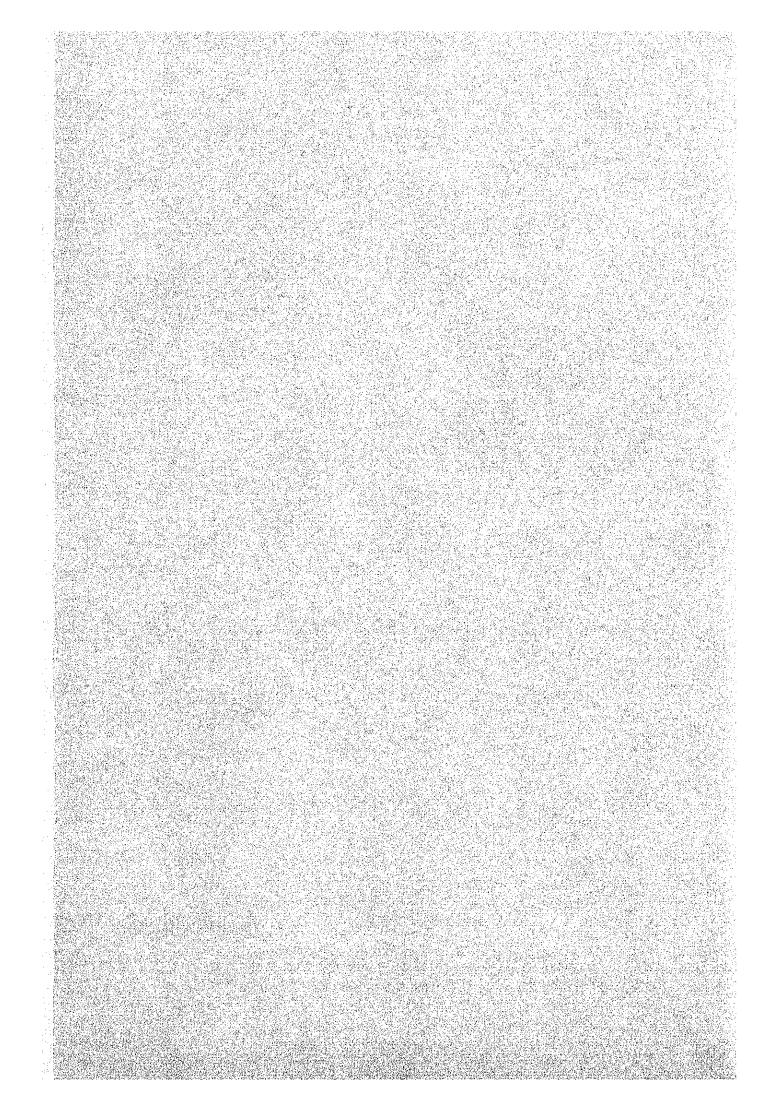
Appendices



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APPENDIX A - GLOSSARY OF TECHNICAL TERMS

The use of some technical term in the main text has been inevitable. This Glossary describes the meaning of such terms.

AADT (Average Annual Daily Traffic)

The total yearly volume divided by the number of days in the year.

Age/sex structure

The proportions of the total population in specific age groups by sex.

Assignment/trip assignment/traffic assignment

The process of allocating trips or traffic to particular routes, according to the characteristics describing the routes and relationships known to influence route selection. The results of this process are often referred to as 'an assignment.'

At-grade intersection

An intersection of two or more carriageways at the same level.

Attraction/trip attraction

The end of trip; the destination of trip;

Base year

The year for which input data for the study was collected, in this case 1979.

Base Case (or Do Nothing)

The situation that would exist if no further expenditure or policy initiatives other than those already committed took place.

Billion

1,000 million.

Bus bay/Turn in or Turn out

Demarcated area at the side of the road for buses loading or unloading passengers.

Bus Exclusive lane

See Exclusive Bus Lane.

Busway

A carriageway built exclusively for the use of buses. Centroid connector

A real or imaginary link between the assumed centre of a zone (the zone centroid) and the transport network. It is given values of time or cost to represent the average time or cost for travellers to/from the zone to gain access to the main transport network.

Cordon-internal/external

A cordon is an imaginary line delineating a particular part of the area under study.

Design year to be a serious and the control

The year for which planning data and travel patterns are forecast for 1985 and 2000.

Destination/trip destination

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The place at which a trip/journey finishes.

Distribution/trip distribution

The process of synthesising travel patterns between zones from trip generations, trip attractions and measures of separation between each zone pair.

Do Something in the line reco

Refers to a planned policy for the future to solve specific problems.

Exclusive Bus Lane (very particular terms)

A lane on a public highway devoted exclusively for use by buses.

Economically active

Capable of working

Environment capacity (of a road)

Francisco (Artigo Artigo) (Albarer

a Bush Addirba Bara Art

The maximum traffic flow which is consistent with the activities carried out along the street or is otherwise acceptable on environmental grounds.

Federal Route 1

The road which originates at Johor Bahru and terminates at Kubang Pasu via Kuala Lumpur, Ipoh, Butterworth

and Alor Star.

Generation/trip generation

The origin of a truck trip. Normally used in the context of trips generated by a particular zone i.e. the number of trips which begin in a zone as a result of its population and economic activity.

Grade separation

The vertical separation of carriageways to eliminate crossing conflicts at intersections.

Gravity model

A mathematical relationship used for forecasting trips between zones.

The number of trips between any zone pair is assumed to be proportional to the generations in one zone, the attractions in the other and inversely proportional to a function of the generalised cost on travel between the zones.

Hierarchy of roads

A classification of roads, in ranking order of importance as carriers of traffic.

Household

A mutually dependent group of persons, normally a family, living together on the basis of common resources.

Household size

The numbers of persons comprising a household.

Infrastructure

A general expression for the services and utilities necessary to support urban development, normally provided by Government or public utility companies e.g. roads, water supply, drainage.

Internal trip

A trip with both ends inside the study area.

Intra-zonal trip

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Line haul

Link

Linked trip

Minimum path

Modal split

Model/traffic model

Multi-car owning household

Multiplier effects

A trip with both origin and destination in the same traffic zone.

The 'line haul' mode of transport is defined as the mode of public transport meeting the bulk of the demand for transport along the major corridors of movement.

An element in a transport network which connects two modes, for example the stretch of highway between two junctions.

A complete journey from origin to destination comprising one or more modes of travel.

The route of a journey between two zones which has the minimum total cost or time, or the combination of these being used to determine route choice.

The allocation of trips to various transport modes on the basis of the characteristics of each mode.

A mathematical relationship, or series of relationships, which is used to predict the use of a defined transport system under assumed land use distributions and socio-economic characteristics of the population.

A car-owning household which has more than one car available for use by the household.

The process where investment and growth in one industry creates increased opportunities for other

New Federal Route 1

New Mass Transport System

Node

Non-resident

Non-work trip

Occupancy

Opportunity cost

Origin/trip origin

Outskirts

Penang Bridge

Peak hours

Perceived cost

Primary industry

Industries and services, with consequent increases in benefits over a broader range than would be expected.

