添 付 図 表

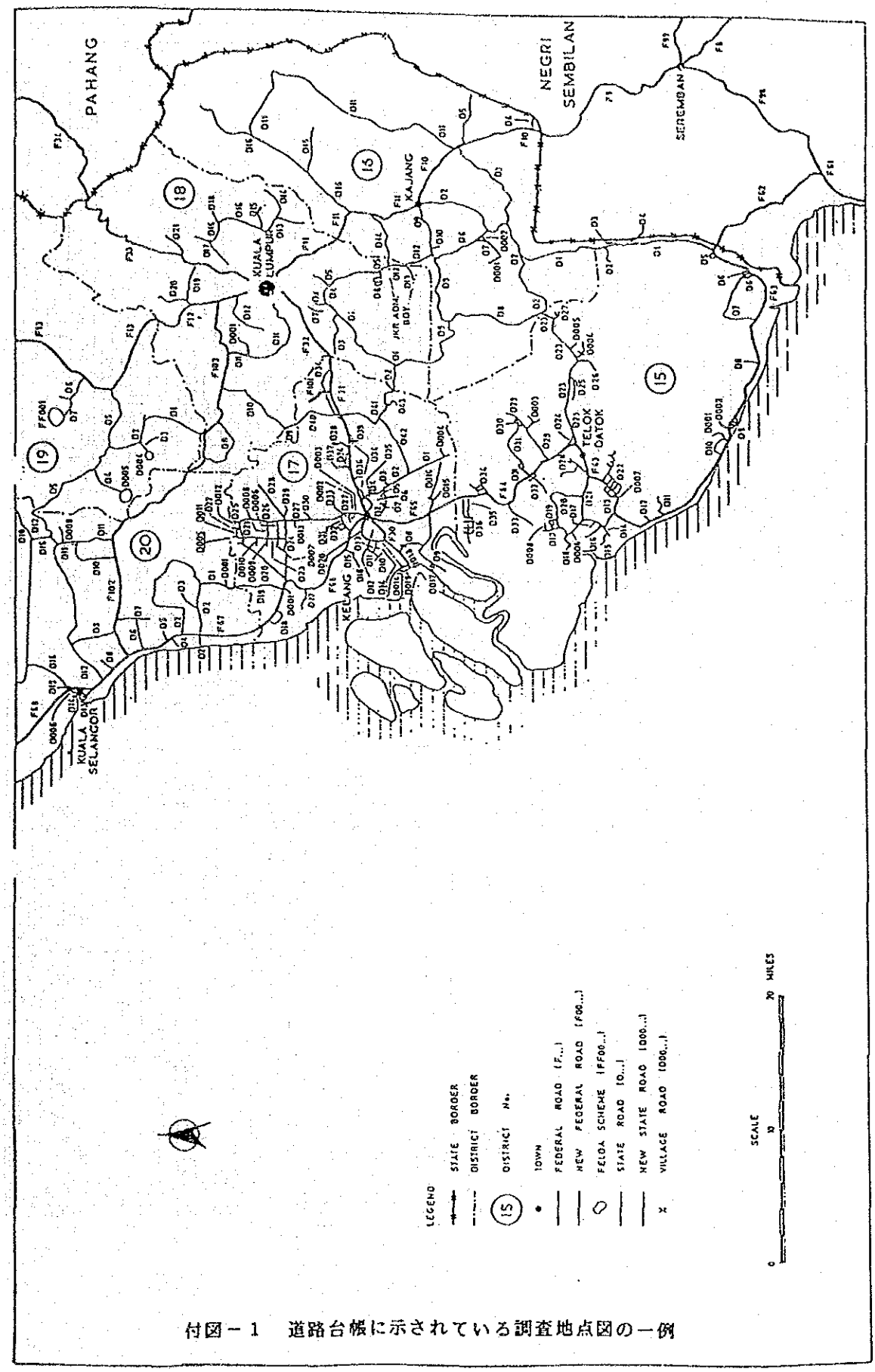
付表－1　ＯＤ調査原票

NATIONAL ORIGIN-DESTINATION SURVEY

KAJIAN ASAL-TUJU KEBANGSAAN INTERVIEW FORM BORANG TEMUBUAL	BAHAGIAN PERANCANG JALAN KEMENTERIAN KERJA RAYA

Interviewer PENEMUBUAL		NOMBOR STESEN Station No.	30
		KOD ARAH Direction Code	31
TARIKH Date		JAM BERMULA DARI Hour starting from	33

