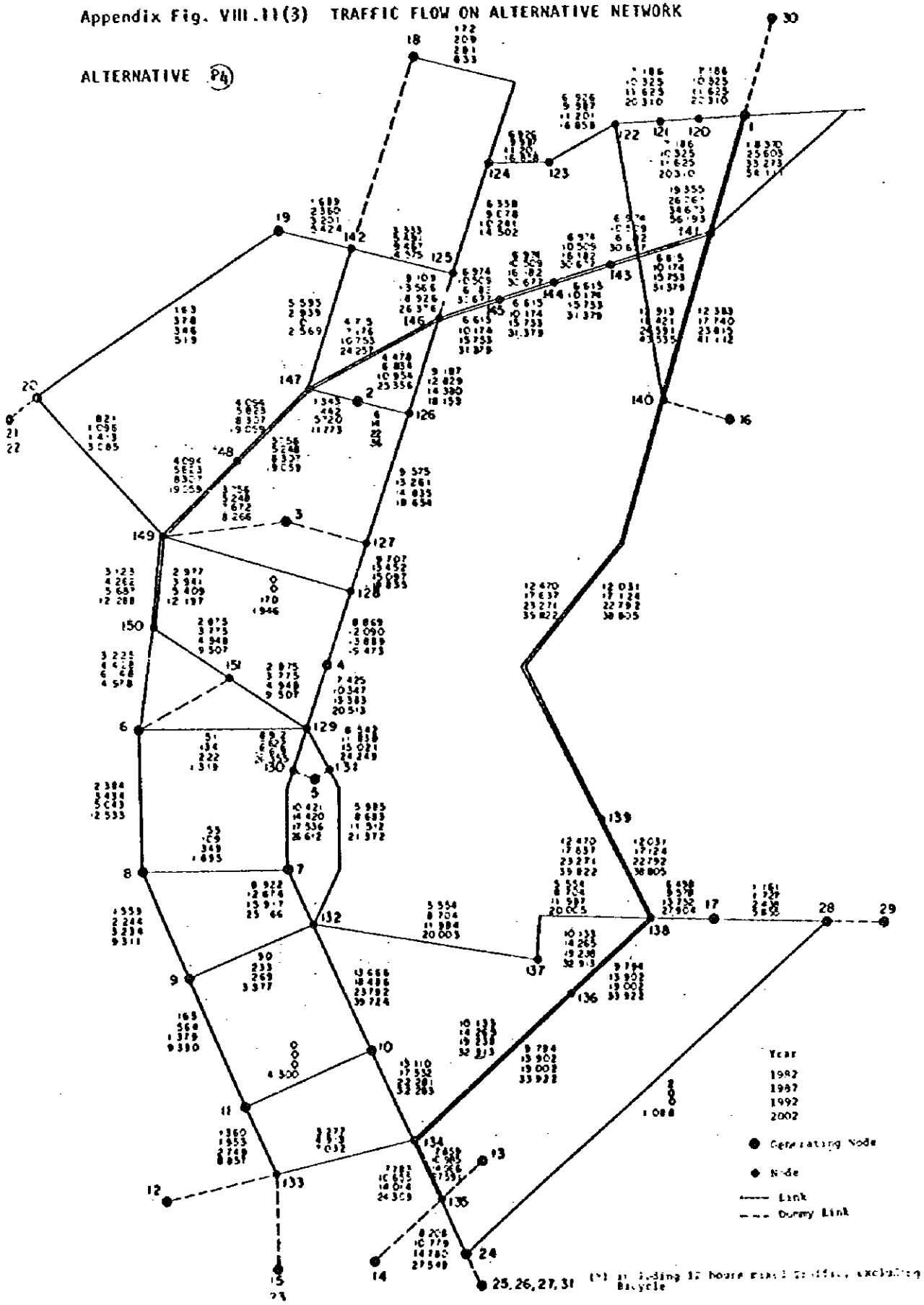
Appendix Fig. VIII.11(2) TRAFFIC FLOW ON ALTERNATIVE NETWORK

ALTERNATIVE (P2)



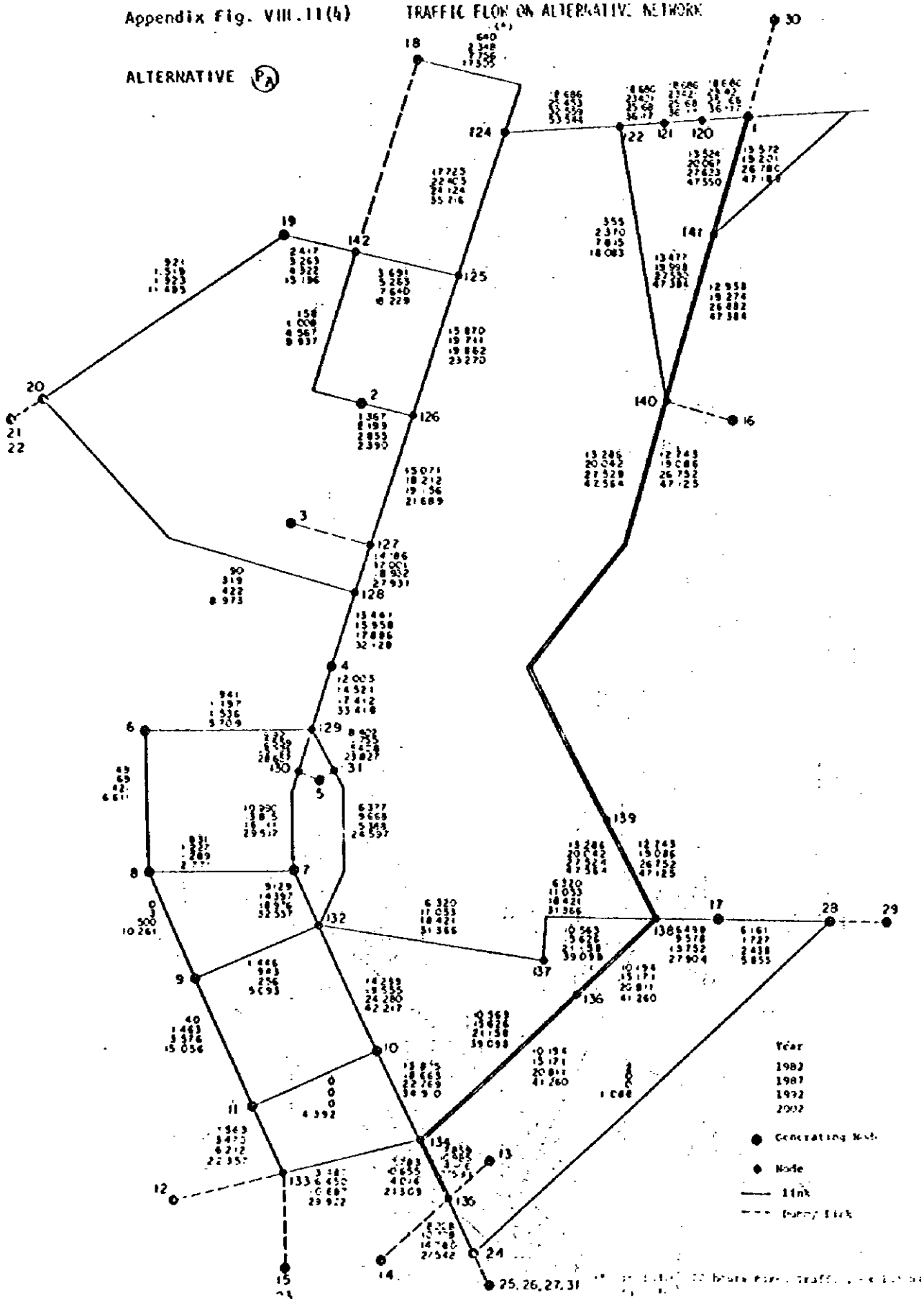
Appendix Fig. VIII.11(3) TRAFFIC FLOW ON ALTERNATIVE NETWORK

ALTERNATIVE (P4)



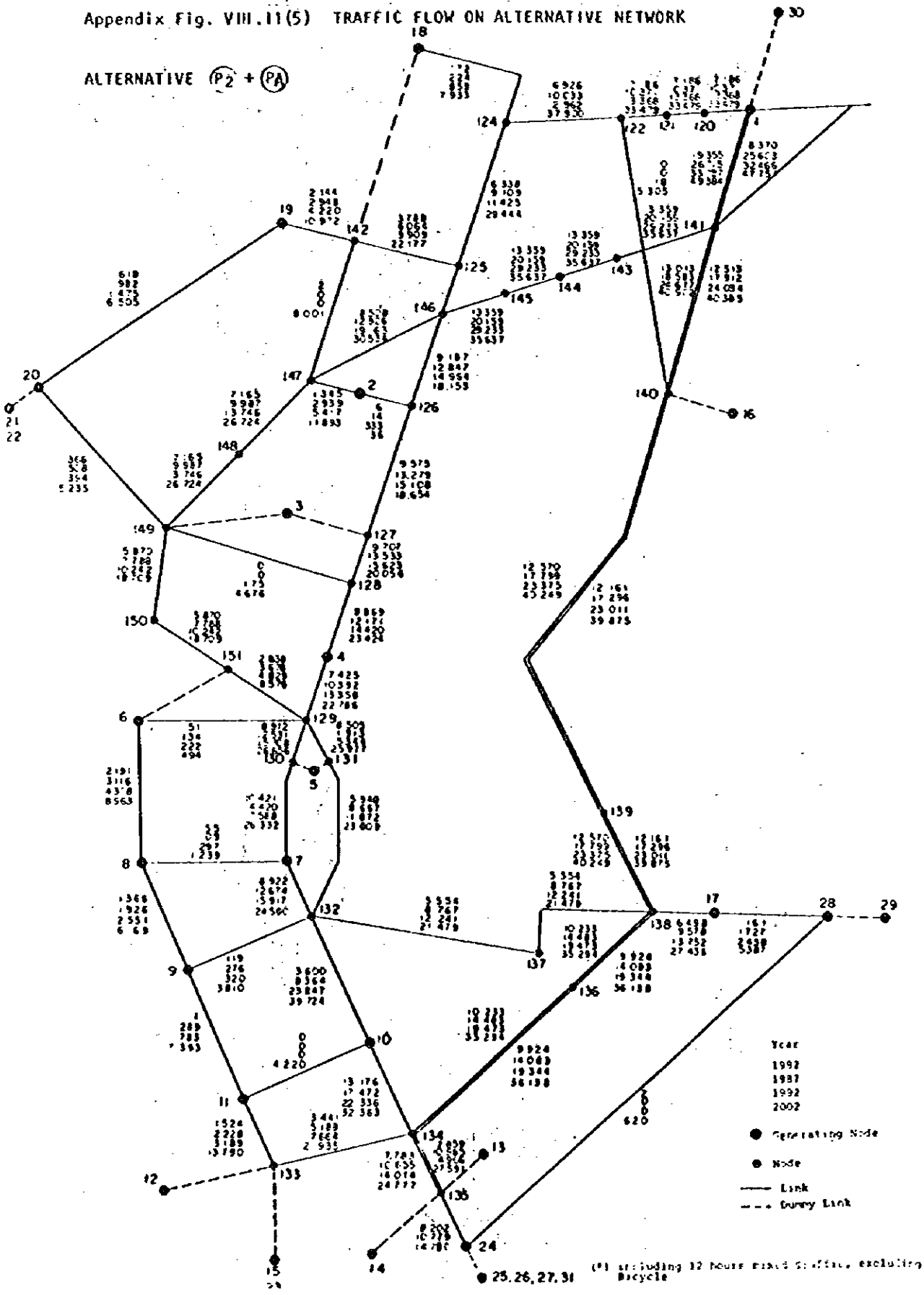
Appendix Fig. VIII.11(4) TRAFFIC FLOW ON ALTERNATIVE NETWORK

ALTERNATIVE (P4)



Appendix Fig. VIII.11(5) TRAFFIC FLOW ON ALTERNATIVE NETWORK

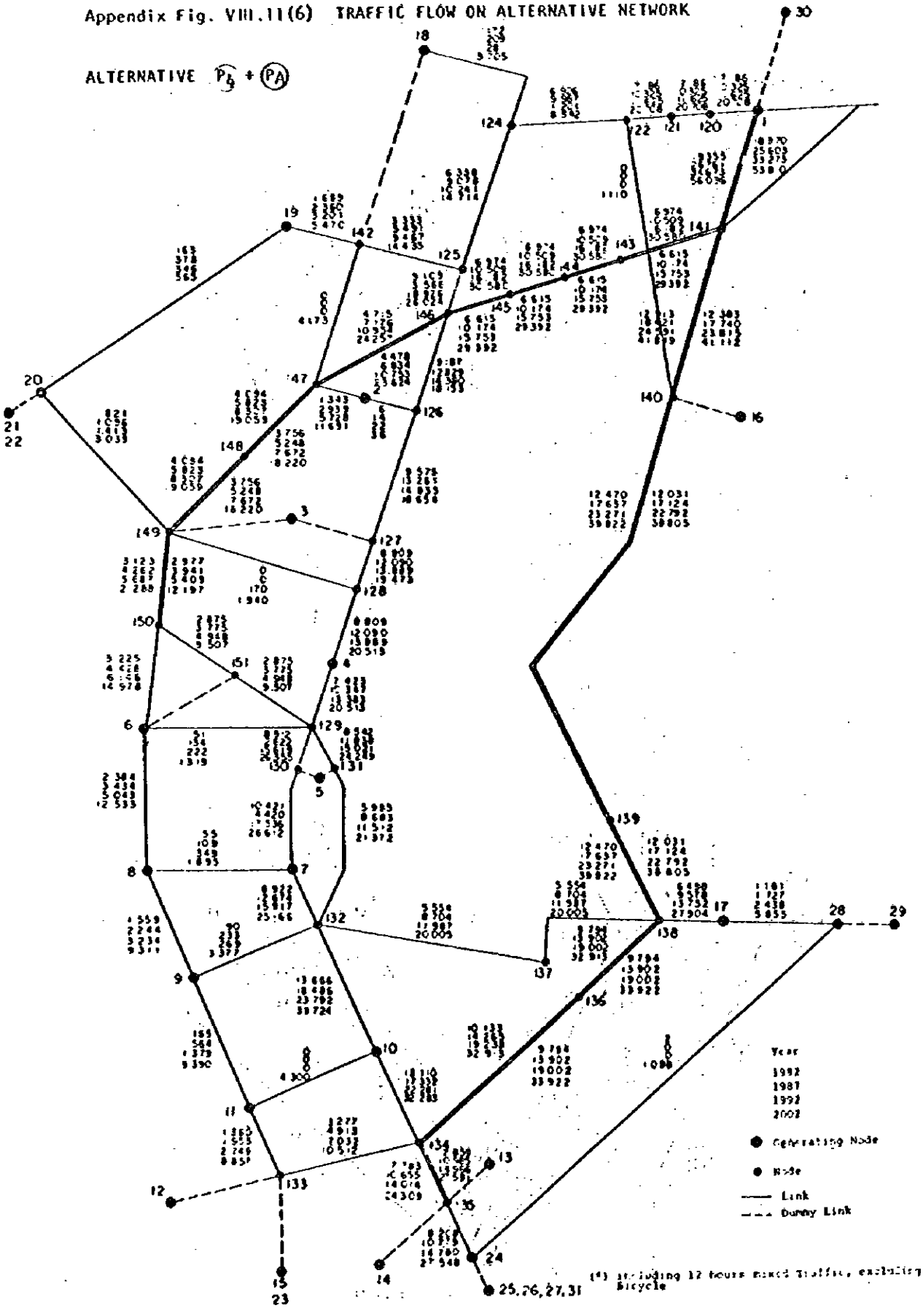
ALTERNATIVE (P2 + PA)