The road is so called for Alor Star-Changkat Jering highway.

A guide rail-based public transport system characterised by manual or automatic.

A numbered point in a transport network. Each node generally represents a road intersection or a junction in a public transport network.

Not living or based in the study area.

Any person trip other than a trip on exmployers business (called a work trip).

The number of persons per vehicle, including the driver.

The benefite that are foregone when expenditure is directed to one items rather than another.

The place at which a trip starts.

Outer border or fringe.

Linkage bridge is connected with Province Wellesley and Penang Island.

The hours during the day when traffic volumes are highest.

The costs, usually travel costs, that the user actually perceives that he pays for a journey, including transfer payments such as indirect taxes and import duties.

The basic recource-producing activi-

Purpose/trip purpose

Resident

Resource cost

Road inventory

Saturation flow

Screenline

Secondary industry

Signal cycle time

Tertiary industry

ties of agriculture, forestry, fishing, mining and quarrying.

The main reason for which a particular trip is made.

Living or based in the study area.

The actual cost of resources consumed, excluding transfer payments such as taxes which are, however, included in perceived costs.

List and description of all roads in the network. Details of length, road width, etc. are recorded.

The maximum amount of traffic which can pass the 'stop line' oa a green signal, normally expressed in vehicles or p.c.u.'s per hour.

An imaginary line through the study area which is used for comparing observed travel behaviour crossing the line with the synthesised results of the traffic model.

Includes manufacturing industry public utilities and construction.

The total time taken for traffic signal lights to complete one full set of commands, that is from the commencement of a green signal for one stream of traffic through all other colour phases for all other traffic streams until the recommencement of the first green signal.

Refers to commerce and services, including transport, communications and storage.

Transport mode

Trishaw

Transport network

Travel time

Tree

Trip end

Trip/journey

Trip length distribution

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Trip matrix (0-D table)

Trip rate

Trip production

A means of travel such as walking, car, bus or others.

A small public transport means for passengers worked manually with three wheels.

A diagramatic representation of a transport system, usually expressed in terms of links and nodes, e.g.a road pattern can be expressed by describing each length of road as a link and each junction as a node.

Length of time taken for a journey from leaving the origin to arriving at the destination. Includes walking waiting and interchange times.

A table of the nodes lying on the minimum paths from one node or zone centroid in a network to all others.

One end of a trip.

A one-way movement from one place to another for a particular purpose, using one or more transport modes.

The frequency curve, or histogram, describing the number of trips of different lengths, times or costs.

A table listing the number of journeys between each and every zone pair.

The average number of trips made by all members of the household during the course of an average weekday may be sub-divided by mode and/or purpose.

The Trip Production is the number of

trips made per unit time.

To revise or modify.

The built-up area bounded by EDSA

Traveller (who is using a mode of transport).

The increase in value that inputs receive when being transformed into saleable goods and services.

The number of vehicles passing a given point in a specified period of time.

A trip on employers business (as opposed to non-work trips).

A point within a traffic zone, taken as representative of all points within the zone for traffic analysis purposes. It is assumed that all trips to or from a zone start and finish at the zone centroid.

A geographic area used in traffic analysis. The study area is subdivided into many such zones. A zone is delineated with reference to its land use characteristics and the transport system which serves it.

Update

Urban area

User

Value added

Volume/traffic volume

Work trip

Zone centroid/centroid

Zone/traffic zone

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(1)	Inception Report		
(2)	Progress Report	August,	1979.
(3)	Interim Report	けい あたいしょ 住ったい	of the first mark
	Main Volume		
	Supplementary Volume.		en de la de
	Part A: Introduction	December,	1979.
	Part B: Present Traffic and Road	December,	1070
	Conditions Part C: Short-Term Action Programme	Desember,	1979
	Part D: Long-Term Transport Planning	vecember,	1979.
	and Programming	December,	1979.
(4)	Draft Final Report		
	Main Volume	March.	1980.
	Supplementary Volume	March,	
(5)	Rivel Dought		
	Main Volume	May	1080
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(6)	Technical Report		1070
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	02: Ferry Survey 03: Cordon Line Survey	August,	
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+	O5: Bus Passengers Survey O6: Parking Survey	August,	1979.
	07: Traffic Generation, Intersection,	August,	1979.
	Traffic Volume Counting, Travel Time		
	and Running Speed Survey, Questionnaire		10.70
	to Pedestrians	August,	1979.
	09: Some Analyses of Traffic Census		
	by J.K.R	August,	1979.
	10: Highway Inventory Survey	December,	1979.
	11: Analysis and Forecast of Traffic Movement	December.	1979.
	12: Port and Harbour Study	December	1979
	13: Data Processing	January,	1980.
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APPENDIX D. ORIGIN AND DESTINATION TABLES

1-1	Car - all purposes		(1070)
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2-1	Vehicles		(1985)
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UB TOTAL	2725	7.5	133	129	3062	31806	9787	19036	2016	62645.	65707	0	10	23,	59	92	4743	1375	2032	559	3687	12396	12488	78195
OTAL IN NTERNAL REA	185965	8605	16354	9614	220539	33517	10486	19536	2055	65594	286133	844	570	213	636	2763	5741	1475	2119	560	4623	14518	16781	302914
91	639	177	11	17	844	0	0	. 3	. 0	3	847	0	0	2	11	13	0	. 0	0	0	. 0	· · · · · · · · · ·	13	860
92	415	.13	46	86	560	. 0	3	: 0	0	. 3	563	. 0	0	0	36	36	24	Ö	0	. 0	. 9	33	69	632
93	150	17	. 0	23	190	,	· · · o	9	0	16	206	0	0	0	4	4	9	0	0	0	- 0	. 9	- 13	219
94	319	4	71	183	577	41	4.8	. 8	0	97	674	0	0	8	0	8	- 33	0	. 0	0	7	40	: 48	. 72
UB	1523	211	126	309	2171	48	5 1	20	0	119	2290	0	0	10	51	61	66	0	0	0	16	82	143	2433
OTAL.	1042	50	31	56	1179	3246	590	855	5.2	4743	5922	19	42	0	34	95	. 0	193	18		6 536	753	848	6770
01 02	1042	0		. 0	53					1365		i i		-			15		6	. 0	46	67	67	148
03	105				125			1.1		2012		0	0	- 3	. 0	0	52	7	. 0	. 0	50	109	109	2268
04	7	0			1.7			F 10.0		559		8	0	0		. 8	17	0	0	0	16	33	41	61
05	753					1711				3695		0	- 12	. 7	6	25	434	. 18	0	. 0	, d	452	477	506
UB OTAL		103	-	120		6202				12394		27	54	7	40	128	518	218	. 24	6	648	1414	1542	1620
OTAL IN XTERNAL IPEA	3474	314	216	429	4435	6250	1585	4096	582	12513	16948	27	54	17	91	.189	584	218	24	6	664	1496	1685	1863
CRAND TOTAL	1894/10	8919	16572	10043	224974	39767	1207	23632	2637	78107	303081	87 L	624	230	727	2452	6325	1693	2143	566	5287	16014	18466	32154