NOMBOR REKOD Record No	JENIS KENDERAAN Vehicle Type	BILANGAN PENGGUNA Occupancy	TEMPAT ASAL Origin	TEMPAT TUJU Destination	TUJUAN PERJALANAN Trip Purpose ASAL / TUJU Origin / Destination	BDM (KG) BTM (KG)	JENIS KOMODITI Commodity Type	BERAT KOMODITI (TAN MET.) Commodity Weight
4	1 Kereta (Car) 2 Teksi (Taxi) 3 Van Kecil (Small Van) 4 Lori Sedang (Med. Lorry) 5 Lori Berat (Heavy Lorry) 6 Bas (Bus) 7 Motorsikal (Motorcycle) 5	7	9	11	12 / 13 1 Rumah (House) 2 Kerja (Work) 2 3 Beli-Belah (Shopping) 4 Pelajaran (Education) 5 Sosial (Social) 6 Perniagaan (Business) 7 Pribadi (Private) 8 Lain-Lain (Others)	18 23	25	28
4	1 Kereta 2 Teksi 3 Van Kecil 4 Lori Sedang 5 Lori Berat 6 Bas 7 Motorsikal 5	7	9	11	12 / 13 1 Rumah 1 2 Kerja 2 3 Beli-Belah 3 4 Pelajaran 4 5 Sosial 5 6 Perniagaan 6 7 Pribadi 7 8 Lain-Lain 8	18 23	25	28
4	1 Kereta 2 Teksi 3 Van Kecil 4 Lori Sedang 5 Lori Berat 6 Bas 7 Motorsikal 5	7	9	11	12 / 13 1 Rumah 1 2 Kerja 2 3 Beli-Belah 3 4 Pelajaran 4 5 Sosial 5 6 Perniagaan 6 7 Pribadi 7 8 Lain-Lain 8	18 23	25	28
4	1 Kereta 2 Teksi 3 Van Kecil 4 Lori Sedang 5 Lori Berat 6 Bas 7 Motorsikal 5	7	9	11	12 / 13 1 Rumah 1 2 Kerja 2 3 Beli-Belah 3 4 Pelajaran 4 5 Sosial 5 6 Perniagaan 6 7 Pribadi 7 8 Lain-Lain 8	18 23	25	28
4	1 Kereta 2 Teksi 3 Van Kecil 4 Lori Sedang 5 Lori Berat 6 Bas 7 Motorsikal 5	7	9	11	12 / 13 1 Rumah 1 2 Kerja 2 3 Beli-Belah 3 4 Pelajaran 4 5 Sosial 5 6 Perniagaan 6 7 Pribadi 7 8 Lain-Lain 8	18 23	25	28



付図－1　道路台帳に示されている調査地点図の一例

付表－３　道路台帳の一例

NO. SIRI 0 0 0 0 1

LAPORAN KEMALANGAN JALAN RAYA

(Borang ini mestilah diisi dalam 2 salinan)

POL. 27
(Pin. 1987)

A. REPORT DETAIL

A - BUTIR LAPORAN

1	No. Laporan	13 0 0 0 9 7
2	Jenis Type	19
3	Tahun Year	20

B. TIME

B - MASA

1	Bulan (01 – 12) Month	24
2	Tarikh (01 – 31) Date	26
3	Hari (1–Ahad, 7–Sabtu)	28
4	Jam (0001 – 2400) Time	29

C. LOCATION

C - LOKASI

1	Kod Balai	33
2	Jalan Type of Road	39
3a	Kod Jalan Road Code	40 F 0 0 1
3b	Nama Jalan Road Name	
4	Pos Km/Simpang Post / Intersection	
5	Jarak (m) Distance	48
6	Jenis Tempat Type of location	51
7	Jenis Kawasan Type of area	52