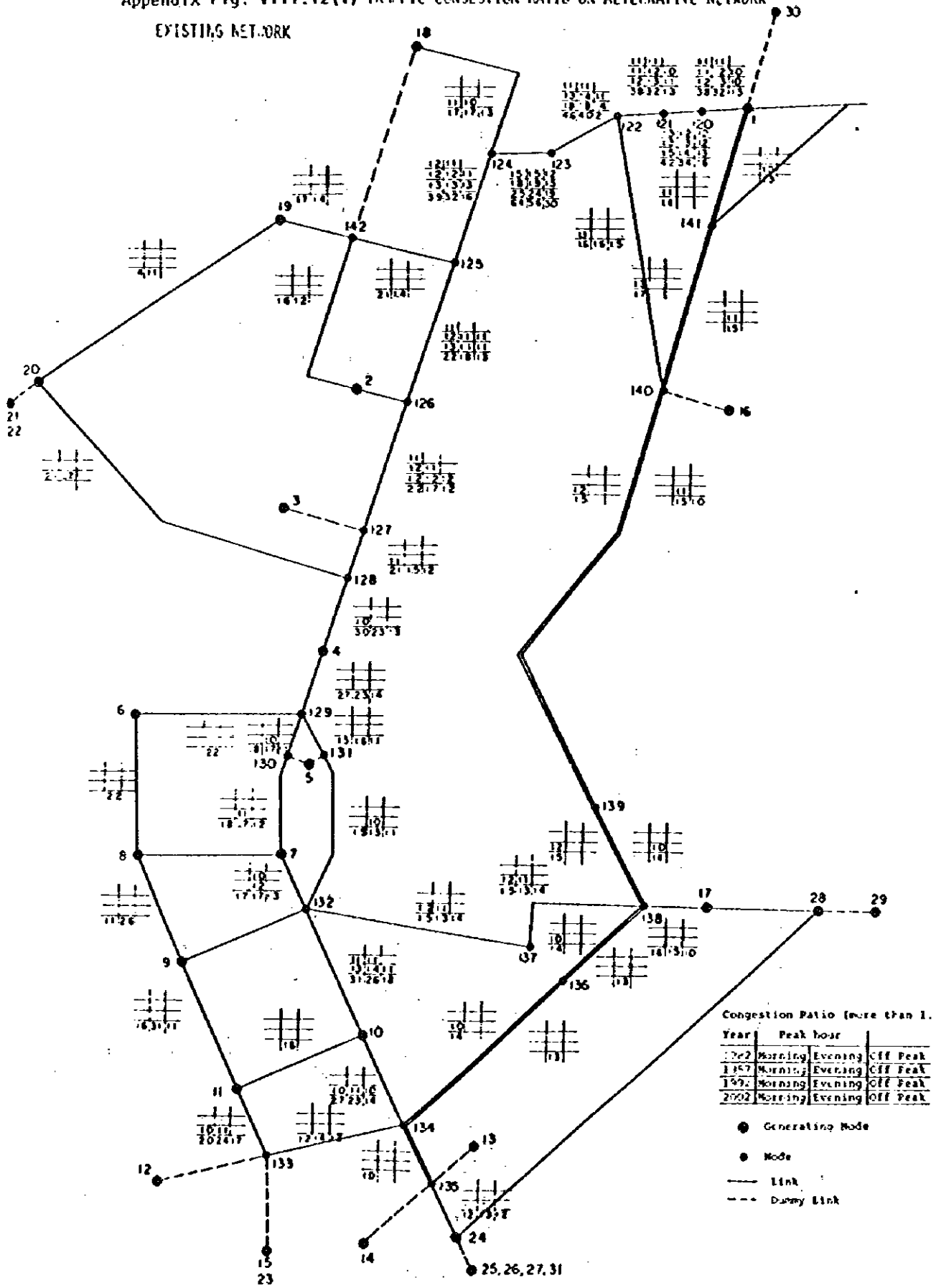
(*) including 12 hours mixed traffic excluding Bicycle

Appendix Fig. VIII.11(6) TRAFFIC FLOW ON ALTERNATIVE NETWORK

ALTERNATIVE P_4 + (PA)

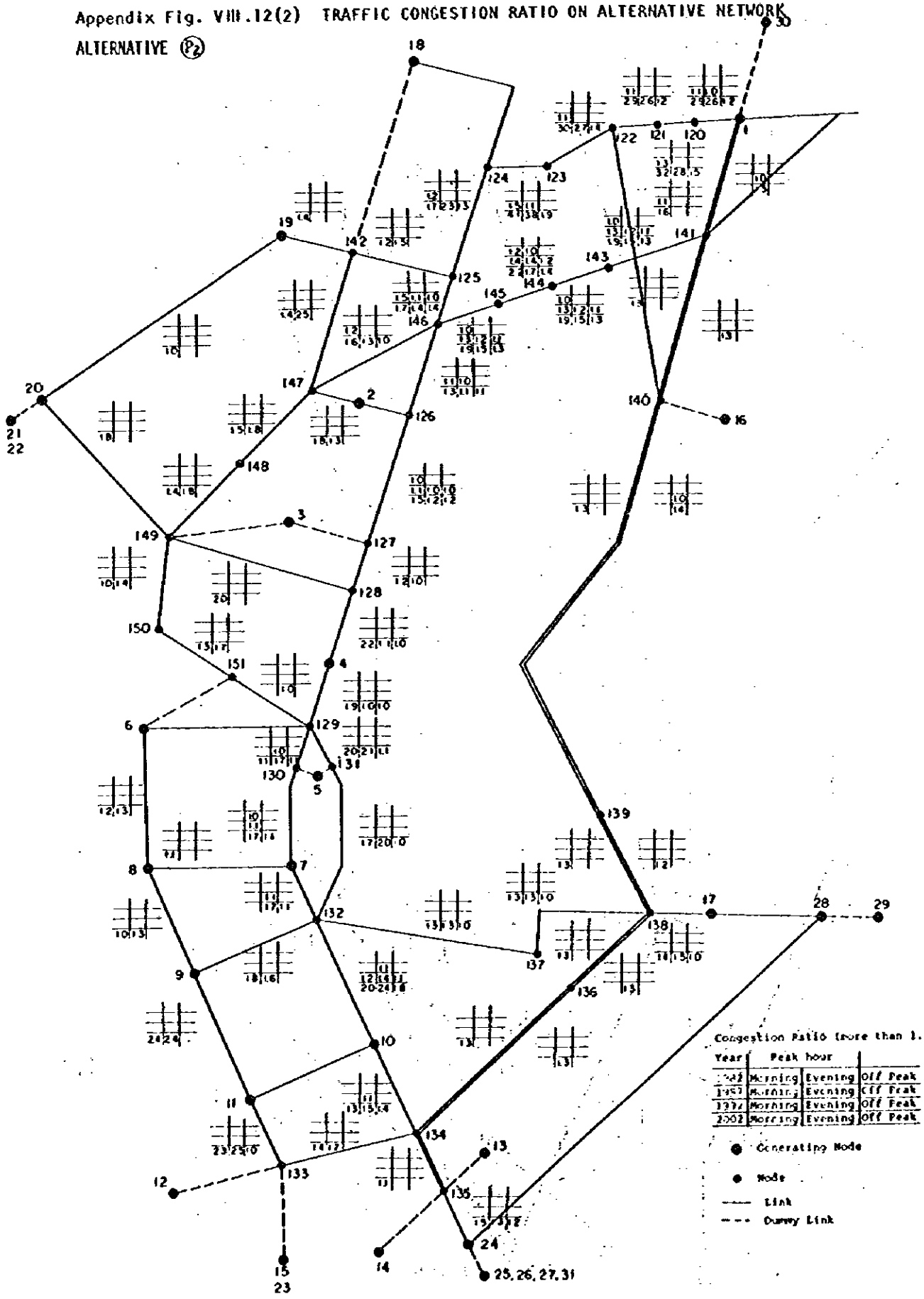


Appendix Fig. VIII.12(1) TRAFFIC CONGESTION RATIO ON ALTERNATIVE NETWORK



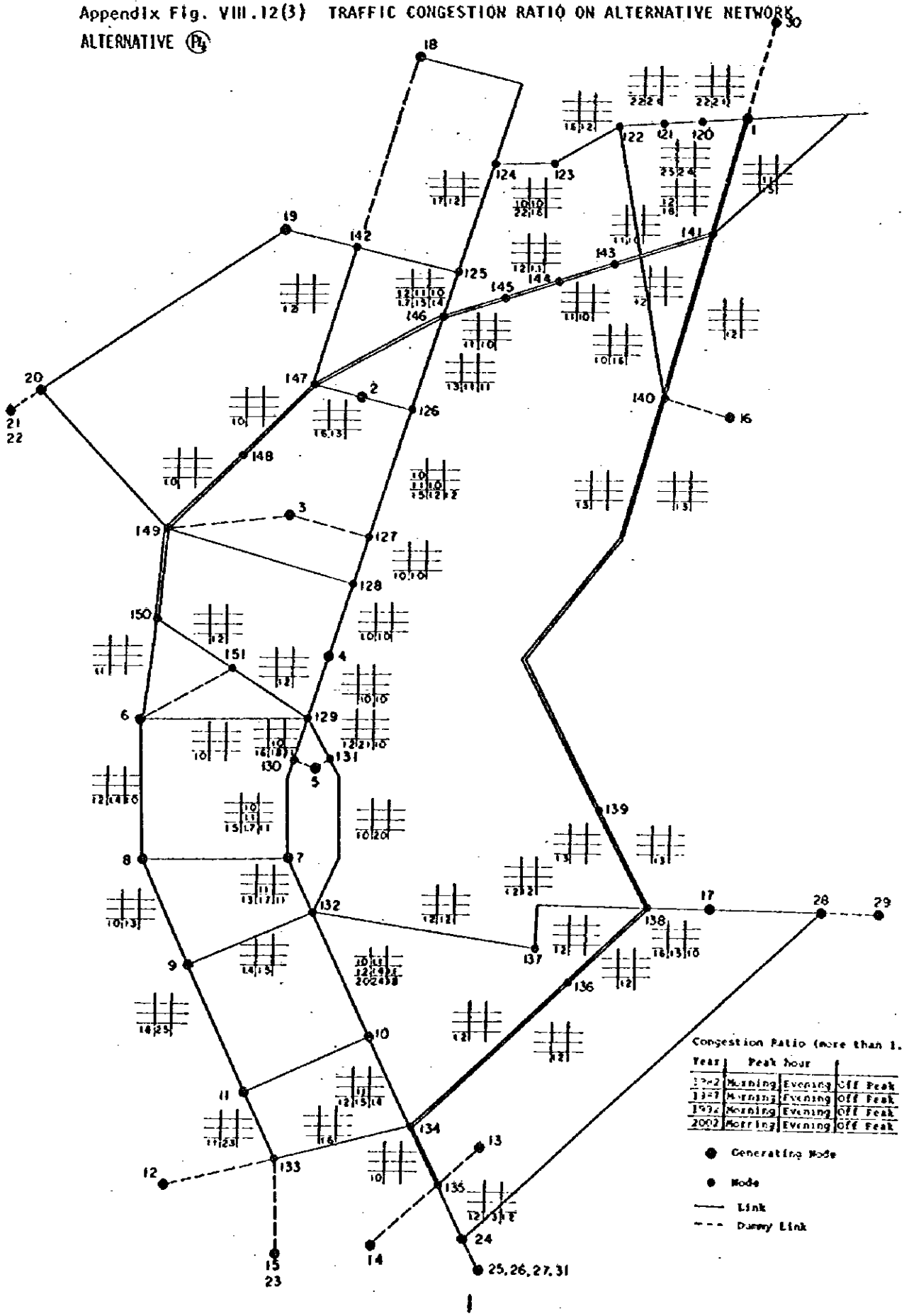
Appendix Fig. VIII.12(2) TRAFFIC CONGESTION RATIO ON ALTERNATIVE NETWORK

ALTERNATIVE (P2)



Appendix Fig. VIII.12(3) TRAFFIC CONGESTION RATIO ON ALTERNATIVE NETWORK

ALTERNATIVE (P4)



APPENDIX FOR CHAPTER IX

Appendix IX-1 Capacity of Motorway Junction

Appendix IX- 1 Capacity of Motorway Junction

The capacity is illustrated in the text IX 1-6-2. The point paticulary studied was the capacity of the motorway junction's weaving section governing traffic flows coming from Port Louis to S. Hill and from Pailles to Port Louis.
The capacity of this section is worked out by way set forth in the text IX 1-6-3. the shape of the junction is decided by the various factors based on the predetermined computation together with consideration of topographical features.

The following formula is the computation of capacity of the junction laid down in the Exhibit of Plans and Drawings.

Capacity of weaving section

Formula

$$Qp = \frac{86\ w\ (1 + \frac{e}{w})(1 - \frac{P}{3})}{1 + \frac{w}{\ell}}$$

Qp : Capacity of weaving section
W : Width of weaving section
e : Average width of two carriageways
ℓ : Length of weaving section
p : Proportion of weaving traffic

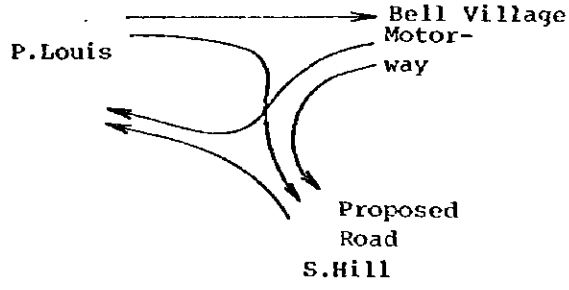
'at Motorway Junction

$$w = \frac{14.2\ m}{0.305} \fallingdotseq 46.6 \text{ feet (4-lane)}$$

$$e = \frac{10.8\ m}{0.305} \fallingdotseq 35.4 \text{ feet (3-lane)}$$

$$\ell = \frac{70.0\ m}{0.305} \fallingdotseq 229.5 \text{ feet}$$

$$P_{1987} \fallingdotseq \frac{632 + 3429}{632 + 3429 + 103} \fallingdotseq 0.98$$



$$P_{1992} = \frac{981 + 4131}{981 + 4131 + 248} \fallingdotseq 0.95$$

$$\therefore \quad Qp_{1987} = \frac{86 \times 46.6 \times (1 + \frac{35.4}{46.6})(1 - \frac{0.98}{3})}{1 + \frac{46.6}{229.5}} \fallingdotseq 3.947 \text{ P.C.U./hour}$$

$$\therefore \quad Qp_{1992} = \frac{86 \times 46.6 \times (1 + \frac{35.4}{46.6})(1 - \frac{0.95}{3})}{1 + \frac{46.6}{229.5}} \fallingdotseq 4.005 \text{ P.C.U./hour}$$

$$\therefore \quad \text{Congestion ratio 1987} = \frac{632 + 3429 + 103}{3.947} \fallingdotseq 1.05$$

$$\therefore \quad \text{Congestion ratio 1992} = \frac{981 + 4131 + 248}{4.005} \fallingdotseq 1.34$$

APPENDICES FOR CHAPTER X

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Appendix Table X-2	Acquisition Cost of Equipment (1)
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Appendix Table X-3	Durability and Depreciative Coefficient of Equipment
Appendix Table x-4	Breakdown of Construction Cost

Appendix

Table X-1 Priced Bill of Quantity (1)

in Rupee

Item	Unit	Unit Cost	Link A		Link B		Link C		Link D		Link E		Link F	
			Quantity	Summation	Quantity	Summation	Quantity	Summation	Quantity	Summation	Quantity	Summation	Quantity	Summation
I. Acquisition														
Housing Land	ha	648,000	-	-	-	-	-	-	-	-	1.33	861,840	-	-
Industrial land (1)	ha	432,000	-	-	1.55	669,600	-	-	-	-	-	-	-	-
" (2)	ha	378,000	-	-	1.28	483,840	4.71	1,780,380	4.71	1,780,380	-	-	-	-
Agricultural Land (1)	ha	108,000	-	-	-	-	17.98	1,941,840	18.76	2,026,080	-	-	-	-
" (2)	ha	216,000	0.46	99,360	1.58	341,280	-	-	-	-	0.41	88,560	6.05	1,306,800
Average Housing	m^2	1,000	-	-	274	274,000	-	-	-	-	-	-	-	-
Low-cost Housing	m^2	650	-	-	310	201,500	-	-	-	-	-	-	-	-
Shanty Housing	m^2	200	-	-	155	31,000	-	-	-	-	28	5,600	-	-
Total				99,360		2,001,200		3,722,220		3,806,460		956,000		1,306,800
15% for contingencies				14,904		300,180		558,333		570,969		143,400		196,020
Total I				114,264		2,301,380		4,280,553		4,377,429		1,099,400		1,502,820
II. Installing work site and Clearing Right-Of-Way														
Opening and Closing of Work	km	100,000	0.45	45,000	1.6	160,000	4.48	448,000	4.56	456,000	0.7	70,000	1.28	128,000
Rerouting of Telephone lines	km	45,000	-	-	1.53	68,850	-	-	-	-	-	-	-	-
Demolition														
Permanent Housing	u	3,500	-	-	10	35,000	-	-	-	-	-	-	-	-
Shanty Housing	u	1,000	-	-	8	8,000	-	-	-	-	1	1,000	-	-
Structures	m^3	160	-	-	1,980	316,800	365	58,400	365	58,400	-	-	-	-
Total				45,000		588,650		506,400		514,400		71,000		128,000
15% for contingencies				6,750		88,298		75,960		77,160		10,650		19,200
Total II				51,750		676,948		582,360		591,560		81,650		147,200

Appendix

Table X-1 Priced Bill of Quantity (2)