1-3 MOTOR-CYCLES (1979)

0	1	2	3	4	SUB TOTAL	5	6	7	8	SUB TOTAL	TOTAL I INTERNA APEA		92	93	94	SUB TOTAL	D1	D2	03	04	05	SUB TOTAL	WYAL EXTERN AREA		
1	200605	4485	10317	5397	220807	2818	1595	613	29	5055	225862	346	433	233	364	1376	146	: 70	86	87	312	701	2077	2279	19
. 2	4067	2002	156	41	6806	169	29	. 0	0	198	7004	233	10	41	. 5	289	28	0	0	0	. 0	: 28	317	73	21
3	12463	310	7350	2095	22248	117	70	' 0	29	2 15	22466	20	91	58	57	. , 226	0	0	. 0	0	59	59	285	. 227	49
. 4	5323	." 77	2009	5598	13007	87	59	. 0	0	146	13153	11	154	67	230	462	28	0	. 0	Ó	- 28	56 .	518	136	71
SUB TOTAL	222998	6877	19862	13131	262858	3191	1753	613	. 58	5615	268483	610	688	399	656 .	2353	. 202	70	86	87	399	844	3197	2716	80
· s	2195	122	181	. 31	2529	40003	6198	3365	408	49974	52503	. 0	0	0	0	0	1966	694	236	75	375	3346	3346	. 558	49
6 .	1128	62	31	· : 0	1221	6411	5080	. 2703	374	14568	15789	. 0	0	31	0	31	275	181	113	40	175	784	815	166	04
7	948	0	91	90	1129	2881	2901	45906	1806	53494	54623	. 0	0	0	0	. 0	- 523	623	1390	559	652	3747	3747	583	70
8	62	0	31	. 0	93	388	. 412	1769	3226	5795	5888	0	0	Q	. 0	. 0	14	-15	65	114	571	779	779	66	67
SUB TOTAL	4333	184	334	121	4972	49683	14591	53743	5814	123831	128803	. 0	0	3 i.	0	31	2778	1513	1804	788	1773	8656	8687	. 1374	90
TOTAL IN INTERNAL AREA	227331	7061	20196	13252	257840	52874	16344	54356	5872	129446	397286	610	688	430	656	2384	2980	1583	1890	875	2172	9500	11884	4091	70
91	346	233	20	11	610	29	0	0	0	29	639	Ó	0	2	. 2	2	0	0	0	0	0	. 0	4	6	43
92	433	10	91	154	688	0	. 0	. 0	. 0	0	588	. 0	Ü	5	29	34	. 0	. 0	. 0	. 0	0	0	34	. 1	22
93	233	41	:58	67	399	0	0	. 0	. 0	. 0	399	0	0	0	24	24	. 0	0	0	0	0	0.	24	4	23
94	364	5	57	230	656	29	. 0	28	. 0	- 57	713	. 0	0	5	0	5	Đ	. 0	0	0	0	. 0	5	7	18
SUB TOTAL	1376	289	226	462	2353	58	0	28	0	86	2439	0	.0	0	12	55	6	7 0	0	0	0	0	67	25	D6
01	457	Ō	0	0	457	1966	275	523	14	2778	3235	: 0	60	0,	- 60	120	0	226	: 3	5	50	284	404	. 36	39
02	62	. 0	0	. 0	62	694	. 181	623	15	1513	1575	D	. 0	, 0	0	0	2.2	. 0	0	12	27	61	61	16	36
03	- 151	٠0	0	60	211	236	113	1390	65	1804	2015	′ 0	0	0	0	. 0	21	14	0	22	40	97	97	21	12
04	. 0	. 0	0	0	0	75	40	559	114	788	788	0	0	. 0	0	0	. 9	0	4	0	4	17	17		105
05	577	. 0	31	90	698	285	175	652	571	1683	2381	. 0	0	. 0	0	0	67	35	9	13	0	124	124	. 25	05
SUB TOTAL	1247	0	31	150	1428	3256	784	3747	779	8566	9994	0	60	O	60	120	119	275	. 16	. 52	121	583	703	106	97
TOTAL IN EXTERNAL AREA	2623	289	257	610	3781	3314	784	3775	779	8652	12433	0	60	12	115	187	119	275	16	52	121	583	770	132	03
GRAND TOTAL	229954	7350	20453	13864	271621	56188	17128	58131	6651	138098	409719	610	748	442	771	2571	3099	1858	1906	927	2293	10083	12654	4223	73

2-1 VEHICLES (1985)

<u> </u>												4.							. 1	· .			+	
0 0	1	2	. 3	4	SUS TOTAL	5	. 6	7	8	SUB TOTAL	TOTAL I INTERNA AREA		92	93	. 94	SÚB TOTAL		02	03	O\$	05		OTAL IN XYERNAL ARFA	GRAND TOTAL
1	180465	7549	15994	13605	217613	1814	1269	929	168	4180	221793	769	1473	119	547	2903	836	409	105	95	774	2:19	3127	226920
2 .	7542	1633	794	821	10790	108	79	60	9	256	11046	106	101	8	38	253	61	30	8	. 7	58	164	417	11463
3	15968	794	5861	1576	26199	273	233	155	25	636	26835	99	349	23	107	578	142	67	17	15	129	370	948	27833
4	13622	978	3564	8210	26214	316	256	186	34	. 192	27006	- 113	440	31	211	795	170	82	. 22	18	158	450	1245	28251
SUB DOTAL	217597	10794	26213	26212	280316	2511	1837	1330	236	5914	286730	1037	2363	181	903	4534	1209	588	152	135	1119	3203	7737	294467
S	1811	108	272	316	2507	27121	9687	5286	866	42960	45467	27	60	4	22	113	-3288	1492	314	282	2193	7569	7682	53149
6	1270	79	233	255	1837	9687	. 9762	4562	727	24738	26565	18	45	. 3	18	85	2176	988	234	214	1627	5231	- 5324	31899
7	929	59	154	186	1328	5248	4565	13360	760	23934	25262	14	33	. 2	12	61	1568	882	256	239	1337	4232	4343	2950
8	166	9	25	34	234	857	725	768	273	2623	2857	3	6	. 0	3	12 -	266	. 128	50	50	285	719	791	364
INTAL.	4176	255	684	791	5906	42913	24740	23976	2626	94255	100161	63	144	9	55	271	T298	3450	854	185	5662	17869	18140	11830
OTAL IN NTERNAL REA	221773	11049	26897	27003	286722	45424	26577	25306	2862	100169	386891	1150	2507	190	958	4805	8507	4078	1006	920	6561	21072	25877	41276
91	771	106	99	114	1090	24	18	16	3	61	1151	0	0	0	. 6	4	16	8	2	2	16	44	48	119
92	1474	101	349	442	2366	59	44	33	6	142	2508	. 0	. 0	0	0	. 0	34	17	4	4	33	92	92	260
93	118	8	23	31	180	4	3	. 2	0	. 9	189	. 0	. 0	0	0	. 0	. 3	1	. 0	o		7	7	19
94	543	39	103	213	902	22	18	12	3	55	957	4	. 0	0	o	4	14	. 7	. 5	2	13	38	42	99
OTAL.	2906	254	578	800	4538	109	83	63	12	267	4805	4	0	0	4	8	.67	33	8	8	65	181	189	499
01	840	59	140	169	1208	3252	2146	1524	260	7182	8390	- 16	34	3	14	67	. 0	0	26	20	268	314	381	877
02	414	30	67	82	593	1499	991	876	128	3494	4087	8	17	1	7	33	o	D.	21	15	110	146	179	4260
03	106	8	17	22	153	314	234	258	- 50	856	1009	ż	. 4	0	. 2	8	27	21	0	5	33	86	94	110
04	94	< 7	15	18	134	281	214	Z40	50	785	919	2	. 4	0	. 2	8	. 20	15	5	0	34	74	8 2	100
05	800	58	129	160	1147	2220	1638	1329	285	5472	- 6619	16	33	3	14	66	168	135	- 38	35	0	376	442	7061
IUB IOTAL	2254	162	368	451	3235	7566	5223	4227	773	17789	21024	44	92	7	39	182	215	171	90	75	445	996	1178	22202
OTAL IN XTERNAL REA	5 160	416	946	1251	7773	7675	5306	4290	785	18056	25829	48	92	- 7	43	190	282	204	98	83	510	1177	1367	27190
RAND OTAL	226933	11465	27843	28254	294495	53099	31883	29596	3647	118225	412720	1198	2599	197	1001	4995	8789	4282	1104	1003	7071	22249	27244	43996