D. Details on Road Highway

D - BUTIR-BUTIR JALAN RAYA

1	Jenis Jalan Raya Type of Highway	54
2	Bentuk Jalan Raya Structure	55
3	Had Laju Kawasan (km/j) Limit	56
4	Jenis Garisan Tengah Centre Line marks	
5	Jenis Kawalan Type of Control	60
6	Jenis Permukaan Pavement Type	62
7	Kualiti Permukaan Pavement Quality	63
8	Keadaan Permukaan Pavement Condition	
9	Keadaan Sekitar Surrounding Condition	

E. Environmental Condition

E - SUASANA PERSEKITARAN

1	Cuaca Weather	66
2	Cahaya Light	67

ULASAN

F. Details on Type of vehicles involved in accident

F - BUTIR-BUTIR KENDERAAN YANG TERLIBAT

1 Jumlah Kenderaan Terlibat 68

	2 Bilangan No.	3 Pendaftaran Registration No. / Nombor Pendaftaran	4 Jenis Kenderaan Type of Vehicle	5 Jenis Muatan Load	6 Pemilik Kenderaan Owner	7 Jantina Pemandu Sex of Driver	8 Pergerakan Kenderaan Vehicle Manoeuvre	9 Kerosakan Disebabkan Kemalangan Damage Due to Accident
1	70							
2	86							
3	102							
4	118							
5	134							
6	150							
7	166							
8	182							

C. Details on injury

G - BUTIR-BUTIR KECEDERAAN

	1 Bilangan No.	2 Kedudukan Penguna Jalan Road User	3 Umur Age	4 Bangsa Race	5 Jantina Sex	6 Jenis Kecederaan Type of Injury	7 Pemakaian Keledar Helmet	8 Kedudukan Penumpang Passenger Seat	9 Bilangan Kenderaan No. of Vehicle
1	198								
2	208								
3	218								
4	228								
5	238								
6	248								
7	258								
8	268								
9	278								
10	288								
11	298								
12	308								
13	318								
14	328								
15	338								

H. Person who has major fault / injury

H - ORANG YANG TERUTAMA SEKALI DISALAHKAN / TERLIBAT

1	Sebutkan samada: 1 – Disalahkan 2 – Terlibat	348
2	Bil. Kenderaannya di F–2	349
3	Penguna Jalan Raya	350
4	Bangsa Race	352
5	Jantina Sex	353
6	Umur Age	354
7	Kelayakan Qualification	356
8	Kedudukan Lesen Place of issue	357
9	Cara Mendapat Lesen How Licence obtained	358

I. Type of ACCIDENT

I - JENIS KEMALANGAN

1	Jenis Pertanggungan Collision	359
2	Rumusan Siasatan	361
3	Sebab Utama Kemalangan Main Cause of Accident	362
4	Sebab-Sebab Lain Other Causes	