In Rupee

Item	Unit	Unit Cost	Link A		Link B		Link C		Link D		Link E		Link F	
			Quantity	Summation	Quantity	Summation	Quantity	Summation	Quantity	Summation	Quantity	Summation	Quantity	Summation
III. General Earthworks														
Initial Preparation	m^2	3	4,600	13,800	44,053	132,159	197,758	593,274	165,715	497,145	17,300	51,900	60,545	181,635
Soil Stripping	m^2	3.5	4,600	16,100	15,800	55,300	150,688	527,408	122,965	430,378	4,100	14,350	60,545	211,908
Cut - Soil	m^3	14.7~28.1	@14.7 978	14,377	@16.5 19,830	327,195	@15.9 53,525	851,048	@21.3 76,645	1,632,539	@28.1 6,240	175,344	@15.9 26,420	420,078
Cut - Rock	m^3	23.6~38.1	@26.8 4,427	118,644	@23.6 38,710	913,556	@26.8 76,833	2,059,124	@33.0 87,359	2,882,847	@38.1 8,330	317,373	@26.8 7,030	188,404
Fill	m^3	4.5	5,405	24,323	58,540	263,430	130,358	586,611	168,004	738,018	14,570	65,565	33,450	150,525
Subgrade - Soil	m^2	1.3	4,494	5,842	(18,460) 25,906	(23,998) 33,678	(51,032) 72,545	(66,342) 94,309	(44,487) 62,737	(57,833) 81,558	5,300	6,890	13,323	17,320
Subgrade - Rock	m^2	27	-	-	(3,235) 6,470	(87,345) 174,690	(23,118) 32,863	(624,186) 887,301	(33,770) 47,670	(911,790) 1,287,090	17,821	481,167	-	-
Turfing	m^2	4	1,114	4,456	10,696	42,784	28,655	114,620	24,587	98,348	8,686	34,744	5,760	23,040
Retaining Wall	m^2	350	375	131,250	735	257,250	-	-	-	-	-	-	-	-
Total				328,792		(2,103,017) 2,200,042		(5,422,613) 5,713,695		(7,248,898) 7,647,923		1,147,333		1,192,910
15% for contingencies				49,319		(315,453) 330,006		(813,392) 857,054		(1,087,335) 1,147,188		172,100		178,937
Total III ( ) 2-Lane				378,111		(2,418,470) 2,530,048		(6,236,105) 6,570,749		(8,336,233) 8,795,111		1,319,433		1,371,847
IV. Drinage														
Trapezoidal Ditche	m	90	220	19,800	1,105	99,450	3,803	342,270	3,430	308,700	1,780	160,200	2,990	269,100
Rectangular Channel 0.3x0.3m	m	70	-	-	1,005	70,350	2,300	161,000	2,655	185,850	-	-	1,205	84,350
-do- 0.5x0.5m	m	103	105	10,815	915	94,245	1,205	124,115	418	43,054	-	-	-	-
-do- 1.0x1.0m	m	850	-	-	-	-	86	73,100	230	195,500	-	-	-	-
-do- 2.0x1.0m		980	-	-	-	-	305	298,900	125	122,500	-	-	-	-
Pipe Culvert ø0.9 m	m	1,130	-	-	14	15,820	133.4	150,742	153	172,890	28	31,640	-	-
Box Culvert 2.0x1.5m	m	3,710	-	-	-	-	84.8	314,608	105	389,550	30	111,300	-	-
-do- 4.0x4.0m	m	9,500	-	-	-	-	-	-	27.4	260,300	12.2	115,900	-	-
Manhole	u	2,270	-	-	4	9,080	4	9,080	-	-	-	-	-	-
Total				30,615		288,945		1,473,815		1,678,344		419,040		353,450
15% for Contingencies				4,592		43,342		221,072		251,752		62,856		53,018
Total IV				35,207		332,287		1,694,887		1,930,096		481,896		406,468

Appendix

Table X-1 Priced Bill of Quantity (3)

In Rupee

Item	Unit	Unit Cost	Link A		Link B		Link C		Link D		Link E		Link F	
			Quantity	Summation	Quantity	Summation	Quantity	Summation	Quantity	Summation	Quantity	Summation	Quantity	Summation
V. Pavement														
Wearing course	ton	278	480	133,440	2,424	673,872	8,707	2,420,546	9,120	2,535,360	1,457	405,046	844	234,632
Binder course	ton	260	486	126,360	2,455	638,300	8,820	2,293,200	9,237	2,401,620	1,476	383,760	854	222,040
Base course	ton	240	778	186,720	3,922	941,280	14,111	3,386,640	14,780	3,547,200	2,362	566,880	1,367	328,080
Sub-base	m^3	126	1,537	193,662	8,540	1,076,040	29,747	3,748,122	30,905	3,894,030	5,008	631,008	2,969	374,094
Prime coat	m^2	2.5	4,139	10,348	20,894	52,235	75,061	187,653	78,617	196,543	12,564	31,410	7,272	18,180
Tack coat	m^2	1.5	8,278	12,417	41,787	62,681	137,817	206,726	157,233	235,850	25,128	37,692	14,544	21,816
Verge	m^2	32	-	-	4,572	146,304	16,751	536,032	17,848	571,136	2,618	83,776	2,020	64,640
Medium strip	m^2	7	-	-	17,255	120,785	16,458	115,206	18,498	129,486	-	-	882	6,174
Concrete curb	m	64	503	32,192	5,925	379,200	18,006	1,152,384	19,040	1,218,560	3,630	232,320	2,020	129,280
Foot step	m^2	32	562	17,984	-	-	-	-	-	-	5,933	189,856	-	-
Relocated road	m	19	-	-	-	-	1,430	27,170	2,275	43,225	170	3,230	950	18,050
Total				713,123		(2,604,096) 4,090,697		(9,414,837) 14,073,679		(9,949,131) 14,773,010		2,564,976		1,416,986
15% for Contingencies				106,968		(390,614) 613,605		(1,412,226) 2,111,052		(1,492,370) 2,215,952		384,747		212,548
Total V ( ) : 2-Lane				820,091		(2,994,710) 4,704,302		(10,827,063) 16,184,731		(11,441,501) 16,988,962		2,949,725		1,629,534
VI. Carriageway Equipment														
Guard rails	m	205	255	52,275	730	149,650	585	119,925	855	175,275	-	-	-	-
Ground marking	km	18,000	0.45	8,100	1.6	28,800	4.48	80,640	4.56	82,080	(x0.6) 1.81	19,548	1.28	23,040
Upright signs	km	10,000	0.45	4,500	1.6	16,000	4.48	44,800	4.56	45,600	1.81	18,100	1.28	12,800
Intersection Lighting	u	50,000	1	50,000	2	100,000	3	150,000	3	150,000	-	-	-	-
Greenery	km	5,000	0.45	2,250	1.6	8,000	4.48	22,650	4.56	22,800	-	-	1.28	6,400
Total				117,125		(252,955) 302,450		(295,189) 418,015		351,883) 475,755		37,648		42,240
15% for Contingencies				17,569		(37,943) 45,368		(44,278) 62,702		(52,782) 71,363		5,647		6,336
Total VI ( ): 2-Lane				134,694		(290,898) 347,818		(339,476) 480,717		(404,665) 547,118		43,295		48,576

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Appendix

Table X-1 Priced Bill of Quantity (4)

in Rupee

Item	Unit	Unit Cost	Link A		Link B		Link C		Link D		Link E		Link F	
			Quantity	Summation	Quantity	Summation	Quantity	Summation	Quantity	Summation	Quantity	Summation	Quantity	Summation
VII. Bridge														
St. Louis Bridge	lump sum	3,572,500		-		(925,000) 3,572,500		-		-		-		-
C.R.N.W. Bridge	lump sum	13,462,500		-		(6,157,500) 13,462,500		-		-		-		-
Pailles Bridge	lump sum	1,255,000		-		1,255,000		-		-		-		-
S-Hill Bridge	lump sum	1,830,000		-		1,830,000		-		-		-		-
Coromandel Bridge	lump sum	1,210,000		-		-		1,211,000		1,211,000		-		-
C.R.N.W. A_1 Bridge	lump sum	6,950,000		6,950,000		-		-		-		-		-
Total				6,950,000		(10,167,500) 20,120,000		1,211,000		1,211,000		-		-
15% for Contingencies				1,042,500		(1,525,125) 3,018,000		181,650		181,650		-		-
Total VII ( ) : 2 Lane				7,992,500		(11,692,625) 23,138,000		1,392,650		1,392,650		-		-

Appendix Table X-2 Acquisition Cost of Equipment (1)

in Rupee

Equipment	Port Louis CIF	Local Component	Import Duty	Total
1. Bulldozer 11 ton	416,937	70,211	19,688	506,836
2. Bulldozer 21 t0n	709,834	117,814	33,750	861,398
3. Bulldozer with Ripper 37 ton	1,130,291	185,218	54,063	1,369,572
4. Backhoe	393,849	79,087	16,875	489,811
5. Tractor Shovel 1.4 m^3	334,294	57,481	15,625	407,400
6. Wheel Loader 2.1 m^3	460,195	81,185	20,938	562,318
7. Truck Crane 5 ton	228,563	50,580	8,750	287,893
8. -do- 10 ton	336,507	72,844	13,125	422,476
9. -do- 30 ton	740,114	145,253	31,250	916,617
10. Motor Grader (blade width 3.7m)	331,226	62,391	14,438	408,055
11. Macadam Roller 10 ton	137,319	26,405	9,529	173,253
12. Tandem Roller 13-19 ton	196,673	38,068	8,425	243,166
13. Tire Roller 20 ton	212,266	43,167	8,750	264,183

Appendix Table X-2 Acquisition Cost of Equipment (2)

Equipment	Port Louis CIF	Local Component	Import Duty	Total
14. Tire Roller 28 ton	321,920	62,376	13,750	398,046
15. Truck Mixer 3 m^3	217,799	49,517	8,125	275,441
16. Concrete Vibrator 45 mm	3,400	577	160	4,137
17. Concrete Plant 60 m^3/hour	1,843,495	759,949	92,175	2,695,619
18. Asphalt Plant 60 ton/hour	1,645,816	710,287	82,291	2,438,394
19. Asphalt Finisher 2.5-4.5 m	292,243	58,844	14,612	365,699
20. Asphalt Distributor 3,000 l	318,399	67,770	15,920	402,089
21. Generator 12/15 KVA	77,462	21,624	2,500	101,586
22. Air Compressor 7 m^3/min	98,840	24,831	3,563	127,234
23. Dump Truck 8 ton	133,798	32,777	4,625	171,200
24. Water Tanker 5,500 l	223,332	55,867	11,167	290,366
25. Trailer 25 ton	317,846	70,872	12,063	400,781
26. Pump ø 100	9,959	1,827	498	12,284

Appendix Table X-3

Durability and Depreciative Coefficient of Equipment

Equipment	Economical Durability (year)	Depreciative Coefficient (hour) $\times 10^{-6}$	Remarks
1. Bulldozer	6	358	
2. Backhoe	5	312	
3. Tractor Shovel	5	354	
4. Wheel Loader	5	350	
5. Truck Crane	6	290	
6. Motor Grader	6	324	
7. Macadam Roller	7	315	
8. Tandem Roller	7	700	Special
9. Tire Roller	7	315	
10. Truck Mixer	5	332	
11. Concrete Vibrator	3	3,462	(per day)
12. Concrete Plant	7	294	
13. Asphalt Plant	6	714	Special
14. Asphalt Finisher	6	892	Special
15. Asphalt Distvibutor	6	1,050	Special
16. Generator	6	1,800	per day
17. Air Compressor	6	2,143	per day
18. Dump Truck	4	328	
19. Water Tanker	5	308	
20, Trailer	5	338	
21. Pump	5	3,462	per day

Appendix

Table X-4 Breakdown of Construction Cost

(Unit 000 Rs)

Alternative Plan	Foreign Currency	(%)	Local Currency	(%)	Economi Cost	(%)	Taxes & Duties	Financial Cost
P2	36,541	61	23,737	39	60,278	100	4,841	65,119
P2'	37,752	60	25,651	40	63,403	100	5,050	68,461
P4	54,117	62	33,271	38	87,388	100	7,075	94,463
P4'	55,054	61	35,811	39	90,865	100	7,296	98,161

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Appendix.
Table XI.1 Flow of Project Cost by Alternative

	Alt. Case P_4				Alt. Case P_4'				Alt. Case $P_{4.S}$			
	Const. cost	Overlay cost	Maint. cost	Total	Const. cost	Overlay cost	Maint. cost	Total	Const. cost	Overlay cost	Maint. cost	Total
1979	4,518	-	-	4,518	4,714	-	-	4,714	4,518	-	-	4,518
80	41,435	-	-	41,435	43,076	-	-	43,076	28.620	-	-	28,620
81	29,005	-	-	29,005	30,153	-	-	30,153	20,034	-	-	20,034
82	12,430	-	139	12,569	12,922	-	140	13,062	8,585	-	93	8,678
83	-	-	278	278	-	-	279	279	-	-	186	186
84	-	-	278	278	-	-	279	279	-	-	186	186
85	-	-	278	278	-	-	279	279	-	-	186	186
86	-	-	278	278	-	-	279	279	-	-	186	186
87	-	-	278	278	-	-	279	279	-	-	186	186
88	-	-	278	278	-	-	279	279	8,971	-	186	9,157
89	-	-	278	278	-	-	279	279	14,097	-	186	14,283
90	-	-	278	278	-	-	279	279	2,563	-	232	2,795
91	-	-	278	278	-	-	279	279	-	-	278	278
92	-	2,880	278	3,158	-	2,900	279	3,179	-	1,492	278	1,770
93	-	-	278	278	-	-	279	279	-	-	278	278
94	-	-	278	278	-	-	279	279	-	-	278	278
95	-	-	278	278	-	-	279	279	-	-	278	278
96	-	-	278	278	-	-	279	279	-	-	278	278
97	-	-	278	278	-	-	279	279	-	-	278	278
98	-	-	278	278	-	-	279	279	-	-	278	278
99	-	-	278	289	-	-	279	279	-	-	278	278
2000	-	-	278	278	-	-	279	279	-	1,388	278	1,666
01	-	-	278	278	-	-	279	279	-	-	278	278
02	-	1,440	139	1,579	-	1,450	140	1,590	-	746	139	885
Total	87,388	4,320	5,560	97,268	90,865	4,350	5,581	100,796	87,388	3,626	4,824	95,838

(000 RS.)

Appendix.
Table. XI.2.(1) Total Vehicle Hours by Alternative Network

		Existing Network			Network Alt. P2, P2'			Network Alt. P4, P4'		
		Peak hours	Off-peak hours	Total	Peak hours	Off-peak hours	Total	Peak hours	Off-peak hours	Total
1982	Cars	0.64	1.53	2.17	0.53	1.40	1.93	0.52	1.38	1.90
	Vans	0.06	0.23	0.29	0.04	0.20	0.24	0.04	0.20	0.24
	Med. & Hev. Trucks	0.05	0.26	0.31	0.04	0.23	0.27	0.04	0.23	0.27
	Buses	0.06	0.17	0.23	0.04	0.15	0.19	0.04	0.15	0.19
	Motor Cycles	0.10	0.25	0.35	0.07	0.22	0.29	0.07	0.22	0.29
	TOTAL	0.91	2.44	3.35	0.72	2.20	2.92	0.71	2.18	2.89
1987	Cars	1.14	2.54	3.68	0.87	2.12	2.99	0.84	2.07	2.91
	Vans	0.11	0.40	0.51	0.08	0.31	0.39	0.07	0.30	0.37
	Med. & Hev. Trucks	0.10	0.40	0.50	0.07	0.31	0.38	0.06	0.30	0.36
	Buses	0.10	0.28	0.38	0.05	0.19	0.24	0.05	0.19	0.24
	Motor Cycles	0.23	0.54	0.77	0.12	0.38	0.50	0.12	0.38	0.50
	TOTAL	1.68	4.16	5.84	1.19	3.31	4.50	1.14	3.24	4.38
1992	Cars	2.83	4.36	7.19	1.74	3.33	5.07	1.51	3.16	4.67
	Vans	0.26	0.72	0.98	0.16	0.47	0.62	0.12	0.44	0.56
	Med. & Hev. Trucks	0.20	0.66	0.86	0.12	0.43	0.55	0.10	0.41	0.51
	Buses	0.17	0.44	0.61	0.09	0.23	0.32	0.07	0.23	0.30
	Motor Cycles	0.41	0.82	1.23	0.20	0.45	0.65	0.17	0.45	0.62
	TOTAL	3.87	7.00	10.87	2.31	4.91	7.22	1.97	4.69	6.66
2002	Cars	21.02	22.55	43.57	19.17	13.30	30.47	12.45	11.30	23.75
	Vans	1.47	3.52	4.99	1.16	1.99	3.15	0.81	1.51	2.32
	Med. & Hev. Trucks	1.13	2.78	3.91	0.91	1.66	2.57	0.68	1.31	1.99
	Buses	0.53	1.44	1.97	0.39	0.83	1.22	0.37	0.57	0.94
	Motor Cycles	1.21	2.39	3.60	0.92	1.45	2.37	0.85	0.99	1.84
	TOTAL	25.36	32.68	58.04	22.55	19.23	41.78	15.16	15.68	30.84