2-2 VEHICLES (P.C.U. 1985)

																	1.0					100	4 4 5	10.00
D .	1	2	3	4	S1/8 TOTAL	5	6	. 7	8	SUB TOTAL	TUTAL I INTERNA AREA		92	93	94	SUB TOTAL	Οι	02	03	04	05	SUB TUTAL	TOTAL IN EXTERNAL AREA	
1	216900	9349	19648	17272	263169	2186	1558	1112	218	5074	268243	1194	5109	116	910	4329	1024	493	148	138	992	2795	7124	275367
2	9359	2154	1015	-1077	13605	143	102	. 19	- 16	340	13945	170	150	8	67	395	-76	37	. 11	11	78	213	608	14553
3	19695	1015	7270	4715	32695	337	294	192	35	858	33554	161	516	22	183	882	178	85	24	22	168	477	. 1359	34913
4	17402	1081	4716	11103	34302	407	. 335	235	45	1022	35324	186	672	33	369	1260	220	105	- 32		212	599	1859	37183
SUB TOTAL	363323	13599	33644	34167	343772	3013	5593	1618	.314	1294	351066	1711	3447	.179	1529	6866	1498	720	215	201	1450	4084	10950	362016
5	2187	141	333	405	3066	32142	12131	6373	1114	51760	54826	46	- 85	3	40	174	4067	1819	448	420	2841	9595	9769	64595
6	1573	102	292	334	2301	12171	12539	5641	957	31308	33609	30	: 66	. 3	: 30	129	2754	1235	344	324	2156	6813	6942	40551
7	1104	75	190	230	1599	6317	5610	15686	969	28582	30181	-23	-49	2	23	.97	1911	1057	363	350	1711	5392	5489	35670
8	214	15	35	45	209	1110	958	982	176	1426	3735	. 5	10	0	5	20	349	165	77	78	393	1062	1082	4871
SUB TOTAL	5078	333	850	1014	7275	51740	31238	28682	1416	1 1507	6 132351	104	210	8	98	420	9081	4276	1282	1172	7101	22852	23282	145633
TOTAL IN INTERNAL AREA	268435	.13935	33499	35181	351047	54813	33527	30300	3730	122370	473417	1615	3657	187	1627	7286	10579	4996	1447	1373	8551	26946	34232	507649
91	1205	171	163	187	1726	. 38	29	. 24	. 2	96	1822	0	. 0	. 0	10	10	26	13	4	. 3	27	73	. 83	1905
92	2121	150	513	671	3455	85	66	50	10	211	1666	0	0	0	0	. 0	50	24	. 7	7	50	138	138	3804
93	. 115	. 8	. 22	33	178	4	,3	2	. 0	. 9	187	. 0	. 0	0	0	0	3	1	ø	. 0	3	7	7	194
94	911	67	t83	370	1531	41	30	23	5	99	1630	10	0	0	. 0	10	24	11	3	,3	24	65	5 75	1705
SUB TOTAL	4352	396	881	1261	6890	168	. 128	99	20	415	7305	10	0	. 0	10	20.	103	49	. 14	13	104	283	303	7608
01	1039	76	176	219	1510	4039	2723	. 1874	342	8987	10488	26	50	- 3	. 23	105	0	0	19	30	354	423	. 525	11013
02	504	37	. 85	106	732	1339	1244	1062	186	4311	5043	13	2:	· 1	12	51	0	. 0	30	22	144	196	247	5290
03	149	11	24	. 32	216	-450	347	369	77	1243	1459	4	. 7	0	· 3	14	. 39	30	. 0	9	51	129	143	1602
04	139	11	22	30	202	420	325	354	78	1177	1379	3	7	0	. 3	13	31	22	. 9	- 0	\$5	. 117	130	1509
05	1031	79	170	217	1497	2887	2179	1711	395	7172	8669	- 28	51	3	24	106	223	176	58	55	0	512	618	9287
TOTAL	2862	214	477	604	4157	9635	6818	5170	1058	22881	27038 -	. 74	140	7	65	286	293	228	136	116	604	1377	1663	28701
TOTAL IN EXTERNAL AREA	7214	610	1358	.1865	11047	9803	6946	5469	1078	23296	34343	84	140	: .7	75	306	396	277	150	129	708	1660	1966	36309
GRAND TOTAL	275649	14512	34857	37046	362094	64616	40473	35769	4808	145666	507760	1899	3797	194	1702	7592	10975	5213	1597	1502	9259	28606	36148	543958

2-3 MOTOR-CYCLES (1985)