(million vehicle hours/year)

Appendix.
Table. XI.2.(2) Total Vehicle Kilometers by Alternative Network

		Existing network			Network Alt. P2, P2'			Network Alt. P4, P4'		
		Peak hours	Off-peak hours	Total	Peak hours	Off-peak hours	Total	Peak hours	Off-peak hours	Total
1982	Cars	32.9	92.4	125.3	32.5	92.5	125.0	32.5	92.7	125.2
	Vans	2.9	13.3	16.2	2.9	13.4	16.3	2.9	13.4	16.3
	Med. & Hev. Trucks	2.7	14.9	17.6	2.7	15.0	17.7	2.7	15.0	17.7
	Buses	2.0	8.4	10.4	2.0	8.4	10.4	2.0	8.4	10.4
	Motor Cycles	3.7	13.6	17.3	3.7	13.6	17.3	3.7	13.6	17.3
	TOTAL	44.2	142.6	186.8	43.8	142.9	186.7	43.8	143.1	186.9
1987	Cars	49.5	134.6	184.1	46.4	132.1	178.5	46.4	132.4	178.8
	Vans	4.3	19.1	23.4	4.0	18.9	22.9	4.0	18.9	22.9
	Med & Hew Trucks	3.9	19.0	22.9	3.9	18.9	22.8	3.9	18.9	22.8
	Buses	2.4	9.9	12.3	2.4	9.9	12.3	2.4	9.9	12.3
	Motor Cycles	6.0	21.7	27.7	6.0	21.7	27.7	6.0	21.7	27.7
	TOTAL	66.1	204.3	270.4	62.7	201.5	264.2	62.7	201.8	264.5
1992	Cars	70.1	195.6	265.7	63.7	186.3	250.0	63.4	187.0	250.9
	Vans	5.8	26.8	32.6	5.2	25.4	30.6	5.2	25.5	30.7
	Med. & Hev. Trucks	4.8	24.5	29.3	4.4	23.6	28.0	4.4	23.6	28.0
	Buses	2.5	10.5	13.0	2.5	10.5	13.0	2.5	10.5	13.0
	Motor Cycles	6.4	23.4	29.8	6.4	23.4	29.8	6.4	23.4	29.8
	TOTAL	89.6	280.8	370.4	82.2	269.2	351.4	82.4	270.0	352.4
2002	Cars	138.8	387.8	526.6	129.4	359.0	488.4	129.2	358.3	487.5
	Vans	10.8	51.7	62.5	9.9	47.4	57.3	9.7	47.2	56.9
	Med. & Hev. Trucks	8.5	43.4	51.9	8.1	40.3	48.4	8.0	40.0	48.0
	Buses	2.8	11.9	14.7	2.8	11.9	14.7	2.8	11.9	14.7
	Motor Cycles	7.2	26.3	33.5	7.2	26.3	33.5	7.2	26.3	33.5
	TOTAL	168.1	521.1	689.2	157.4	484.9	642.3	156.9	483.7	640.6

(million vehicle kilometers/year)

Appendix
Table XI.3.(1) Reduction of Vehicle Kilometers by Alternative

		Alt. P2, P2'			Alt. P4, P4'		
		Peak hours	Off-peak hours	Total	Peak hours	Off-peak hours	Total
1982	Cars	0.4	- 0.1	0.3	0.4	- 0.3	0.1
	Vans	0.0	- 0.1	- 0.1	0.0	- 0.1	- 0.1
	Med. & Hev. Trucks	0.0	- 0.1	- 0.1	0.0	- 0.1	- 0.1
	Buses	-	-	-	-	-	-
	Motor Cycles	-	-	-	-	-	-
	TOTAL	0.4	- 0.3	0.1	0.4	- 0.5	- 0.1
1987	Cars	3.1	2.5	5.6	3.1	2.2	5.3
	Vans	0.3	0.2	0.5	0.3	0.2	0.5
	Med. & Hev. Trucks	0.0	0.1	0.1	0.0	0.1	0.1
	Buses	-	-	-	-	-	-
	Motor Cycles	-	-	-	-	-	-
	TOTAL	3.4	2.8	6.2	3.4	2.5	5.9
1992	Cars	6.4	9.3	15.7	6.2	8.6	14.8
	Vans	0.6	1.4	2.0	0.6	1.3	1.9
	Med. & Hev. Trucks	0.4	0.9	1.3	0.4	0.9	1.3
	Buses	-	-	-	-	-	-
	Motor Cycles	-	-	-	-	-	-
	TOTAL	7.4	11.6	19.0	7.2	10.8	18.0
2002	Cars	9.4	28.8	38.2	9.6	29.5	39.1
	Vans	0.9	4.3	5.2	1.1	4.5	5.6
	Med. & Hev. Trucks	0.4	3.1	3.5	0.5	3.4	3.9
	Buses	-	-	-	-	-	-
	Motor Cycles	-	-	-	-	-	-
	TOTAL	10.7	36.2	46.9	11.2	37.4	48.6

(million vehicle kilometers/year)

Appendix
Table XI.3.(2) Reduction of Vehicle Hours by Alternative

		Alt. P2, P2'			Alt. P4, P4'		
		Peak hours	Off-peak hours	Total	Peak hours	Off-peak hours	Total
1982	Cars	0.11	0.13	0.24	0.12	0.15	0.27
	Vans	0.02	0.03	0.05	0.02	0.03	0.05
	Med. & Hev. Trucks	0.01	0.03	0.04	0.01	0.03	0.04
	Buses	0.02	0.02	0.04	0.02	0.02	0.04
	Motor Cycles	0.03	0.03	0.06	0.03	0.03	0.06
	TOTAL	0.19	0.24	0.43	0.20	0.26	0.46
1987	Cars	0.27	0.42	0.69	0.30	0.47	0.77
	Vans	0.03	0.09	0.12	0.04	0.10	0.14
	Med. & Hev. Trucks	0.03	0.09	0.12	0.04	0.10	0.14
	Buses	0.05	0.09	0.14	0.05	0.09	0.14
	Motor Cycles	0.11	0.16	0.27	0.11	0.16	0.27
	TOTAL	0.49	0.85	1.34	0.54	0.92	1.46
1992	Cars	1.09	1.03	2.12	1.32	1.20	2.52
	Vans	0.11	0.25	0.36	0.14	0.28	0.42
	Med. & Hev. Trucks	0.08	0.23	0.31	0.10	0.25	0.35
	Buses	0.08	0.21	0.29	0.10	0.21	0.31
	Motor Cycles	0.21	0.37	0.58	0.24	0.37	0.61
	TOTAL	1.57	2.09	3.66	1.90	2.31	4.21
2002	Cars	3.85	9.25	13.10	8.57	11.25	19.82
	Vans	0.31	1.53	1.84	0.66	2.01	2.67
	Med. & Hev. Trucks	0.22	1.12	1.34	0.45	1.47	1.92
	Buses	0.14	0.61	0.75	0.16	0.87	1.03
	Motor Cycles	0.29	0.94	1.23	0.36	1.40	1.76
	TOTAL	4.81	13.45	18.26	10.20	17.00	27.20

(million vehicle kilometers/year)

APPENDIX XI.4 METHOD FOR COMPUTATION OF VEHICLE OPERATING COST

1. Outline

The process of traffic assignment and computation of vehicle-miles and vehicle-hours, which constitute the base for the benefit of vehicle operation of each of the alternative cases have been put in models. The benefit is determined by the level of traffic on links of different road conditions, which comprise the overall road network of each of the alternative cases, and by the speed of vehicle operation at such level of traffic. But, because the operation speed of vehicles changes on a continuous scale, the volume of computations of the vehicle operating cost at each speed, if conducted, would be enormous. Therefore, for the purpose of this project, the factor items of the cost have been standardized as much as possible to facilitate processing by electronic computors. In standardization of such items, various materials were referred to, the most useful two of which were:

1) "Quantification of Road User Savings", IBRD, 1966

2) "Tables for Estimating Vehicle Operating Costs on Rural Roads in Developing Countries", by S.W. Abaynayaka, H. Hide, G. Morosiuk and R. Robinson, Transport and Road Research Laboratory, Department of the Environment, Berkshire, 1976

The factor items of the vehicle operating cost are explained in the below.

2. Depreciation

The equation below is used in order to express in terms of money the depreciation cost of vehicle per unit distance of operation at a given speed. This concept is the chief concept used in said "Quantification of Road User Savings" (IBRD), under which the depreciation is determined by average running speed, average lifetime kilometrage and specific speed of vehicle, and whose feature is that lifetime kilometrage varies by change in speed, and depreciation varies by change in lifetime kilometrage.

$$D = \frac{3}{L + 2L\frac{V}{A}} \cdot P$$

Wherein

D: depreciation cost (Rs./km)

P: depreciable value of vehicle excluding tyres (Rs.)

L: average lifetime

A: average running speed of vehicle (km/h)

V: specific speed of vehicle (km/h)

Therefore, the total depreciation cost of traffic on a given link is:

$$\ell \sum_i DiNi$$

Wherein

ℓ : length of link (km)

Di: Depreciation cost of i kind of vehicle

Ni: Volume of traffic of i kind of vehicle

Basic Characteristics of Representative Vehicles

Vehicle Type	A Average Running Speed (km/h)	B Average Annual (km)	C Average Lifetime (years)	L Average Lifetime (km)
Renault 12-L	55	16,000	10	160,000
Commer 1 ton Van	50	24,000	14	336,000
Bedford 6 ton Truck	40	30,000	15	450,000
Leyland 12 ton Truck	40	40,000	14	560,000
Bedford 44 seat Bus	30	55,000	10	550,000

Source: Interviews with Dealers

Price of Representative Vehicles including Tyres, 1977

Vehicle Type	Foreign Exchange (RS)	Local Component (RS)	Economic price (RS)	Taxes & Duties (RS)	Financial Price (RS)	Salvage value after Lifetime (%)
Renault 12-L	26,758	15,621	42,379	20,871	63,250	10
Commer 1 ton Van	41,493	17,627	59,120	16,182	75,302	10
Bedford 6 ton Truck	66,927	28,431	95,358	26,102	121,460	10
Layland 12 ton Truck	179,082	76,076	255,158	69,842	325,000	10
Bedford 44 seat Bus	92,775	39,410	132,185	31,015	163,200	10

Source: Interviews with Dealers

Price of a Set of Tyres, 1977

Vehicle Type	Type of Tyre Used	PT1 Economic Price (RS)	PT2 Financial Price (RS)	Number of Tyres
Renault 12-L	155 x 13	800	968	4
Commer 1 ton Van	750 x 16	1,844	2,248	4
Bedford 6 ton Truck	825 x 20	5,958	7,320	6
Leyland 12 ton Truck	900 x 20	11,340	13,950	10
Bedford 44 seat Bus	825 x 20	5,958	7,320	6

Source: Interviews with Dealers

Depreciable Value of Representative Vehicles, 1977

(RS)

Vehicle Type	P1 Economic Price	P2 Financial Price
Renault 12-L	37,421	56,054
Commer 1 ton Van	51,548	65,749
Bedford 6 ton Truck	80,460	102,726
Leyland 12 ton Truck	219,436	279,945
Bedford 44 seat Bus	113,604	140,292

3. Fuel Consumption

Fuel cost is determined under the concept and by the equation shown in said TRRL Report, with the value of coefficient in reference to Quantification of Road User Savings and the value determined as a result of survey of relationship between the speed and the volume of fuel consumption at a low speed.

Fuel consumption varies by the longtitudinal gradient of road and vehicle speed and is generally expressed by equation:

$$FC = f(V) + f(R) - f(F)$$

Wherein

FC: fuel consumption (liters/km)

V : specific speed of vehicle (km/h)

R : upgrades (%)

F : downgrades (%)

Because average gradient is determined for each road link for the purpose of this report, the volume of fuel consumption on uphill road is expressed by $FC = f(V) + f(R)$ and on downhill road by $FC = f(V) - f(F)$.

The following values of f(V), f(R), and f(F) have been established for each type of vehicle:

1 Passenger Car

$$f(V) = \frac{1}{1000}\left(37.2 + \frac{1312}{V} + 0.0060 \times V^2\right)$$

$$f(R) = \frac{1}{1000}(11.24R)$$

$$f(F) = \frac{1}{1000}(6.02F)$$

2 Van, Pick-up

$$f(V) = \frac{1}{1000}\left(39.4 + \frac{1929}{V} + 0.0122V^2\right)$$

$$f(R) = \frac{1}{1000}(28.75R)$$

$$f(F) = \frac{1}{1000}(12.63F)$$

3 Medium Truck & Bus

$$f(V) = \frac{1}{1000}\left(93.9 + \frac{5725}{V} + 0.0181V^2\right.$$

$$f(R) = \frac{1}{1000}(99.38R)$$

$$f(F) = \frac{1}{1000}(41.78F)$$

4 Heavy Truck

$$f(V) = \frac{1}{1000}\left(-6.5 + \frac{13110}{V} + 0.0332V^2\right)$$

$$f(R) = \frac{1}{1000}(212.50R)$$

$$f(F) = \frac{1}{1000}(89.35F)$$

In the application of the above, the minimum value of FC is set at 0.2f(V) because f(F) rises as downgrade F of a link becomes greater and, for this reason, FC can become extremely small or a minus value. In other words, when it becomes FC<0.2f(V), it is regarded that FC = 0.2f(V).

From the above, the total fuel consumption for each link becomes as follows:

$$\ell \sum_i PF_i FC_i n_i$$

Wherein

ℓ : length of link (km)

PF_i : Price of fuel (Rs/liter) for i kind of vehicle

FC_i : Volume of fuel consumption (liter/km) of i kind of vehicle

n_i : Volume of traffic (number of vehicle) of i kind of vehicle

Price of Fuel, 1977

Vehicle Type	Type of Fuel Used	PF1 Price without Tax (RS/liter)	PF2 Price with Tax (RS/liter)
Renault 12-L	Gasoline (super)	1.43	1.79
Commer 1 ton Van	Gasoline (regular)	1.31	1.64
Bedford 6 ton Truck	Diesel	0.99	1.14
Leyland 12 ton Truck	Diesel	0.99	1.14
Bedford 44 seat Bus	Diesel	0.99	1.14

Source: Interviews with Oil Companies

4. Engine Oil Consumption

Engine Oil Consumption

(liters/km)

Vehicle Type \ Speed V(km/h)	$0 < V < 20$	$20 \leq V < 30$	$30 \leq V < 60$	$60 \leq V < 80$	$80 \leq V < 105$	$105 \leq V$
Passenger Car	0.0016	0.0014	0.0011	0.0011	0.0011	0.0017
Van, Pick-up	0.0021	0.0018	0.0015	0.0013	0.0011	0.0013
Medium Truck	0.0033	0.0029	0.0022	0.0018	0.00020	-
Heavy Truck	0.0040	0.0035	0.0026	0.0023	0.0025	-
Bus	0.0033	0.0029	0.0022	0.0018	0.0020	-

Source: "Quantification of Road User Savings" (IBRD)

Designating the above values as EOC, the length of link as ℓ(km), the number by kind of operated vehicles as n_i (vehicles), and the price of oil by the kind of vehicle as PO_i (Rs/liter), the total engine oil cost in each link is:

$$\ell \sum_i PO_i EOC_i n_i$$

Wherein i indicates the kind of vehicle.

Price of Engine Oil, 1977

Vehicle Type	Type of Engine Oil used	PO1 Price without Tax (RS./linter)	PO2 Price with Tax (RS./linter)
Renault 12-L	S.A.E.30	5.22	6.05
Commer 1 ton Van	S.A.E.30	5.22	6.05
Bedford 6 ton Truck	S.A.E.30	5.22	6.05
Leyland 12 ton Truck	S.A.E.30	5.22	6.05
Bedford 44 seat Bus	S.A.E. 30/40	5.22	6.05

Source: Interviews with Oil Companies

5. Tyre Wear

Speed V(km/h) / Vehicle Type	Tyre Wear (% wear of 1 tyre per km) 0 < V <20	20≦V <40	40 ≦V <60	60 ≦V<80	80≦V<100	100≦V
Passenger Car	0.0010	0.0022	0.0039	0.0059	0.0086	0.0121
Van, Pick-up	0.0009	0.0019	0.0033	0.0051	0.0075	0.0105
Medium Truck	0.0006	0.0014	0.0024	0.0039	0.0054	-
Heavy Truck	0.0006	0.0014	0.0024	0.0039	0.0054	-
Bus	0.0009	0.0022	0.0039	0.0063	0.0092	-

Source: "Quantification of Road User Savings" (IBRD), Interviews with Dealers, Maintenance Workshops

Designating the above values as TW, the length of link as ℓ(km), number of operated vehicles as n_i (vehicles), and the price of tyre by the kind of vehicle as PT_i (Rs/a set of tyres), the total tyre cost in each link is:

$$\ell \sum_i PT_i TW_i n_i / 100$$

Wherein i indicates the kind of vehicles.