													- :										4.00	
0 0	200	2	3	4 15	SUB TOTAL	5	6	7	8	SUB TOTAL	IOTAL II INTERNA AREA		92	93	94	SUB TOTAL	01	02	03	04	05	SUB TOTAL	TOTAL IN EXTERNAL AREA	
1	185432	4409	11078	7775	208594	2182	1380	809	225	4596	213290	359	376	194	288	1217	173	134.	- 51	35	179	572	1789	215079
. 2 .	4413	274)	363	. 366	7883	65	71	46	13	195	8078	102	: 23	13	19	157	12	10	-3	2	13	. 40	197	
3 .	11115	361	10206	4635	26317	191	335	167	46	739	27056	47	226	. 68	86	427	35	26	. 9	6	. 35	111	538	27594
4	7784	365	4662	18040	30851	239	361	2 18	:61	879	31730	53	230	93	263	639	44	34	13	9	45	145	784	32514
IOTAL RUTAL	199744	7876	26309	30816	273745	2677	2147	1240	345	6409	280154	561	855	368	656	2440	264	204	76	52	272	865	3308	283462
5	4058	57	177	211	1503	39425	9568	3714	817	53519	56022	1	. 1	ı	- 1	ts ·	1337	889	205	147	639	3217	3221	59243
6	1246	67.	. 302	326	1941	9740	23233	6373	1363	39709	41650	2	. 3	2	- 3		1199		270			3299	3309	44959
7	702	39	137.	193	1071	3555	6320	41073	1571	52519	:53590	. 0	1	o o	- 1			854				2935	2937	56527
8	206	. 12	40	53	: 311	807	1352	1608	2118	5885	6196	0	. 0	0	. 0			136			242	765	765	
OTAL	4212	175	656	. 783	5826	53527	39473	52768	5864	151632	157458	. 3	. 5	3	5							10216		167690
OTAL IN NTERNAL AREA	212956	8051	26965	31599	279571	56204	41620	54008	6309	158041	437612	564	860.	371	657	2456	3751	2907	1033	752	2641	1 1084	13540	451152
91	366	105	48	55	574	b	7	. 4	1	. 18	592	0	0	0	2	2 -	C	0	0	: 0		o o	2	594
92	387	23	230	234	874	7	11	. 1 7	2	27	901	9	. 0	; 0	0	.0	Ó	0	. 0	. 0	0	0	0	901
93	202	. 13	12	97	384	5	6	. 2	. 0	13	397	ò	0	- 0	. 0	. 0	. 0	. 0	0	0	0	0	0	397
94	297	.20	88	268	673	1	10	. 5	2	. 24	697	. 2	·ò	0	. 0	2	0	0	. 0	0	0		. 2	699
UB OTAL	1252	161	438	654	2505	: 25	34	18	5	82	2587	. 2	0	-0	2	4	. 0	0	. 0	0	0	. 0	4	2591
01	269	17	54	70	410	1281	1145	480	164	3270	3680	. 8	.10	6	. 9	33	0	0.	12	. 6	74	92	125	3805
02	215	15	- 41	56	327	873	813	761	129	2576	2903	. 7	, g	5	8	28	.Q	· 0.	23	10	42	35	193	500€
03	78	. 5	16	. 21	120	200	261	339	110	910	1030	3	3	2	3	-11	12	23	. 0	7	22	64	75	1105
04	53	. 4	10	14	81	140	. 187	248	91	: 666	747	. 7	. 2	. 1	2	7	6	10	ż	. 0	20	43	50	792
05	278	19	. 55	72	424	622	781	- 577	224	2204	2528	to	11	7	10	38	30	60	27	20		137	175	2803
UB OTAL	893	60	176	233	1362	3116	3187	2605	718	9626	10988	30	34	21	32	117	48	93	-69	43	158	411		11516
OTAL IN XTERNAL REA	2145	221	514	887	3867	3141	3221	2623	723	9708	13575	32	34	21	34	121	48	93	69	43	158	411	532	14107
RAND OTAL	215101	8272	27579	32 486	283438	59345	44841	56631	6932	167749	451187	596	894	392	691	2577	1799	3000	1102	795.	2799	11495	14072	465259

3-1 VEHICLES (2000)

									1.0				2.0											
0 D	2	2	3	4	SUB TOTAL	5	6	7	8	SUB. TOTÁI		91	92	93	94	SUB	01	02	03	04	05	SUB TOTAL		CRAND
1	276964	19233	34969	36441		3527	3818	1795	730	9870	377177	2758	4891					761	306	201	1580	4489	15043	392520
2	19269	5991	 2998	3647	11905	 370	399	196	80	1045	32950	621	552	1111	226	1510	. 193	90	. 36	24	192	535	2045	34995
3			16583			784	1005	452	182	2423	100	- 7	1.0				401	183	72		378	100		75472
4	36659	3661	14166	34140	88631	1053	1292	607	246	3203	91837	699	2484	431	1235	4849	. 551	256	103	69	530	1509	6358	9819
SUB TOTAL	367984	31895	68716	83364	556959	5739	6514	3050	1238	16541	573500	4611	9691	1775	3983	20065	2786	1290	517	344	2680	7617	27682	60118
5	3511	366	, m	1046	5700	57431	34045	12417	4648	108541	114241	124	242	52	.105	523	7871	3388	1095	725	5307	18386	18909	13315
5	3818	397	1002	1285	6502	34151	49142	16315	5844	105452	111954	131	282	58	120	591	7597	3319	1250	833	5998	18997	19538	13154
7	1780	194	- 444	600	3018	12354	16285	24370	4145	56854	59372	. 68	136	27	56	287	3523	1819	838	\$65	5998	18997	19538	7006
.8	726	80	182	245	1733	4647	. 5835	4154	3439	18075	19308	28	57.	. 11	25	. 121	1339	647	429	103	1471	4239	4360	. 2366
UB FOTAL	9835	1037	2405	3176	16453	108583	105307	56956	18076	288922	305375	351	717	148	3,06	1522	20380	9173	3612	2426	15933	5 1524	53046	35842
OTAL IN NTERNAL REA	377819	32932	71121	91540	573412	114322	111821	60206	19314	305463	878875	4962	10408	1923	4294	21587	\$3166	10463	4129	2770	18513	59141	80728	95980
.91	2774	623	536	698	4631	110	130	68	28	336	4957	0	- 0	0	36	36	71	34	14	9	73	201	237	520
92	4915	552	1761	2482	9710	242	281	135	57	715	10425	. 0	0	0	0	. 0	137	- 64	26	17	137	381	381	1080
93	947	. 111	287	429	1774	51	58	29	1	149	1923	0	. 0	. 0	-0	0	29	14	5	Ą	29	81	81	200
.94	1965	222	569	1232	3993	104	120	57	25	306	4299	: 36	0	0	0	36	. 90	28	11	7	60	160	20.	450
OTAL	10601	1513	3153	4841	20108	507	589	289	121	1506	21614	36	. 0	.0	:36	72	297	. 140	. 56	37	299	829	901	2251
· 01	1633	190	394	548	2765	7843	7575	3475	1373	20271	23036	- 70	137	29	. 60	296	·. : o	. 0	93	52	637	783	1078	2411
02	766	90	182	258	1296	3423	3356	1828	652	9259	10555	: 34	65	. 14	28	141	. 0	. 0	88	35	252	355	496	1103
. 03	306	36	72	103	517	1103	1256	849	431	3639	4156	14	26	5	11	.56	94	. 68	0	20	119	301	357	451
04	200	2	50	67	341	728	834	572	304	2438	2779	9	17	. 4	7	37	53	35	. 20	0	90	198	235	101
05	1605	19.	379	536	2713	5385	6083	3166	1487	16121	18834	74	139	30	61	304	409	305	135	90	0	939	1.134	2007
UB OTAL	4510	533	1077	1512	7632	18482	19104	9890	4252	51728	59,760	201	384	82	167	834	556	408	316	197	1098	2575	3409	6.76
OTAL IN XTERNAL REA	15111	2046	4230	6353	27740	18989	19693	10179	4373	53234	80974	237	384	82	203	906	853	548	372	234	1397	3404	4310	852
CRAND TOTAL	392930	34978	75351	97893	601152	133311	131514	70185	23687	358697	959849	5199	10392	2005	4497	22693	24019	11011	4501	3004	20010	62545	85038	10448