Table below shows the durability of tyre in terms of number of kilometers when operated at the average speed as shown, based on the values of the above table. The durability shown by the table below about agrees with the results obtained through the interview of automobile dealers and garage operators in Mauritius.

Life Kilometrage of Tyres

Vehicle Type	Average Running Speed (km/h)	Life Kilometrage of Tyres 1) (km)	Life Kilometrage of Tyres 2) (km)
Passenger Car	55	25,600	24,000
Van, Pick-up	50	30,300	29,000
Medium Truck	40	41,700	42,000
Heavy Truck	40	41,700	42,000
Bus	30	45,500	45,000

1) calculated from the Table above
2) from Interviews with Deales, Workshops, etc.

Also, because rebuilt tyres are sometimes used (particularly on trucks), their prices are listed below even though the computation of operating cost is based on the price of new tyres.

Price of a Set of Rebuilt Types, 1977

Vehicle Type	Type of Rebuilt Tyre Used	No. of Tyres	Life Kilometrage (Km)	Price without Tax (RS)	Price with Tax (RS)
Van, Pick-up	750 x 16	4	13,000	848	1,000
Medium Truck	825 x 20	6	16,000	2,028	2,250
Heavy Truck	900 x 20	10	18,000	3,520	4,400
Bus	825 x 20	6	10,000	1,176	1,470

Source : Interviews with Maintenance Workshops

6. Maintenance Cost (Spare Parts)

Maintenance Cost (Spare Parts)

(% of depreciable value of vehicle per km)

Vehicle Type \ Speed V(km/h)	0<V<20	20≦V<40	40≦V<60	60≦V<80	80≦V<100	100≦V
Passenger Car	0.00006	0.00008	0.00009	0.00010	0.00011	0.00013
Van, Pick-up	0.00008	0.00010	0.00011	0.00012	0.00014	0.00016
Medium Truck	0.00016	0.00018	0.00021	0.00026	0.00031	-
Heavy Truck	0.00010	0.00012	0.00014	0.00017	0.00020	-
Bus	0.00030	0.00036	0.00042	0.00051	0.00060	-

Source: "Quantification of Road User Savings" IBRD
Interviews with Maintenance Workshops, Bus Companies, etc.

Designating the above values as SP, the length of link as ℓ(km), the number of vehicles by type as n_i (vehicles), and the depreciable value by the type of vehicle as P_i (Rs/vehicle), the total maintenance cost (the cost of spare parts) for each link is:

$$\ell \sum_i P_i SP_i n_i / 100$$

Wherein i indicates the type of vehicle.

The monthly maintenance cost as a financial cost computed based on the above table for each type of vehicle under the assumption that the vehicle runs at the average speed is as follows:

Passenger Car	:	67 Rs./Month
Van. Pick-up	:	145 Rs./Month
Medium Truck	:	539 Rs./Month
Heavy Truck	:	1,306 Rs./Month
Bus	:	2,315 Rs./Month

The above figures about coincide with data obtained from bus companies and automobile garage operators in Mauritius.

7. Maintenance Cost (Labor)

Designating length of time needed for maintenance as HL and hourly wage of automobile mechanics as WM, total maintenance cost (labor) for each link is

$$\ell \cdot WM \sum_i HL_i n_i$$

Wherein ℓ means the length of link (km), n_i means the number of vehicles in the link, and i the type of vehicle.

The monthly maintenance cost (labor) as a financial cost , calculated by the above formula under the assumption that each type of vehicle runs at the average speed, is as follows and coincides with data obtained from Mauritian garage operators and bus companies:

Passenger Car	:	49.9 Rs./Month
Van. Pick-up	:	60.2 Rs./Month
Medium Truck	:	199.0 Rs./Month
Heavy Truck	:	500.0 Rs./Month
Bus	:	1,298.3 Rs./Month

Hours of Labour for Maintenance

(Hours/km)

Vehicle Type \ Speed V(km/h)	0<V<20	20≦V<40	40≦V<60	60≦V<80	80≦V<100	100≦V
Passenger Car	0.0111	0.0127	0.0143	0.0164	0.0185	0.0215
Van, Pick-up	0.0094	0.0101	0.0115	0.0131	0.0148	0.0171
Medium Truck	0.0236	0.0259	0.0304	0.0370	0.0438	-
Heavy Truck	0.0446	0.0488	0.0573	0.0696	0.0825	-
Bus	0.0990	0.1082	0.1272	0.1544	0.1831	-

Source: Interviews with Maintenance Workshops, Bus Companies, etc., "Quantification of Road User Savings", IBRD.

Wage of Mechanics/Technicians for Maintenance, 1977

Average Monthly Wage (RS./month)		Average Working Hours	Average Hourly Wage (RS./hour)	
Without Tax	With Tax	(hours/month)	WM1 without Tax	WM2 with Tax
535.9	544.5	208	2.576	2.618

Note: Tax deduction is calculated for a wife and a child under 12 years old.

Source: United Bus Service

8. Interest

Assuming an interest rate of 10% per annum,

$$CI = P \left(\frac{0.1 \times 1.1^C}{1.1^C - 1} - \frac{1}{C} \right) \frac{3}{B(1 + \frac{2V}{A})}$$

Wherein

CI: interest cost (Rs./km)

P : depreciable value of vehicle excluding tyres (Rs.)

C : average lifetime (years)

B : average annual kilometrage (km)

A : average running speed (km/h)

V : specific speed of vehicle (km/h)

As in the case of depreciation cost , the concept that average annual kilometrage varies by speed has been used here.

Designating the length of link as ℓ(km), and the number of vehicles in the link by type as n_i (vehicles), the interest cost for the link is

$$\ell \sum_i CI_i n_i$$

Wherein i indicates the type of vehicle.

9. Insurance

Annual Insurance Cost, 1977

Vehicle Type	Type of Insurance usually applied	Insurance Fee (RS./year) CINS1 without Tax	CINS2 with Tax
Passenger Car	Third Party, Fire and Theft	1,188	1,250
Van, Pick-up	Third Party, Fire and Theft	950	1,000
Medium Truck	Third Party, Fire and Theft	1,425	1,500
Heavy Truck	Third Party, Fire and Theft	1,900	2,000
Bus	Third Party, Fire, Theft and Passenger Risk	2,375	2,500

Source: Interviews with Insurance Companies

Desginating the above values as CINS (Rs/Year), the length of link as ℓ(km), and the number of vehicles in the link by type as n_i (vehicles), the total insurance cost for the link is

$$\ell \sum_i CINS_i \frac{3}{B_i\left(1 + \frac{2V_i}{A_i}\right)} \cdot n_i$$

Wherein B is average annual kilometrage (km), A is average running speed (km/hour), V is specific speed in the link (km/hour), and i is the type of vehicle.

10. License Fee, Road Tax, Etc.

Included in this item are vehicle registration fee, license fee, road tax, and so forth, which can all be deemed as tax and, therefore, as a financial cost rather than economic cost.

Annual License Fee, Road Tax, etc., 1977

(RS./year)

Vehicle Type	Driving License	Carrier License(A)	Road Tax	P.S.V.	Road Service License	CLIC Total
Passenger Car	10	-	640	-	-	650
Van, Pick-up	10	30	880	-	-	920
Medium Truck	10	30	2,168	-	-	2,208
Heavy Truck	10	30	4,668	-	-	4,708
Bus	10	-	1,084	10	33	1,137

Source: Road Traffic Licenses Authority, Traffic Branch

Designating the above values as CLIC (Rs/Year), the length of link as ℓ (km), and the number of vehicles in the link by type as n_i (vehicles), the total of these "taxes" is:

$$\ell \sum_i CLIC_i \cdot \frac{3}{B_i\left(1 + \frac{2V_i}{A_i}\right)} \cdot n_i$$

Wherein B is the average annual kilometrage of operation (km), A is average running speed (km/hour), V is specific speed in the link (km/hour), and i is the type of vehicle.

11. Wages

No wage is assumed for passenger cars, a high rate of which are privately owned and driven. With regard to other types of vehicle, however, the wages of drivers and assistants are computed as below (Tax is computed in accordance with the Income Tax Law).

Designating the wages listed in the table below as W (Rs/vehicle·month), the length of link as ℓ (km), and the number of vehicle by type in the link as n_i (vehicles), the total of wages in the link is:

$$\ell \sum_i W_i \frac{36}{B_i\left(1 + \frac{2V_i}{A_i}\right)} \cdot n_i$$

Wherein B is average annual kilometrage (km), A is average running speed (km/hour), V is specific speed in the link (km/hour), and i is the type of vehicle.

Average Monthly Wages including Other Fringe Benefits (RS./month)

Vehicle Type	Without Tax				With Tax			
	Driver	Helper	Loader	W1 Total	Driver	Helper	Loader	W2 Total
Van, Pick-up	540.7	-	-	540.7	549.9	-	-	549.9
Medium Truck	571.2	429.5	299.5	1,300.2	583.7	429.5	299.5	1,312.7
Heavy Truck	629.9	429.5	299.5	1,358.9	649.0	429.5	299.5	1,378.0
Bus	665.9	429.5	-	1,095.4	689.0	429.5	-	1,118.5

Note: Tax deduction is calculated for a wife child under 12 years old.

Source: Ministry of Labour

Income Tax for Residents before Deduction, 1977

Income (RS/year)	first 10,000	next 15,000	next 20,000	next 20,000	next 10,000	next 10,000	next 10,000	Remainder
Tax Rate (%)	10	20	30	40	50	60	70	75

Note: Tax deductions for a wife are 4,000 RS./year and 1,500 RS./year respectively.

Source: Income Tax Law

12. Overhead

The amount of overhead is assumed to be 10% of all other costs, except for passenger cars for which no overhead is assumed.

Appendix Table XI.5 Vehicle Operating Cost by Speed and Rise & Fall (Economic)

(RS/km)

Vehicle Type	Speed (km/h)	Rise and Fall (%)												
		-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
Car	5	1.60	1.61	1.62	1.62	1.63	1.64	1.65	1.67	1.68	1.70	1.72	1.73	1.75
	10	1.26	1.27	1.28	1.28	1.29	1.30	1.31	1.33	1.34	1.36	1.37	1.39	1.41
	30	0.81	0.82	0.83	0.84	0.84	0.85	0.86	0.88	0.89	0.91	0.93	0.94	0.96
	50	0.65	0.66	0.67	0.68	0.69	0.70	0.70	0.72	0.74	0.75	0.77	0.78	0.80
	70	0.59	0.60	0.61	0.62	0.63	0.64	0.64	0.66	0.68	0.69	0.71	0.72	0.74
Van, Pick-up	5	2.26	2.28	2.30	2.32	2.33	2.35	2.37	2.41	2.45	2.49	2.54	2.58	2.62
	10	1.75	1.77	1.78	1.80	1.82	1.84	1.86	1.90	1.94	1.98	2.02	2.06	2.11
	30	1.09	1.11	1.13	1.15	1.16	1.18	1.20	1.24	1.28	1.32	1.37	1.41	1.45
	50	0.88	0.90	0.92	0.93	0.95	0.97	0.99	1.03	1.07	1.11	1.15	1.20	1.24
	70	0.81	0.83	0.85	0.87	0.88	0.90	0.92	0.96	1.00	1.05	1.09	1.13	1.17
Medium Truck	5	3.77	3.82	3.86	3.91	3.95	4.00	4.05	4.15	4.26	4.37	4.48	4.59	4.70
	10	2.75	2.79	2.84	2.88	2.93	2.97	3.02	3.13	3.24	3.34	3.45	3.56	3.67
	30	1.62	1.65	1.70	1.74	1.79	1.83	1.88	1.99	2.10	2.20	2.31	2.42	2.53
	50	1.36	1.36	1.40	1.45	1.49	1.54	1.59	1.64	1.80	1.91	2.02	2.12	2.23
	70	1.33	1.34	1.38	1.43	1.47	1.52	1.56	1.67	1.78	1.89	2.00	2.10	2.21
Heavy Truck	5	5.90	6.00	6.09	6.19	6.29	6.39	6.48	6.71	6.95	7.18	7.41	7.64	7.87
	10	3.95	4.04	4.14	4.24	4.33	4.43	4.53	4.76	4.99	5.22	5.46	5.69	5.92
	30	2.30	2.30	2.31	2.41	2.50	2.60	2.70	2.93	3.17	3.40	3.63	3.86	4.09
	50	2.02	2.02	2.02	2.02	2.12	2.22	2.31	2.55	2.78	3.00	3.24	3.47	3.70
	70	2.06	2.06	2.06	2.07	2.17	2.26	2.36	2.59	2.82	3.06	3.29	3.52	3.75
Bus	5	3.34	3.39	3.43	3.48	3.52	3.57	3.61	3.72	3.83	3.94	4.05	4.15	4.26
	10	2.41	2.46	2.50	2.55	2.59	2.64	2.69	2.79	2.90	3.01	3.12	3.23	3.33
	30	1.66	1.69	1.74	1.78	1.83	1.88	1.92	2.03	2.14	2.25	2.35	2.46	2.57
	50	1.68	1.68	1.72	1.76	1.81	1.86	1.90	2.01	2.12	2.23	2.33	2.44	2.55
	70	1.92	1.92	1.96	2.01	2.06	2.10	2.15	2.25	2.36	2.47	2.58	2.69	2.80

Appendix Table XI.6.(1) Results of Cost-Benefit Analysis by Sensitivity Case

Savings of minor roads: Excluded
Time benefits: 50% included
Project Cost: ±0% (+20%)

Alternative Case	Present Value (Rs. million)											Internal Rate of Return (%)
	Costs				Benefits				B/C Ratio			
	r= 0%	r= 10%	r= 12%	r= 15%	r= 0%	r= 10%	r= 12%	r= 15%	r= 10%	r= 12%	r= 15%	
P_4	97.3	78.4	75.8	72.4	1,111.2	238.1	182.7	126.1	3.0 (2.5)	2.4 (2.0)	1.7 (1.5)	20.8
P_4'	100.8	81.4	78.8	75.2	1,111.2	238.1	182.7	126.1	2.9 (2.4)	2.3 (1.9)	1.7 (1.4)	20.4
$P_4.S$	85.6	64.7	61.7	57.7	1,106.3	235.8	180.8	124.6	3.6 (3.0)	2.9 (2.4)	2.2 (1.8)	23.8

Appendix Table XI.6.(2) Results of Cost-Benefit Analysis by Sensitivity Case

Savings of minor roads: Excluded
Time benefits: Excluded
Project Cost: ±0% (+20%)

Alternative Case	Present Value (Rs. million)											Internal Rate of Return (%)
	Costs				Benefits				B/C Ratio			
	r= 0%	r= 10%	r= 12%	r= 15%	r= 0%	r= 10%	r= 12%	r= 15%	r= 10%	r= 12%	r= 15%	
P_4	97.3	78.4	75.8	72.4	614.9	135.9	105.0	73.0	1.7 (1.4)	1.4 (1.2)	1.0 (0.8)	15.1
P_4'	100.8	81.4	78.8	75.2	614.9	135.9	105.0	73.0	1.7 (1.4)	1.3 (1.1)	1.0 (0.8)	14.7
$P_4.S$	85.6	64.7	61.7	57.7	612.6	134.9	104.1	72.4	2.1 (1.7)	1.7 (1.4)	1.3 (1.0)	17.5

Appendix Table XI.6.(3) Results of Cost-Benefit Analysis by Sensitivity Case

Savings of minor roads: Excluded
Time benefits: 100% included
Project Cost: ±0% (+20%)

Alternative Case	Present Value (Rs. million)											Internal Rate of Return (%)
	Costs				Benefits				B/C Ratio			
	r= 0%	r= 10%	r= 12%	r= 15%	r= 0%	r= 10%	r= 12%	r= 15%	r= 10%	r= 12%	r= 15%	
P_4	97.3	78.4	75.8	72.4	1,605.0	339.7	260.2	179.0	4.3 (3.6)	3.4 (2.9)	2.5 (2.1)	24.9
P_4'	100.8	81.4	78.8	75.2	1,605.0	339.7	260.2	179.0	4.2 (3.5)	3.3 (2.8)	2.4 (2.0)	24.5
$P_4.S$	85.6	64.7	61.7	57.7	1,597.4	336.3	257.2	176.6	5.2 (4.3)	4.2 (3.5)	3.1 (2.6)	28.5

Appendix Table XI.6.(4) Results of Cost-Benefit Analysis by Sensitivity Case

Savings of minor roads: Included
Time benefits: Excluded
Project Cost: ±0% (+20%)