3-2 VEHICLES (P.C.U. 2000)

											: :													
0	D 1	2	3	4	SUB TOTAL	: 5	6		8	SUB TOTAL	INTERN AREA	NL 91	92	93	94	SUB TOTAL	01	02	03	04	05	SUB TOTAL	TOTAL EXTERNANT ARI	TS TAL GRAND EA TOTAL
1	327,370	21970	41426	45077	435843	4262	4705	2103	875	11945	447788	3559	5619	1300	2610	13088	2375	1160	429	360	2323	6547	19635	4674.3
2	21969	6747	3436	4368	36522	. 438	475	224	95	1232	37554	718	615	148	292	1833	271	133	49	30	275	758	.591	40345
3	41437	3443	19509	17489	81978	953	1737	528	215	2935	84813	689	5916	393	755	3853	578	279	103	62	554	1576	5429	90242
SUB		1	. 7.1	-	111035	1331	1646	738	306	4021	115056	938	2964	615	1694	6211	825	404	148	91	. 805	2273	8484	1.3540
TOTAL	435847	36529	81893	111009	665278	6968	8063	3593	1491	20133	685411	5964	11214	2456	5351	24985	4049	1976	729	433	3957	11154	36139	721550
5	4238	436	953	1323	6948	70425	42945	14911	5715	133996	140944	165	286	71	143	665	11610	5284	1569	960	7967	27390	28055	168999
6	4687	474	1231	1645	8037	43010	. 62851	19875	7282	133018	141055	177	377	81	167	762	11358	5246	1817	1119	9130	28670	29432	170487
7	2088	223	522	734	3567	14831	19875	28629	4930	68265	7 18 32	87	155	38	80	360	5045	2760	1166	727	4601	14299	14659	86491
8 auz	873	95	215	366	1488	5799	7278	4945	4155	22087	23575	37	- 68	. 17	32	154	2034	1000	60\$	397	- 196	6217	6391	. 19966
TOTAL	11883	1228	2921	4 608	20040	133975	132949	68360	22032	357366	377406	466	846	207	422	1941	30047	14292	5 160	1203	23894	76596	76537	455943
TOTAL IN INTERNAL AREA	447730	37757	846141	15011	685318	140961	141012	71953	13513	377499	1062817	6430	12060	2663	5773	26926	34096	16268	5889	3646	27851	87750	114676	1177493
91	3577	783	693	941	5994	141	175	87	37	440	6434	0	0	0	53	53	112	56	21	12	118	319	372	6806
9 <i>2</i>	5626	616	2018	2967	11227	285	335	154	68	842	12069	0	0	. 0	0	0	192	95	35	21	194	537	537	12606
93	1300	149	393	614	2456	71	. St	. 37	17	206	2662	0	0	0	0	. 0	49	24	. 9	5	50	137	137	2799
95 SUB	2613	294	759	1692	5358	143	166	. , 80	32	421	5779	52	. 0	0	. 0	52	98	49	18	11	. 99	275	327	6106
TOTAL	13116	1842	3863	6214	25035	640	757	358	154	1909	26944	52	0	0	5.	3 105	45 E	224	83	49	461	1268	1373	28317
οι	2329	264	562	815	3970	11446	11239	4923	1999	29607	33577	110	190	48	96	444	. 0	0	t52	81	1131	1369	1813	35390
02	1160	133	277	406	1976	5301	5286	2747	. 1003	14337	16313	57	96	24	49.	226	. 0	0	121	58	479	654	860	17193
03	423	49	102	148	722	1571	1818	1175	609	5173	5895	31	35	Ģ	18	. 83	160	121	o	10	206	517	600	6495
04	256	30	62	89	437	955	1115	731	396	3197	3634	12	21	-5	. 11	. 49	8,2	58	30	0	143	313	16.2	3996
05	2335	275	552	815	3977	8041	9237	4580	2207	24065	28042	119	197	51	101	468	729	576	233	144	o	1632	2150	10192
SUB TOTAL	6503	751	1555	2273	11082	27314	28695	14156	6214	763,79	87451	319	539	137	275	1270	971	755	541	313	1955	4535	5805	932666
TOTAL IN EXTERNAL AREA	19619	2593	5418	8487	36117	27954	29452	14514	6368	78288	114405	371	539	137	128	1375	1622	979	624	36	2416	580)	3178	121583
CRAND TOTAL	467349	40350	90232	123504	721435	168915	170464	86467	29941	455787	1117722	680£	12599	2800	6101	28301	355 [8	17247	6511	4088	30267	93553	121854	1299076

3-3 MOTOR-CYCLES (2000)