Alternative Case	Present Value (Rs. million)											Internal Rate of Return (%)
	Costs				Benefits				B/C Ratio			
	r= 0%	r= 10%	r= 12%	r= 15%	r= 0%	r= 10%	r= 12%	r= 15%	r= 10%	r= 12%	r= 15%	
P_4	97.3	78.4	75.8	72.4	1,312.5	267.3	202.9	137.6	3.4 (2.8)	2.7 (2.2)	1.9 (1.6)	21.4
P_4'	100.8	81.4	78.8	75.2	1,312.5	267.3	202.9	137.6	3.3 (2.7)	2.6 (2.1)	1.8 (1.5)	21.0
$P_4.S$	85.6	64.7	61.7	57.7	1,307.7	265.1	200.9	136.0	4.1 (3.4)	3.3 (2.7)	2.4 (2.0)	24.3

Appendix Table XI.6.(5) Results of Cost-Benefit Analysis by Sensitivity Case

Savings of minor roads: Included
Time benefits: 50% included
Project cost: ±0% (+20%)

Alternative Case	Present Value (Rs. million)											Internal Rate of Return (%)
	Costs				Benefits				B/C Ratio			
	r= 0%	r= 10%	r= 12%	r= 15%	r= 0%	r= 10%	r= 12%	r= 15%	r= 10%	r= 12%	r= 15%	
P_4	97.3	78.4	75.8	72.4	2,204.4	437.8	330.7	222.7	5.6 (4.7)	4.4 (3.6)	3.1 (2.6)	26.8
P_4'	100.8	81.4	78.8	75.2	2,204.4	437.8	330.7	222.7	5.4 (4.5)	4.2 (3.5)	3.0 (2.5)	26.3
$P_4.S$	85.6	64.7	61.7	57.7	2,195.2	433.4	326.8	219.5	6.7 (5.6)	5.3 (4.4)	3.8 (3.2)	30.2

Appendix Table XI.6.(6) Results of Cost-Benefit Analysis by Sensitivity Case

Savings of minor roads: Included
Time benefits: 100% included
Project Cost: ±0% (+20%)

Alternative Case	Present Value (Rs. million)											Internal Rate of Return (%)
	Costs				Benefits				B/C Ratio			
	r= 0%	r= 10%	r= 12%	r= 15%	r= 0%	r= 10%	r= 12%	r= 15%	r= 10%	r= 12%	r= 15%	
P_4	97.3	78.4	75.8	72.4	3,092.1	607.6	457.9	307.5	7.8 (6.5)	6.0 (5.0)	4.2 (3.5)	30.9
P_4'	100.8	81.4	78.8	75.2	3,092.1	607.6	457.9	307.5	7.5 (6.2)	5.8 (4.8)	4.1 (3.4)	30.4
$P_4.S$	85.6	64.7	61.7	57.7	3,078.3	600.9	452.1	302.7	9.3 (7.7)	7.3 (6.1)	5.2 (4.4)	34.8

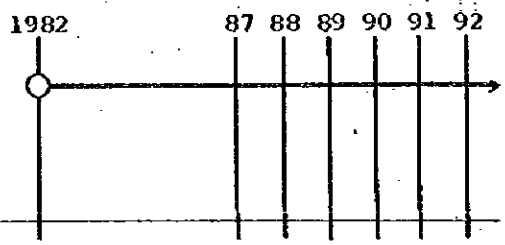
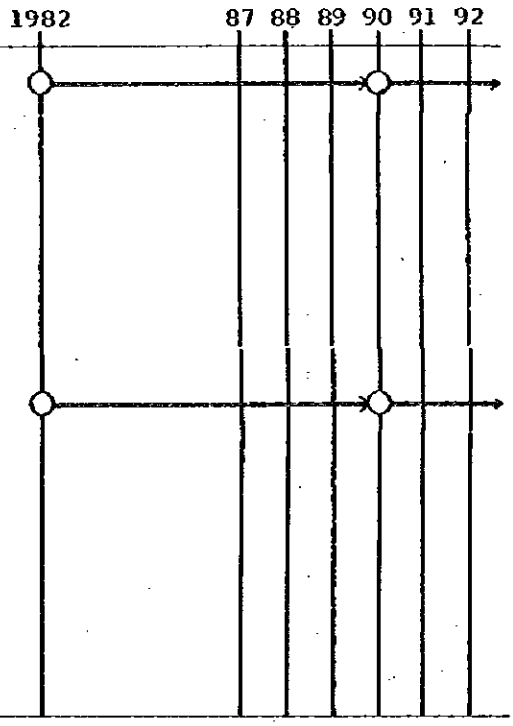
Appendix XI.7 Cost-Benefit Analysis for the Alternative Cases including the Construction of a New G.R.N.W. Bridge

The existing G.R.N.W. bridge on the A_1 Road creates a traffic bottleneck. Traffic analysis results showed that the new G.R.N.W. Bridge could cope with traffic only up to 1987, even if it is constructed as a replacement for the existing bridge. New bottlenecks will occur in places between the G.R.N.W. bridge and Cassis Flyover generally increase over the whole section. The B/C ratio, therefore, will be very small for the network case of the new G.R.N.W. bridge partly due to the length of the new link as it will be longer than the present one. [See Appendix Table XI.7.(2)]

However it has been through the engineering study that the existing bridge is becomming obsolete, as well as being subjected to an increasingly overload due to the ever increasing traffic and to the increase of heavier vehicles, therefore it will have to be reconstructed in the near future. If no countermeasures are taken, the structure will not be able to withstand the future traffic volume and load, and the road will eventually be severed, thus, traffic will be forced to make a long detour. Assuming this situation, the construction of the New Bridge would be economically feasible without doing cost-benefit analysis.

In view of the construction of the new Bridge is inevitable, the economic viability of the alternative Projects analyzed in the main report have been tested under assumptions that the new G.R.N.W. bridge project will be executed at the same time. Appendix Table XI.7.(1) shows the alternative cases for cost-benefit analysis of which results are tabulated in Appendix Table XI.7.(2).

Appendix Table XI.7.(1) List of Other Alternative Cases than Those Excluded from Table XI2.2 for Cost-Benefit Analysis

Alternative Case	Outline of Project	Construction Schedule (assumed opening year)
P_A	. Construction of new G.R.N.W. bridge instead of the existing one along A_1.	
Stage Construction Plan		
$P_4.S + P_A$ (1982)	. Completion of the first stage of $P_4.S$ by 1982, then expansion to P_4 by 1990, assuming that construction of new G.R.N.W. bridge will be completed by 1982.	
$P_4.S + P_A$ (1987)	. Completion of the first stage of $P_4.S$ by 1982, then expansion to P_4 by 1990, assuming that construction of new G.R.N.W. bridge will be completed by 1987.	

Appendix Table XI.7.(2) Results of Cost-Benefit Analysis for Other Alternative Cases Listed in Appendix Table XI

Savings of minor roads: Excluded
Time Benefits: 50% included
Project Cost: ±0% (+20%)

Alternative Case	Present Value (Rs.million)											Internal Rate of Return (%)
	Costs				Benefits				B/C Ratio			
	r= 0%	r= 10%	r= 12%	r= 15%	r= 0%	r= 10%	r= 12%	r= 15%	r= 10%	r= 12%	r= 15%	
P_A (82)	11.5	13.4	13.8	14.4	2.7	1.7	1.6	1.4	0.1 (0.1)	0.1 (0.1)	0.1 (0.1)	0.
P_4+P_A(82)	106.8	114.6	117.0	120.9	1,122.4	319.2	258.5	193.0	2.8 (2.3)	2.2 (1.8)	1.6 (1.3)	19.8
P_4-S+P_A(82)	96.9	94.9	95.8	97.7	1,117.6	316.3	255.8	190.6	3.3 (2.8)	2.7 (2.2)	2.0 (1.6)	22.3
P4.S+P_A(87)	94.7	88.3	88.4	89.1	1,117.7	316.3	255.9	190.7	3.6 (3.0)	2.9 (2.4)	2.1 (1.8)	23.8

APPENDICES FOR LINK A

Appendix		XII - 1	Route Selection of Link A
"	Figure	XII - 2	Traffic Flow at Morning-Peak Hour in 1992
"	Figure	XII - 3	Junction Traffic Flow at Morning-Peak Hour
"		XII - 4	Preliminary Design of Bridges

Link A

Appendix XII -1 Route Selection of Link A

This link involves the rerouting of the existing bridge on A1 Road (Grand River North West Bridge).

As mentioned in "Selection of Alternative Plans", the existing bridge, which grows superannuated, must be rebuilt in the near future. If the bridge is to be reconstructed at its present location, a temporary bridge will have to be built nearby pending the completion of the new bridge. The cost of demolition of the temporary bridge must be considered. It is deemed recommendable, therefore, to build a new bridge near the existing one and construct an access road connecting A1 Road with the new bridge. The location of the new bridge under this plan is shown below.

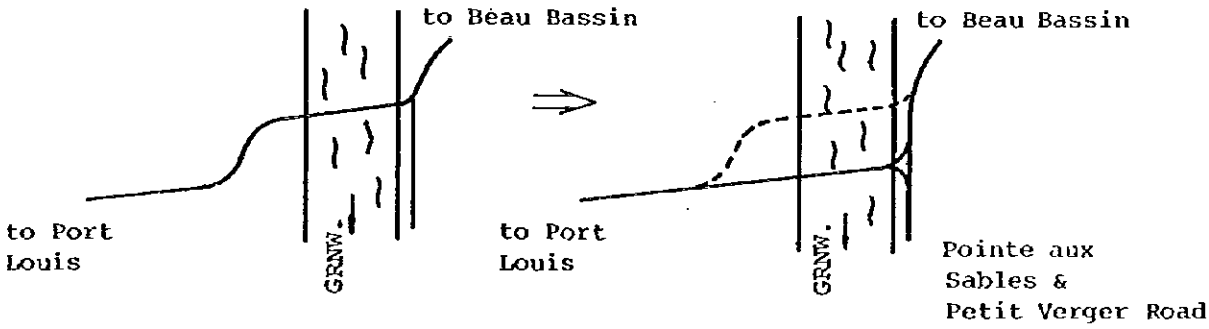


Figure XII-1 Rerouting of Bridge on Route A1

The approaches to the existing bridge form a curve with a relatively small radius. The approach nearer to Port Louis forms a S curve. The new route will run straight toward the river from the base of the S curve on the other side of the river, it will form a T with Pointe aux Sables and Petit Verger Road. A section, about 150 m long, of the road will have an increased width and provide an approach to the existing A1 Road. Refer to Figure XII-1.

Three alternative bridge layouts as shown in Fig. XII-2 were evaluated before the location of Link A could finally be determined.

Alternative 1 proved very costly, since the bridge under this plan would form an extremely oblique angle and be substantially long.

Alternative 3 envisaged the shortest bridge, but it involved a lowering of the service level of Route A, traffic (main) at the crossing and an extension of that road section along the river requiring an increased width (retaining wall to be built on the riverside). Alternative 2, on the other hand, called for a 6 to 7% greater bridge length than under Alternative 3. With Alternative 2, however, the road section along the river requiring a greater width would be some 50 m shorter than in the case of Alternative 3 and the main traffic flow at the crossing would be facilitated even more than under the third alternative. Finally, Alternative 2 was selected by taking into consideration the above.

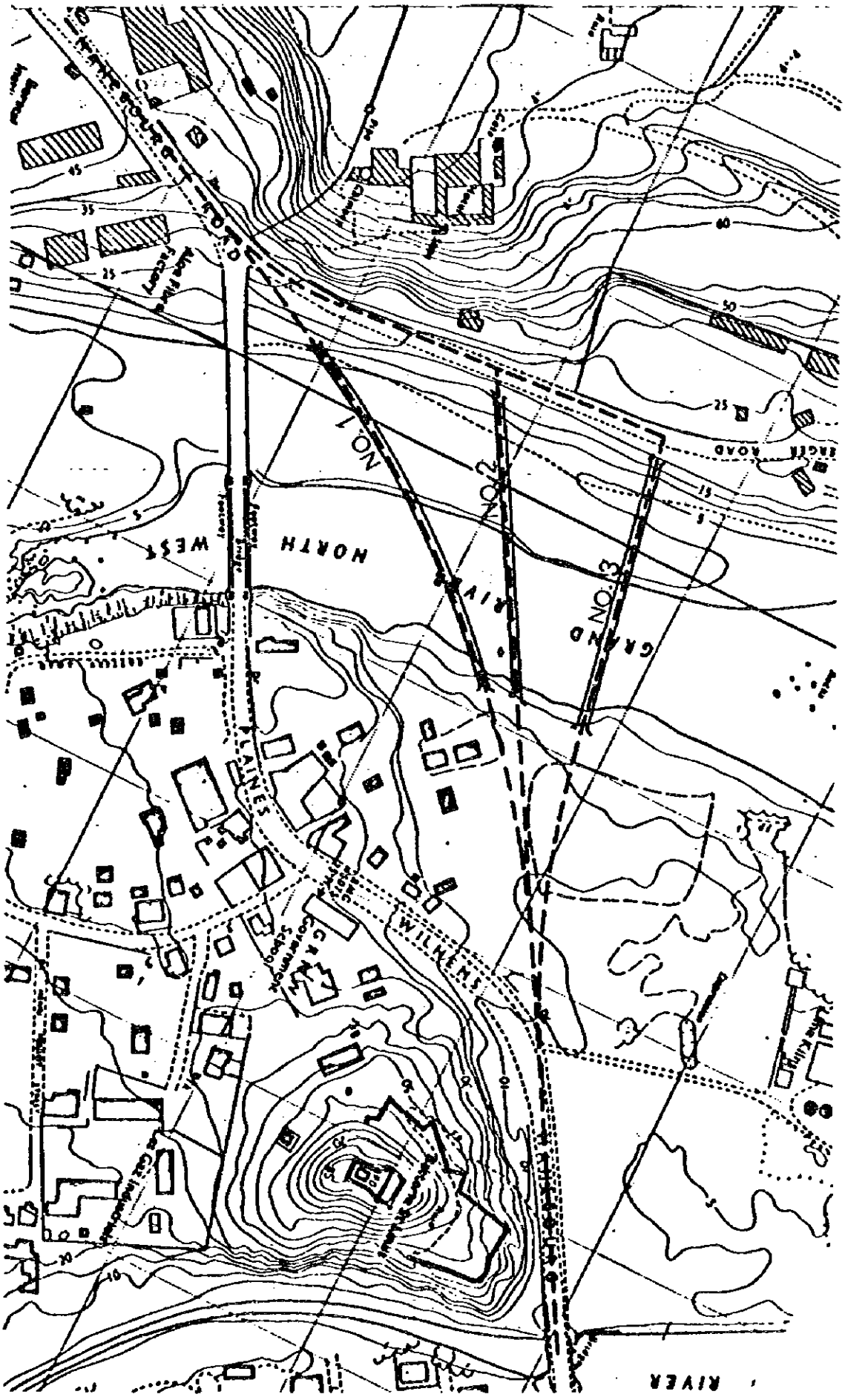
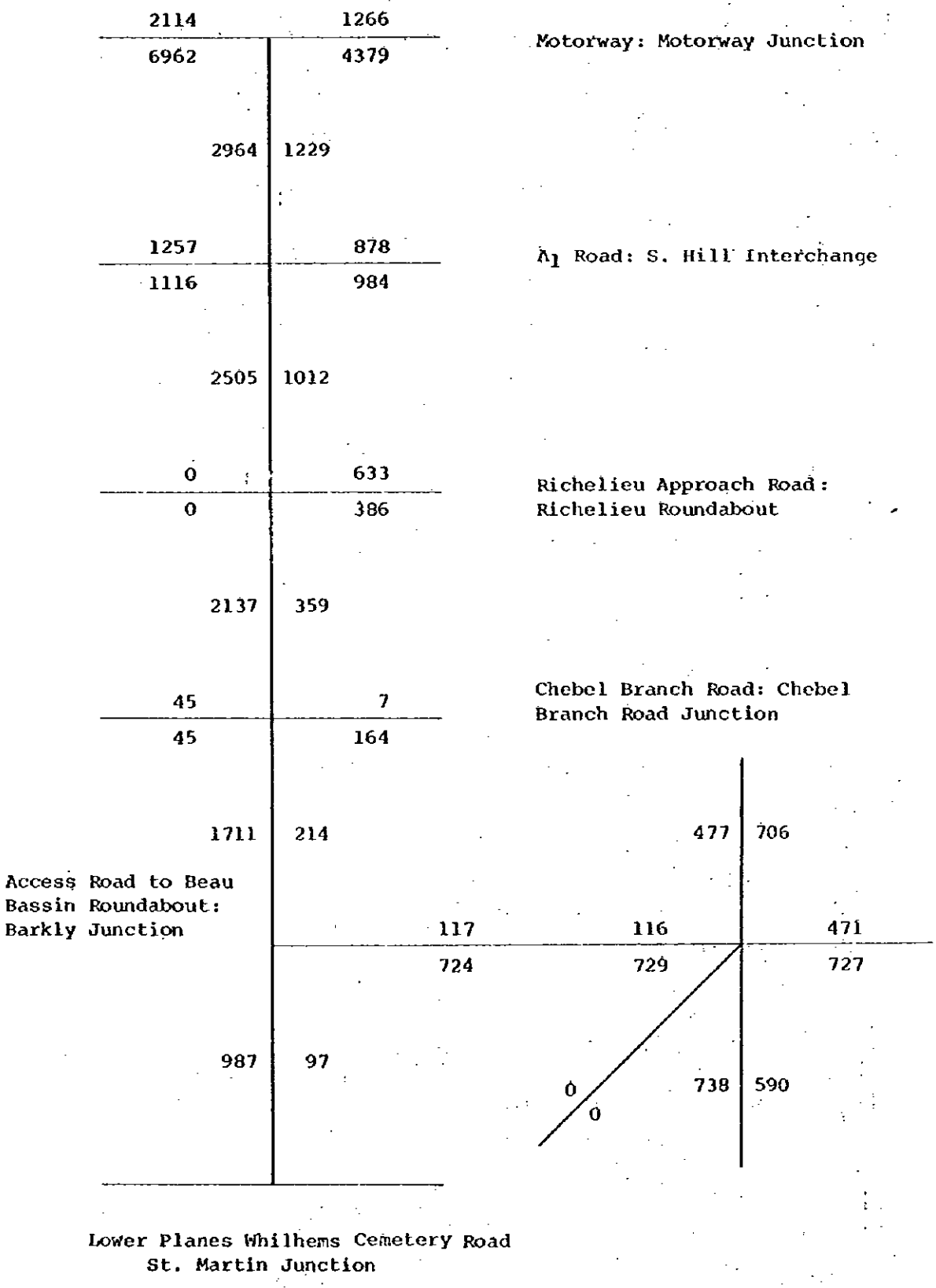


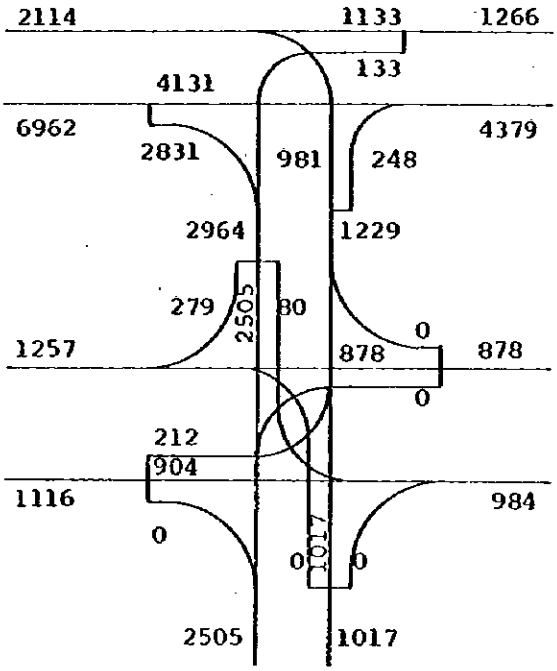
Figure XII-2 ALTERNATIVE LOCATIONS OF BRIDGE S = 1 : 2500

Appendix Figure XII-2 Traffic Flow at Morning-Peak Hour in 1992 (Alternative P_3 West + P_A) (P.C.U.)



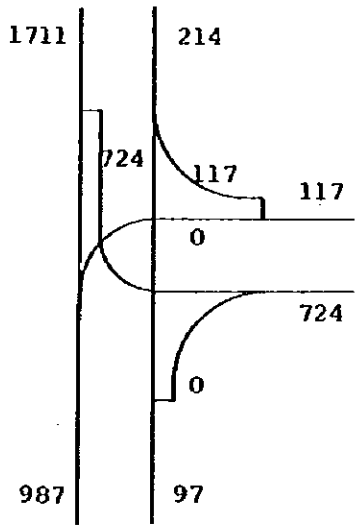
Appendix Figure XII-3 Junction Traffic Flow at Morning-Peak Hour
(P.C.U.)

<1992- P_A + P_4>



Motorway: Motorway Junction

A1 Road : S. Hill Interchange



Access Road to Beau Bassin
Roundabout: Barkly Junction

Appendix XII- 4

Preliminary Design of Bridges

1. Introduction

In this Section, the final selection of the optimum design is exhibited for the G.R.N.W. Bridge planned to be constructed on the projected route specified in the preceding Section.

An alternative plan is first proposed for comparative study, subsequently with technical analysis laid down thereon, and pertinent criteria for determination are ultimately established as for the economic evaluation of construction costs.

2. Alternatives by type of structure

Bridges	Assumed Conditions	Alternatives
New route New bridge on the downstream of the existing way	Examination of basic span composition (bridge length 150 m)	Superstructusre: 6-span simply-supported girder PC: Post-tensioned T girder Span: 25 m 5-span simply-supported girder PC: Post-tensioned Span: 30 m 4-span simply-supported girder PC: Post-tensioned T girder Span: 37.5 m Substructure: Reinforced concrete Width: 1.35+10.8+1.35 m
Existing route Existing truss bridge	Existing truss bridge to be replaced, while existing structure to be used for sub-structure	Superstructure: Metal (Composite box girder) PC: Post-tensioned box girder

Bridges	Assumed Conditions	Alternatives
	Comparative study to be made for metal and PC structure of super-structure	Substructure: Concrete Span: 50 m Width: 8.5 m + 1.35 m

3. Major items for comparative studies

Major matters given close scrutiny of pursuance of comparative studies of the alternatives are hereby itemized as follows:

(1) What sort of span composition should be adopted as the most economical?

(2) What sort of relation exists between the sectional area of river and the span composition?

(3) What type of bridge should be the most economical?

(4) What pattern should be the most economical one in respect of maintenance and management?

4. Comparative study and selection

4-1. Elemental standpoints for selection

The standpoints for selection of alternatives in the proposed route is basically divided into two, one with regard to installation of a new route and the other with regard to significance represented by replacement of the existing truss bridge.

(1) An issue, which should be made of the new route installation plan and also of the plan of the disused railway track route, is the primarily comparative study of metal and concrete and the relationship between the setional area of the river and the span composition. Provided that appropriate proof has been procured through the study of the plan, of the disused railway track route, the bridgf structure of the proposed route is composed of the concrete type.

(2) In respect of the relationship between the sectional area of river and the span composition, the minimum span is to be provided for the purpose of both minimizing an impediment ratio to check piling in the river at the maximum flow rate and maintaining enough pertinent span to prevent it being struck by driftwood.

As for the proposed bridge, the following formula is provided as a result of the water flow analysis, with discharge being Q.

Length of minimum span l
= 20 + 0.05Q m (Japan River Structure Ordinance)
= 20 + 0.05 x 740
= 23.7 m

(3) Taking into account that the proposed bridge is to be installed at the site close to the river mouth and sensitive to the effects caused by the tide, adequate temporary water-proof works and facilities should be provided during the construction of substructure, all the said works and facilities being counted out and included in the construction costs.

(4) The replacement of the existing truss bridge can only be considered either in case the A1 road traffic flow, for some special reason, comes to be halted following the completion of the disused railway track route or in the case that there may be suffifient room after the opening of the new route with regard to the disused railway track route.

The former case, needless to say, may become likely with the least possibility, while the latter can certainly be considered separately from this project.

Taking into consideration the above, the superiority of the structure must be evaluated simply based on the estimate of the construction costs apart from comparative study on the benefits derived from the route as a whole and the traffic distribution thereon.

As far as, however, the purely technical studies on the installation work are concerned, a relatively longer span has a remarkable virtue and, thus, it cannot necessarily be said that the concrete plan would have an advantageous position for selection.

It may well be advisable that the said replacement plan of the existing bridge should be regarded as one of the various possibilities.

4-2. Selection of the optimum plan

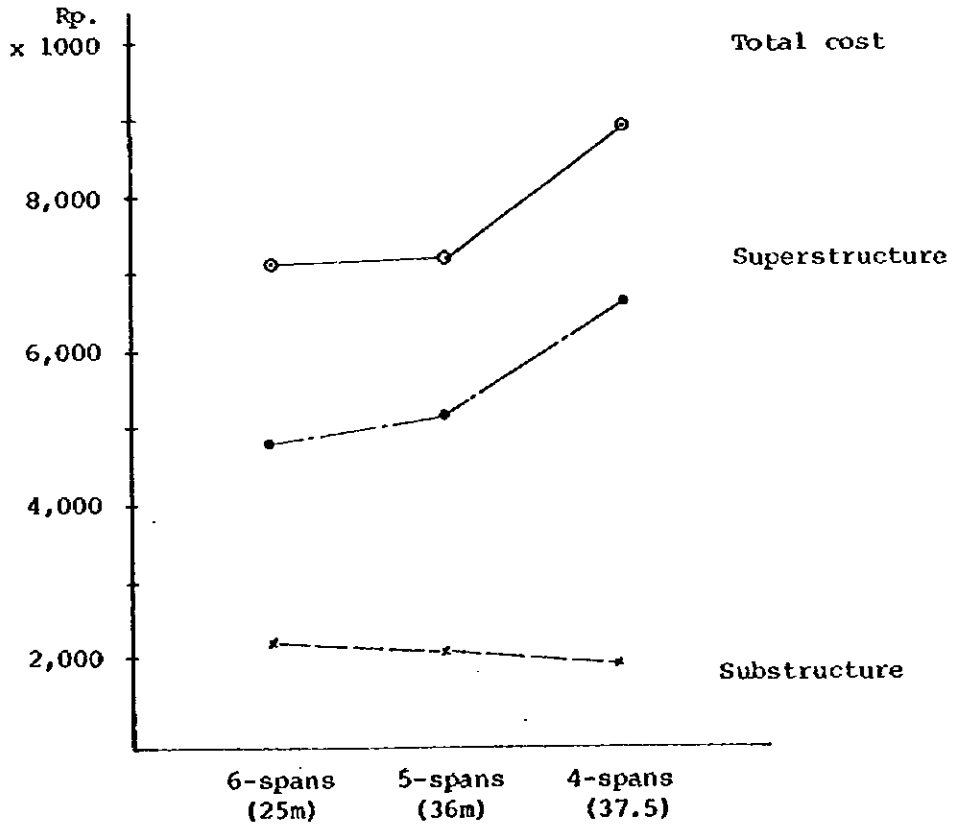
(1) The estimate of construction costs is exhibited in Table XII.4.1. In view of the estimate, it is assessed that there is little difference between the 6 span and 5 span plans and the 4 span plan is economically inferior to the foregoing two alternatives.

(2) It is naturally concluded that the 5 span plan should be adopted considering the general river conditions in view of the fact that the span is currently about 50 meters for the existing truss bridge on the upstream side and that the piling in the river should not be disturved .

Table XII.4.1 Construction Cost Comparison by Number of Span for G.R.N.W. Bridge (Link-A)

Unit: x1000 Rp.

		6-spans	5-spans	4-spans
Superstructure	Local currency	1,650 (34%)	1,760	2,260
	Foreign currency	3,200 (66%)	3,420	4,400
	Total	4,850	5,180	6,660
Substructure	Local currency	510 (22%)	460	420
	Foreign currency	1,820 (78%)	1,650	1,490
	Total	2,330	2,110	1,910
Total	Local currency	2,160 (30%)	2,220	2,680
	Foreign currency	5,020 (70%)	5,070	5,890
	Total	7,180	7,290	8,570



Appendix Table XII.4.2

Construction Cost

Alternative PA 2-Lane l= 450m

(Unit 000Rs)

Item	Economic Cost	F/C	L/C
Acquisition	114	0	114
Clearing	52	31	21
Earthwork	378	282	96
Drainage	35	14	21
Pavement	820	582	238
Carriageway Equipment	135	109	26
Bridge	7,992	5,195	2,797
Total	9,526	6,213	3,313
Detailed Design	619	526	93
Supervision	953	810	143
Grand Total	11,098	7,549	3,549

MAURITIUS

BEAU BASSIN - PORT LOUIS LINK ROAD

FEASIBILITY AND DETAILED ENGINEERING

TERMS OF REFERENCE

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I. INTRODUCTION

1.01 The Government of Mauritius proposes to construct a new road linking Beau Bassin in Plaines Wilhems with Port Louis. The proposed road will be about 8 kms in length and will be known as the "Beau Bassin-Port Louis Link Road".

1.02 The new road is meant to achieve a two-fold purpose: firstly to reduce the congestion on the existing Port Louis-St Jean Road which is overloaded by about 262% during peak time; and secondly to accommodate the traffic attracted and generated by the planned industrial estates.

II. Existing Situation

2.01 The part of the Port Louis-Saint Jean Road (A1) between the roundabout in Beau Bassin and the flyover bridge at Cassis is the only link between Lower Plaines Wilhems and Port Louis. It is about five miles long.

2.02 The development of Rose Hill is attracting more and more traffic which would otherwise use the Bell Village-Phoenix Trunk Road and the New Southern Entrance Road (M2 and M1). In addition the road is used by traffic generated by the areas of Coromandel, Pointe aux Sables and Bell Village.

2.03 All these factors have contributed to the present situation where the portion of road described above has to bear vehicular traffic in excess of its capacity. It is overloaded at all times and by 262% of its capacity during peak time. A trip between Beau Bassin and Cassis sometimes takes thrice the normal travelling time of 15 minutes.

2.04 General information as to the location of the proposed road is given on the following attached drawings:

(a) Road Map of Mauritius
(b) Map showing the former railway track between Beau Bassin and Port Louis.

III. Objectives

3.01 The aim of the study will be to determine the technical and economic feasibility of constructing a new road from the roundabout at Beau Bassin to Port Louis on the alignment as far as possible of the disused railway track and to provide the basis for decision on the most suitable design standard and routing having regard to the needs and requirements of Mauritius. Once such decisions are taken and the best solution is selected the final engineering design and relevant tender documents will have to be prepared accordingly. In other words, the study will be carried out in two phases with the first phase dealing with a detailed economic study and preliminary engineering while the second phase will be the final engineering stage. A period of four weeks will be allowed for the Bank to study the economic and preliminary engineering reports so as to decide whether or not the detailed studies should proceed.

IV. SCOPE OF CONSULTING SERVICES

4.01 The Consultant shall perform an economic analysis and all engineering work, field investigations and related works as are required to attain the objectives in Section III hereof.

4.02 In the conduct of his work the Consultant shall co-operate fully with Ministries and Government Departments responsible for transport and development planning; the Government will provide the Consultant with the data and services outlined in Section V hereof. The Consultant shall be solely responsible, however, for the analysis and interpretation of all data received and for the conclusions and recommendations in his report.

A. Economic Analysis

4.03 To determine the type and volume of future traffic for the road, the Consultant shall analyse all existing statistical data on traffic in the area served by the road. If the Consultant finds that additional traffic counts and origin-destination studies are required to determine the nature of the traffic and the present volume of freight and passenger movements on the road understudy, the necessary additional counts and other field investigations shall be undertaken by the Consultant. In addition, the Consultant shall identify, describe, and quantify existing and potential traffic generating factors in the area served by the road, for example, the new industrial states at Coromandel, Pointe aux Sable and Plaine Lauzun, the bulk sugar terminal to be constructed near Port William, and the future need for highway transport that will result from:

population growth and changes in rural and urban population distribution;

national and regional economic growth;

all agricultural and industrial developments and tourism projects which will be served directly or indirectly by the project road.

4.04 Based on the above findings the Consultant shall make projections of future traffic for the economic life of the road.

4.05 Traffic studies will include:

(a) traffic composition and volume count including daily variation of traffic and average daily traffic;
(b) an origin-destination study;
(c) traffic growth in terms of normal, generated and diverted traffic; and
(d) the determination of the maximum practical capacity of bridge in terms of traffic flow.

4.06 The Consultant shall carry out a full economic analysis of the impact area in terms of present and future agricultural and industrial activities, population and income growth, and the overall economic and social development of the region that may result from the construction of the road.

4.07 In view of the fact that many social and economic benefits of a highway project are "intangible" or not quantifiable, the Consultant shall give a detailed qualitative analysis of those benefits.

4.08 After ascertaining the cost of the project (net of taxes) the Consultant shall evaluate the project in terms of future benefits of the road with regards to road user benefits, savings in road maintenance costs, residual value of the road and structures, and any other parameter the Consultant may consider necessary for his analysis.

The evaluation will include the determination of the internal rate of return (IRR) and the Benefit/Cost ratio (B/C).

B. Preliminary Engineering

4.09 Within the scope of the feasibility study the Consultant shall conduct all topographic surveys, aerial surveys, subsurface explorations and other field and laboratory investigations that are required for the preliminary engineering. This shall comprise:

(a) topographic surveys, including cross-sections, plans and profiles of proposed alignments;

(b) material testing and soils investigation to identify and test appropriate materials for the construction and maintenance of the road.