																40.00			-		-	-	STAL T	-
0	D i	2	3	٠.	802 14707	5	6	7	8	SUB TOTAL	OTAL IN NTERNAL AREA	91	92	93	94	SUB TOTAL	01	02	03	04	03	SUS TOTAL	XYERRA AREA	TOTAL
1	148100	4661	9892	7834	170483	2188	1455	805	343	4786	175283	322	398	151	226	1097	121	118	45	29	129	442	1539	17662
2	4667	3660	452	496	9275	89	102	59	28	278	9553	128	32	14	19	193	10	10	4	2	12	38	231	978
3	9957	453	9521	3502	25433	. 237	396	195	89	914	26347	51	302	67	84	504	30	28	10	5	31	104	608	2695
4	7823	497	5539	22696	36555	321	480	274	116	1191	37746	52	317	95	281	. 755	40	. 38	15	10	41	144	899	3864
UB OTAL	170547	9271	25404	36528	241750	2835	2433	1333	578	7179	248929	563	1049	327	610	2549	201	194	74	46	213		3277	25220
5	2072	78	216	289	2655	46615	13600	5033	1724	66977	69632	. 1.	3	1	2	,1	1361	1098	240	164		3466		7310
6	1307	91	360	435	2193	13761	30157	3752	2732	55452	57645	2	6	2	. 3	13	1118	960	316	218			3391	6103
77	710	52	167	243	1172	4918	8693	39322	3530	56513	57635	t	1	1	. 1	4	649	837	375	257	591	2709	2713	6039
.8	310	25	78	106	119	1733	2781	3592	6770	14876	15395	- 1	1	0	1		242	236	237			1214	1217	1661
UE OTAL	4399	246	821	1073	6539	67027	55231	56704	14856	193918	200357	- 5	11	4	7	27	3370	3131	1168	. 822	2276	10767	10794	21115
OTAL IN NTERNAL	174946	9517	26225	37601	248289	69862	57664	58073	15434	200997	449286	568	1060	331	617	2576	3571	3325	1242	868	2489	11495	14071	46333
REA 91	327	131	52	63	373		8	3	3	21	594	0	0	Ď	0	. 2	2	0	0	0	Ö		21	- 59
92	402	. 33	306	320	1061	11	16	9	. 3	. 39	1100	0	0	0	0	0	. 0	0	0	Ó	0	. 0	0	110
93	154	15	68	96	333	3	7	3	ı	16	.347	. 0	0	0	0	. 0	0	0	Ģ	0	. 0	0	0	34
. 94	232	20	85	284	621	- 6	10	3	3	: 22	643	. 5	0	0	0	2	0	0	0	0	. 0	0	. 2	.54
UB UTAL	1115	199	511	763	2588	27	41	18	10	96	. 2684	2	. 0		2	4	0	0	Ö	.0	0	. 0		268
01	189	. 17	46	63	313	1303	1075	592	230	3200	3513	7	-10	4	7.	58	0	0	9	4	46	59		360
02	185	17	44	62	309	1071	943	757	230	3001	3310	. 7	10	5.	7	29	0	0	2.2	9	33		93	340
03	70	7	17	23	117	233	306	352	229	1120	1237	3	. 4	2	3	12	. 9	22	0	. 7	17	55		130
04	47	4	10	16	77	156	206	245	174	783	860	. 2	. 5	1,	2,	. 7	5	9	,	0	15			90
05	199	19	46	- 65	330	581	737	521	301	2140	2470	8	11	5	8	32	18	. 47	21	15	, 0		133	260
OTAL	691	64	7.67	530	1146	3344	3269	246?	1164	10244	11390	27.	37	1,7	27	108	32	. 78	59	35	111	315	423	1181
OTAL IN XTERNAL REA	1806	263	672	993	3734	3371	3310	2485	1174	10340	14074	29	37	17.	29	112	33	78	59	35	111	315	427	145
CRAND TOTAL	176752	9780	26897	38594	252023	73233	60974	60522	16608	211337	463360	597	1097	348	646	2688	3603	3403	1301	903	2600	11810	14498	4778

Appendix E COMPARISON OF ALTERNATIVE PLANS

- 1. Result of Traffic Assignment by Plans, 1985
- 2. Result of Traffic Assignment by Plans, 2000
- 3. Result of Traffic Assignment of Bus by Plans, 1985
- 4. Result of Traffic Assignment of Bus by Plans, 2000
- 5. Estimated Daily Traffic Characteristics of Vehicles, 1985
- 6. Estimated Daily Traffic Characteristics of Motor-Cycle, 1985
- 7. Benefits Derived From Project Implementation, 1985
- 8. Annual Benefits Derived from Project Implementation, 1985
- 9. Benefits Derived from Project Implementaion, 2000
- 10. Annual Benefits of Alternative Plans, 1985
- 11. Annual Benefits of Alternative Plans, 2000

1. RESULTS OF TRAFFIC ASSIGNMENT BY PLANS 1985

Upper Number: Car
() ; Motorcycle

	Base	Plan 1 - A	P1an 2 - A	Plan 3 - A	Plan 3 - B
Daily Trips Assigned (1000 Trips)	471	471	471	471	471
	(319)	(319)	(319)	(319)	(319)
Vehicle Kilometer	5,928	5,736	5,776	5,621	5,539
(1000 Kms)	(2,904)	(2,876)	(2,874)	(2,870)	(2,864)
Vehicle Hours	213	203	199	187	184
(1000 Hrs)	(145)	(141)	(142)	(135)	(134)
Average Trip Length	12.6	12.2	12.3	11.9	12.0
(Kms/Trip)	(9.1)	(9.0)	(9.0)	(9.0)	(9.0)
Average Travel Time	27.1	25.8	25.4	23.8	23.9
(Min/Trip)	(27.1)	(26.3)	(26.3)	(25.0)	(24.9)
Average Travel Speed	27.9	28.4	29.1	30.0	30.1
(Kms/Hr)	(20.2)	(20.5)	(20.5)	(21.6)	(21.7)

2. RESULTS OF TRAFFIC ASSIGNMENTS BY PLANS 2000

	Base	Plan 3 - A	Plan 4 - A	Plan 4 - B	Plan 4 - C	Plan 4 - D
Daily Trips Assigned (1000 Trips)	1,140 (334)	1,140 (334)	1,140 (334)	1,109 (329)	1,099 (323)	1,044 (329)
		•			:	
Vehicle Kilometers	ŧ					
(1000 kms)	16,243 (3,169)	16,172 (3,112)	16,075 (3,093)	15,741 (3,024)	15,610 (2,974)	15,252 (3,024)
				•		
Vehicle Hours	789	716	633	617	610	578
(1000 Hrs)	(157)	(144)	(133)	(134)	(130)	(132)
Average Trip Length	14.2	14.3	14.1	14.2	14.2	14.6
(kms/Trip)	(9.5)	(9.3)	(9.3)	(9.2)	(9.2)	(9.2)
egen i de la companya de la company La companya de la co	:	•				
Average Travel time	41.4	38.0	33.3	33.4	33.3	33.3
(Min./Trip)	(28.1)	(25.9)	(23.9)	(24.4)	(24.2)	(24.2)
Average Travel Speed	20.6	22,6	25.4	25.5	25.6	25.8
(kms/lir.)	(20.2)	(21.6)	(23.3)	(22.6)	(22.8)	(22.9)

RESULTS OF TRAFFIC ASSIGNMENT OF BUS BY PLANS
 1985

ang taong agawa Kabupatèn	Base	Plan 1 - A	Plan 2 – A	Plan 3 - Λ	Plan 3 - B
Daily Passengers (1000 Pass.)	171.9	171.9	171.9	171.9	171,9
Passenger Kilometers (1000 Kms)	1,942.7	1,942.7	1,942.7	1,942.7	2,077.1
Passenger Hours (1000 Hrs)	137.0	127.8	127.4	123.0	125.0
Average Trip Length (Kms/Trip)	47.8	44.6	44,5	42.9	40.8
Average Travel Speed (Kms/Hr.)	14,18	15.20	15.25	15.79	16.61
Fleet Kilometers (1000 Kms)	30618	30618	30618	30618	30618

4. RESULTS OF TRAFFIC ASSIGNMENT OF BUS BY PLANS 2000

	Base	Plan 3 - A	Plan 4 - A	P1an 4 - B	Plan 4 - C	Plan 4 - D
Daily Passengers (1000 Pass.)	208.0	208.0	208. a	259.2	186.7	259.2
Passenger Kilometets (1000 Kms)	2,489.7	2,489.7	2,489.7	2,934.0	2,338.4	2,934.0
Passenger Hours (1000 Hrs.)	209,4	190.9	169.8	20.4.2	158.8	204.2
Average Trip Length (Kms/Trip)	11.97	11.97	11.97	11.3	12.5	11.3
Average Travel Time (Hrs./Trip)	60.41	55.05	48.99	47.27	51.06	47.27
Average Travel Speed (Kms./Hr.)	11.89	12.85	13.66	14.37	14.71	14.37
Fleet Kilometers (1000 Kms)	38931	38931	38931	45534	36839	45534