4.10 Preliminary engineering study shall be carried out to a degree of accuracy that will permit quantity estimates with an accuracy of ± 20 per cent. The principal quantities of construction shall include common excavation, rock excavation, sub-base material, base and surfacing material, number and size of drainage structures, major bridges and other major structures. Preliminary engineering design of major bridges and other major structures shall include determination of the spans and type of foundations.

4.11 On the basis of the field surveys as outlined in paragraph 4.09 above, the Consultant shall estimate the cost of construction for the road, net of taxes. The cost shall be broken down into foreign and local currency components. The foreign exchange component shall include equipment depreciation, imported materials and supplies, wages of foreign personnel, overhead and profit of foreign firms that may undertake the construction of the road. The local currency component shall include the cost of right-of-way acquisition, local materials and supplies, salaries and wages of local employees, and taxes.

4.12 In broad terms the Consultant is to prepare a detailed design for the construction of the project road complete with cost estimates and bidding documents. In great detail the service will comprise:

(a) definition and staking out of the proposed road alignment;
(b) detailed engineering design, preparation of estimate of quantities, plans, drawings and bidding documents;
(c) preparation of cost estimate of the proposed work with a breakdown into foreign and local currency costs; and
(d) assistance in the prequalification of contracting firms and in the analysis and evaluation of bids.

4.13 The Consultant shall carry out the necessary additional surveys along the general alignment already established in order to determine the accurate centre-line location. The centre-line should then be set out, levelled and cross-sectioned and bench marks established where this has not already been done. No major deviations from the approved general alignment shall be made without the approval of the Government. The Consultant shall then carry out all works necessary for the detailed design of the proposed works, for the estimation of quantities to an accuracy of ± 10% of final quantities as measured on the completion of the works, excluding any approved variations to the contract, and for the preparation of bidding documents suitable for international competitive bidding.

Engineering Investigations - The following engineering investigations shall be carried out:-

4.14 In conjunction with the other engineering investigations and plans provided by the Government covering part of the area to a scale of 1:2,500, to define the final road centre-line.

4.15 The road centre-line shall be set out using wooden pegs generally at intervals of 150 feet, which may be increased to 300 feet in easy country, and at all intersections and tangent points to horizontal curves with concrete beacons. All tangent points pegs and pegs at intervals not exceeding 600 feet on long straights shall be adequately referred to as recovery pegs, placed well clear of the permanent work, or to stations on the baseline traverse as applicable.

4.16 Cross-sections shall be taken at intervals not exceeding 150 feet, and at such closer intervals where necessary, to enable earthwork quantities to be calculated to an accuracy of ± 10%, the width of the cross-section to vary according to the engineering requirements.

4.17 Bench marks will be established along the route at intervals of about one half mile, located near the right-of-way at points readily accessible for use and reasonably close to the centre-line.

4.18 Detailed surveys will be carried out at all bridge sites including a sufficient length upstream and downstream to enable the hydraulic

design of the structure to be carried out. All topographical surveys undertaken by the Consultant will be to standards of accuracy generally accepted internationally for such work and as approved by the Ministry of Works and shall be recorded in standard survey field-books which shall become the property of the Ministry of Works on the completion of the work. All bridges design will take into account the effect of strong winds or cyclones on the structures.

Soils and Material Investigation

4.19 A review will be made of all existing relevant data, followed by a general study of the soils and materials along the route. The Consultant will be required to make additional detailed soils investigation along the road alignment to identify the varying soils types, with disturbed samples to be taken at intervals of about 3,000 feet and at other places to determine changes in soil type.

4.20 At bridge sites, and for other major structures, sub-surface conditions will be investigated by trenching, hand augering and/or drilling as required, including the taking of undisturbed samples. Seismic investigations may also be carried out if considered necessary by the Consultant.

4.21 Investigations for sources of construction materials for pavement and structures will also be carried out, and sites of suitable materials will be surveyed and shown in the engineering plans. Analysis and testing will be carried out as required on the disturbed and undisturbed soil samples and on the construction materials, in accordance with standard practice adopted by the Ministry of Works in Mauritius. Tests on soil samples will include classification, liquid limit, plastic limit, moisture/density relationship, CBR value of proposed sub-grade soils and any proposed special methods of soils stabilisation. The Consultant shall made adequate tests to prepare alternative designs for bases, e.g. crushed stones, naturally occurring gravel and gravel stabilised with Portland cement. Undisturbed samples will be tested for the determination of the main mechanical characteristics (classification, shear strength, compressibility, etc.).

4.22 Construction materials samples will be tested where necessary for:
Grain-size distribtuion and plasticity characteristics;
CBR;
maximum dry density and optimum moisture content;
aggregate crushing value;
bitumen adhesion;
petrographical analysis;
chemical water analysis;
modified proctor values; and
marshal stability tests on premix bituminous materials.

Drainage and Bridge Site Investigations

4.23 Hydrological studies will be carried out of all drainage structures, with careful analysis of all available data, including rainfall and flood records, and detailed field inspections. Catchment areas will be determined by stereoscopic examination of aerial photos, the study of available maps and field investigations.

Engineering Design - The following engineering design shall be performed:

(i) Horizontal and Vertical Alignment of Road

4.24 The horizontal alignment of the road centre-line will be determined by study of the optimum alignment between control points specified as a result of the engineering investigations. Points at even increments of length of 150 feet along the centreline, tangent points and such other critical points as may be required will be fully defined relative to stations on the baseline by radiations and offsets, suitable for setting out the centre-line, using a co-ordinate geometry computer programme. All points will be co-ordinated to the grid system to which the road shall be referenced.

4.25 The vertical alignment shall also be determined, with detailed calculation of earthwork quantities.

(ii) Earthwork and Pavement

4.26 Engineering analysis will be undertaken using the results of the soils tests and materials tests, and of the field investigations, to determine cut and fill batter slopes, compaction requirements, pavement design and other engineering treatment dictated by the natural materials.

(iii) Drainage and Bridge Structures

4.27 All existing data and the results of the field investigations for soils, foundations, hydrology, etc... will be assessed and used as a basis for the design of drainage and bridge structures, which shall be supported by detailed hydraulic computations.

4.28 Detailed design shall be prepared for all drainage structures having spans of 30 feet or more. All crossings with spans of less than 30 feet shall be specified as standard type structures which shall be fully designed. Bridges shall be designed to a loading of axle load and shall have two 12' lanes on a 33' wide deck in accordance with B.S.S. 153 Part 3 A.

(iv) Liaison with the Ministry of Works

4.29 As the design progresses, the Consultant's Project Manager shall maintain close liaison with the Ministry of Works and shall submit from time to time draft design proposals for alignment, earthworks and pavement, structures and other technical aspects of the design for approval before proceeding with the detailed design drawings.

(v) Engineering Plans

4.30 The Consultant will prepare the following engineering plans for the project, using the format and title sheets as required by the Ministry of Works, the originals becoming the property of the Ministry of Works:

(a) locality

(b) road plans, to a scale of 1: 2,500 showing:
road centre-line, with chainage of cross sections;
horizontal curves;
location, description and reference to all drainage and bridge works;
right-of-way areas showing land utilisation;
other relevant natural and cadastral information.

(c) longitudinal profile, to a horizontal scale of 1: 2,500 and vertical scale of 1/250 showing:
natural ground and design profile;
details of grades, horizontal and vertical curves;
running chainages, including all cross sections;
location, description and references to all drainage and bridge works.

(d) cross sections to a scale of 1:100 natural, where applicable.

(e) major structures:
for all bridge structures with spans of 30 feet or more;
detailed engineering design plans will be produced at appropriate scales, including contoured site plans, sub-surface investigation information, all super-structure, sub-structure and foundation details, and protective or ancillary works.

(f) standard drawings, to suitable scales, and where applicable, including a Bill of Quantities, for the following:
drainage structures with spans of less than 30' road cross sections, specifying cut and fill batters, drains, pavement; road furniture and markings.

(g) plans detailing the characteristics of soils for various sections of the route.

(h) plans of other ancillary works including retaining walls, and other necessary details.

(vi) Construction Quantities

4.31 The quantities for the items of construction shall be calculated on the basis of the design drawings and within the required accuracy and in accordance with accepted methods of measurement. The quantities shall be summarised into the following main sections:

Preliminaries and General items;
Earthworks;
Standard Structures;

Bridges;
Pavement;
Ancillary works (road furniture, etc ...); and
Contingencies.

(vii) Cost Estimate

4.32 In order to make a fair and reasonable estimate of the cost of the road, the Consultant will prepare a unit price analysis of each item using basic cost elements (labour, materials, equipment, tools, etc...) overheads, profit, supervision and the like but excluding the cost of all taxation direct or indirect. The additional cost due to all taxation shall also be provided separately. The estimates resulting from this analysis will be compared with those of previous projects or similar works executed in the area; should any discrepancies be found the causes will be identified and studied to arrive at realistic market prices for the works. The estimate for right-of-way acquisition shall be made on the basis of the unit prices to be furnished by the Government for each type of land utilisation.

4.33 The Consultant shall give cost estimates broken down into foreign and local currency components.

The foreign currency components shall include the cost of:

(a) imported equipment (depreciation) materials and supplies;
(b) domestic materials of which the country is a net importer;
(c) readily identifiable foreign components of domestic materials of which the country is a net exporter;
(d) wages of expatriate personnel;
(e) profit of foreign firms and overheads where appropriate.

The local currency component shall include the cost of:

(a) right-of-way acquisition;
(b) domestic materials and supplies of which the country is a net exporter;
(c) salaries and wages of local employees;
(d) taxes.

4.34 In order to assist in the evaluation of the required construction period and forward budget needs, the Consultant shall prepare a construction schedule for the proposed contract showing the anticipated annual expenditure. Due account shall be taken of the climatic conditions in the area concerned.

(viii) Bidding and Contract Documents

4.35 The Consultant will prepare the following bidding and contract documents:

(1) List of prequalification data to be furnished by the Contractor;

(2) Instructions to tenderers: general information, list of equipment, work schedule, form of tender guarantee;

(3) Tender (form of tender);

(4) Form of contract;

(5) General conditions of contract;

(6) Particular conditions of contract;

(7) Technical specifications for the execution of the works;

(8) Bills of quantities.

4.36 Assistance in Selection of Contractors. The Consultant shall assist the Government in the prequalification of contractors and in the award of a contract as follows:

- decision on the form and diffusion of the prequalification announcement;
- evaluation of the prequalification documents;
- issue of tender documents;
- analysis and evaluation of bids received; and
- recommendation to Government of Mauritius on the award of contract.

V. DATA, LOCAL SERVICES AND FACILITIES TO BE PROVIDED BY THE GOVERNMENT

5.01 The Government shall provide the Consultant with:

(i) 1 in 2,500 plans of the alignment - all design works and materials investigations as defined in Section II;

(ii) cost of recent road construction and maintenance for various types of roads;

(iii) maps of the area as available;

(iv) aerial photography of the road, if available;

(v) information on existing transportation needs as well as Government plans to meet future requirements.

B. Co-operation of Government Agencies and Counterparts

5.02 In connection with work by the Consultant that requires the co-operation of the Government and other public agencies, the Government is to provide liaison and is to insure that the Consultant has access to all information required for the completion of the studies.

5.03 The Government will assign qualified counterparts to work with the key personnel of the Consultant in so far as the exigencies of the service allow.

C. Facilities and Supporting Staff for the Consultant

5.04 If required the services of the Ministry of Works Materials Laboratory can be made available to the Consultant at a price to be agreed upon by the Consultant and the Ministry of Works.

5.05 The Government will assist and guide the Consultant in locating satisfactory and appropriate living accommodation for his personnel.

VI. TIME SCHEDULE FOR CONSULTING SERVICES AND REPORTS

6.01 The Consultant shall prepare and submit the following reports (all in English):

(i) Preliminary economic and engineering studies (5 copies) establishing the feasibility of the project, should be furnished the Bank within two months after commencement of the studies.

(ii) Progress reports (10 copies to the Government, 15 copies to the Bank) at bi-monthly intervals after starting date, summarising progress made during the reporting period and total progress since the start of the work, tentatively summarising the findings and recommendations of the Consultant and identifying any major delays to the work with recommendations for corrective action;

(iii) detailed plans of alignment, cross sections, pavements design and structures (5 copies) to the Government as work proceeds, divided into lots suitable for review and comments;

(iv) draft specifications, tender documents and supporting technical reports (10 copies to the Government, 15 copies to the Bank) within six months of starting date of the studies. These documents and reports shall be presented in edited form for comments by the Government and the Bank; such comments will be submitted within one month of receipt of the draft documents and reports by the Government and the Bank; the documents and reports shall contain sufficient data to permit checking of conclusions and recommendations without recourse to other documents; and

(v) complete sets of tender documents and supporting technical reports (24 copies to the Government, 15 copies to the Bank) within 2 months of receipt of the Government's and the Bank's comments on the draft documents and reports.

TIME SCHEDULE FOR CONSULTING SERVICES

Beginning of Studies	M	
Preliminary Economic and Technical Feasibility Report	M +	3 months
Study of the Preliminary Report by Bank to decide on Project	M +	4 months
Draft Specifications, Tender Documents and Supporting Technical Reports (i.e. if project is approved by Bank for detailed studies)	M +	10 months
Comments from the Bank and Government	M +	12 months
Final Report and Tender Documents	M +	15 months
Total Duration		15 months

Note: M. denotes commencement date

SCOPE OF WORK

FEASIBILITY AND PRELIMINARY ENGINEERING STUDY FOR BEAU BASSIN - PORT LOUIS LINK ROAD IN MAURITIUS

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SCOPE OF WORK

FEASIBILITY AND PRELIMINARY ENGINEERING STUDY

FOR BEAU BASSIN-PORT LOUIS LINK ROAD

IN MAURITIUS

I. INTRODUCTION

In response to the request of the Government of Mauritius and the African Development Bank/Fund (ADB/F), the Government of Japan has decided to conduct a study of "BEAU BASSIN-PORT LOUIS LINK ROAD" in accordance with laws and regulations in Japan, and the Japan International Cooperation Agency (JICA), the official agency responsible for the implementation of technical cooperation programs of the Government of Japan, will carry out the study.

The study will be financed by the Government of Japan, in accordance with technical cooperation agreement between the Government of Japan and the ADB/F.

The present documents set forth the scope of work in regard to the above mentioned study which is to be carried out in close cooperation with authorities concerned of the Government of Mauritius and the ADB/F.

II. OUTLINE OF THE STUDY

(I) Period of the study : 8 months

(II) Road proposed : BEAU BASSIN-PORT LOUIS
(approximately 8Km. long)

(III) The study to be conducted comprises the following :

(1) Selection of alignment
(2) Surveying
(3) Hydrological study
(4) Soil investigation
(5) Construction materials investigation
(6) Economic study of the area concerned
(7) Traffic study
(8) Preliminary design
(9) Evaluation of the project

III. STUDY SCHEDULE

The study will be executed in accordance with the attached tentative schedule.

IV. REPORTS

(I) Inception Report

The JICA will submit to the Government of Mauritius and the ADB/F 5 copies each of Inception Report (in English) at the beginning of the field survey.

(II) Progress Report

The JICA will submit to the Government of Mauritius and the ADB/F 5 copies each of Progress Report (in English) upon the completion of the field survey.

(III) Draft Final Report

The JICA will submit to the Government of Mauritius and the ADB/F 5 copies each of Draft Final Report (in English) within 3 months after the completion of the field survey.

(IV) Comments on Draft Final Report

Comments on Draft Final Report will be submitted by the Government of Mauritius and the ADB/F within 1 month after receipt of Draft Final Report.

(V) Final Report

The JICA will submit to the Government of Mauritius 40 copies and the ADB/F 5 copies of Final Report (in English) within 2 months after receipt of the comments on Draft Final Report.

V. UNDERTAKING OF THE GOVERNMENT OF JAPAN

In connection with the execution of the above study, the JICA will conduct the on-the-job training for the counterpart staff during the period of the study.

VI. UNDERTAKING OF THE GOVERNMENT OF MAURITIUS

For the purpose of facilitating the efficient and rapid execution of the works in Mauritius, the following conveniences, facilities and services shall be provided by the Government of Mauritius.

(I) To exempt the Japanese Team custom duties on any equipments and materials required in connection with the execution of the work. And also exempt all members of the Japanese Team from all income taxes within Mauritius.

(II) To assign counterpart economists and engineers to the Team during the work.

(III) To provide the Team with suitable furnished office accommodation near the site.

(IV) To provide the Team with available data and information required for the study and admit to take these out of the country.

(V) To provide the Team with the vehicles with drivers.

(VI) To provide the Team with labourers needed for the work.

(VII) To admit the Team the priority medical services.

(VIII) To provide the Team with the equipments for the survey and the soil investigation and to admit to use the materials laboratory with technicians.