5 ESTIMATED DAILY TRAFFIC CHARACTERISTICS OF VEHICLES
1985

		PENAN	G ISLAND	PROVINCE	WELLESLEY	BOTH AREAS	
	Without Project (Base)	Project 1	Project 2	Project 3	Project 4	On-going	
Daily Vehicle Hours 1000	178,190 -	174,870 0.981	176,640 0.991	176,960 0.993	173,080 0.971	169,845 0.953	
Daily Vehicle Kms	4,761,400	4,768,100	4,784,200	4,717,540	4,692,100		
		1.001	1.005	0.999	0.991	0.985	
Average Trip Length (Kms/Trip)	12.47	12.49 1.002	12.53 1.005	12.46 0.999	12.36 0.991	12.29 0.986	
Average Travel Time (Mins./Trip)	28.01	27.49 0.981	27.77 0.991	27.82 0.993	27.21 0.971	26.70 0.953	
Average Travel Speed (Kms./Nr.)	26.71	27.26 1.021	27.08 1.014	26.87 1.006	27.26 1.021	27.63 1.034	

Notes: 1) includes lorry, passengers and commercial vehicles except motor-cycles.

6. ESTIMATED DAILY TRAFFIC CHARACTERISTICS OF MOTOR-CYCLE
1985

	Without Project	PENANG ISLAND PROVINCE WELLESLEY							
	(Base)	Project 1	Project 2	Project 3	Project 4				
Daily Vehicle Hours	141,760	139,450	140,710	141,180	138,780				
Daily Vehicle Kms	2,861,400	2,862,600	2,861,900	2,865,740	2,836,740				
Average Trip Length (Kms/Trip)	9.13	9.13	9.13	9.14	9.05				
Average Travel Time (Mins./Trip)	27.14	26.69	26.93	27.02	26.57				
Average Travel Speed (Kms./Hr.)	20.18	20.52	20.34	20.29	20.44				

²⁾ comparison between base case and project case.

7 BENEFIT DERIVED FROM PROJECT IMPLEMENTATION

1985

(In thousand dollars at 1979 Prices)

			·		4.0	
		Project 1	Project 2	Project 3	Project 4	4
	Annual Time Saved	4,489	2,739	3,251	4,778	· ·········
	Annual Vehicle Operating Cost Savings	3,001	584	6,073	3,019	
Vehicle 1)	Savings on fixed cost	2,524	1,540	1,827	2,686	
	Savings on running cost	477	-956	4,246	333	
ė.	Sub-Total	7,490	3,323	9,324	7,797	
	Annual Time Saved	272	171	304	211	:
	Annual Vehicle Operating Cost Savings	62	12	92	88	
M/Cycle	Savings on fixed Cost Sub-Total	54 334	34 183	61 396	42 299	
	Total	7,824	3,506	9,720	8,096	

Note: 1) including taxi, lorry and others except motor-cycles

8. ANNUAL BENEFITS DERIVED FROM PROJECT IMPLEMENTATION

1985

(In thousand dollars at 1979 prices)

		Plan 1 - A	Plan 2 - A	Plan 3 - A
	Annual Time Cost Savings	11,009	16,622	27,823
Cars1)	Annual Operating Cost Savings	12,780	14,272	26,235
3413	Savings on fixed costs	4,060	5,451	9,606
	Savings on running costs	8,720	8,821	16,629
	Sub-Total	23,789	30,896	54,058
	Annual Time Cost Savings	1,705	2,215	3,959
iotor-Cycle	Annual Operating Cost Savings	1,290	1,675	2,867
iotor cycle	Savings on fixed costs	394	512	915
	Savings on running costs	896	1,163	1,952
·	Sub-Total	2,995	3,890	6,826
	Total	26,784	34,786	60,884

Note: 1) includes taxis, lorries and buses.

9. BENEFITS DERIVED FROM PROJECT IMPLEMENTATION

2000

(In thousand dollars at 1979 prices)

		Plan 3 - A	Plan 4 - A
	Annual Time Cost Savings	86,314	163,816
Cars 1)	Annual Operating Cost Savings	65,107	125,706
	Savings on fixed costs	32,659	61,984
	Savings on running costs	32,448	63,722
	Sub-Total	151,421	289,522
	Annual Time Cost Savings	5,161	9,868
	Annual Operating Cost Savings	4,101	7,841
Motor-Cycle	Savings on fixed costs	1,191	2,277
	Savings on running costs	2,910	5,564
	Sub-Total	9,262	17,709
	Total	160,683	307,231

Note: 1) includes taxis, lorries and buses.

10. ANNUAL BENEFITS OF ALTERNATIVE PLANS

1985

(In thousand dollars at 1979 prices)

	<u></u>		
		3 - A	3 ~ B
Car Owners			
car operating cost saving		27,823	36,768
time saving		26,235	32,110
t public transport fare		0	-1,912
gain/loss due to diverted	traffic	0	-2,319
Total		54,058	64,647
Motor-cycle Owners			
Motor-cycle operating cost	saving	2,867	3,085
* time saving		3,959	4,493
* public transport fare		0	-581
* gain/loss due to diverted	traffic	0	-251
Total		6,826	6,746
Non Owners			
* time saving (Total)		1,984	5,845
Bus Operators			
* Operating cost saving		0	585
* fares		0	2,493
Total		0	3,078
Total Net Benefit		62,868	80,316

11. ANNUAL BENEFITS OF ALTERNATIVE PLANS
2000

(In thousand dollars at 1979 prices)

	Plan 4 - A	Plan 4 - B	Plan 4 - C	Plan 4 - D
Car-Owners				· · · · · · · · · · · · · · · · · · ·
* car operating cost saving	125,706	159,878	171,334	159,228
* time saving	163,816	180,345	187,714	195,505
* public transport fare	0	-4,629	~10,007	-4,629
* gain/loss due to diverted traffic	o	-10,858	-5,539	-10,858
Total	289,522	324,736	343,502	339,246
M/cycle Owners				
* M/cycle operating cost saving	7,841	8,449	7,226	8,697
* time saving	9,868	9,597	11,023	10,179
* public transport fare	0	-651	~1,449	-651
* gain/loss due to diverted traffic	0	~442	-334	-442
Total	17,709	16,953	16,466	17,783
Non-owners				
* time saving (Total)	9,755	11,224	13,954	11,224
* public transport fare	:. ' -	-	-5,932	_ :
Total	9,755	11,224	8,022	11,224
Bus Operators				
* operating cost saving	398	-57	2,468	-57
* fare	· 0,	5,280	-1,856	5,280
Total	398	5,223	612	5,223
NTS Operators	:			
* operating cost		-	-29,961	-
* public transport fare	. .	_	32,504	-
Total		-	2,543	-
Total Net Benefit	317,384	348,136	371,145	373,476