364 366 368

J. Estimated to Damage

J - ANGGARAN KEROSAKAN

1	Kenderaan Vehicle	370
2	Harta Property	376

No obvious filling in Form

Checked by

PEGAWAI YANG MENGISI LAPORAN

Tandatangan: _____

Nama: _____

Nombor: _____

Pangkat: _____

DISEMAK OLEH

Tandatangan: _____

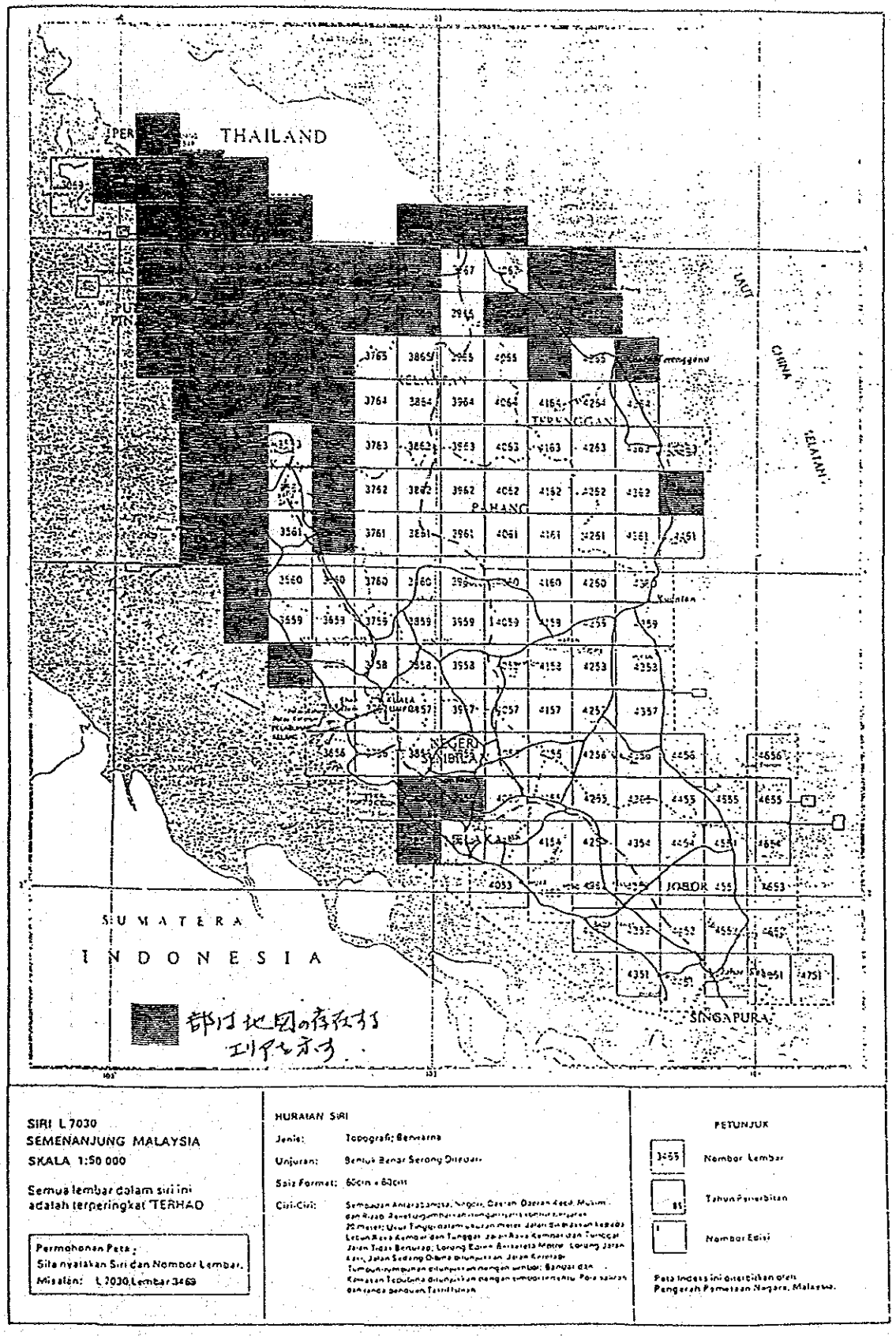
Nama: _____

Nombor: _____

Pangkat: _____

No.	Project	State	Length (km)	Year
1	Improvement and relocation to Tampin/Seremban road from 32.0 m.s 12.0 m.s	Johor	10.8	1976
2	Tanjong Penggarang Highway	Johor	43	1976
3	Improvement to junction and widening of bridge at Sempang Empat m.s 6.0 south of Alor Setar	Kedah	-	1978
4	Newcomb Bridge	Melaka	-	1978
5	Construction of two bridges No: 57/4 and 58/5 over Sg. Air Barung and Sg. Jarang	N.Sembilan	-	1978
6	Improvement to Seremban/Kuala Pilah road between m.s 0.8 & m.s 1.3	N.Sembilan	2	1978
7	Bridge 4/1.20/1,22/1 and 23/4 along Bahau/Mahkota/Air Hitam	N.Sembilan	-	1978
8	Jerantut Bridge	Pahang	-	1978
9	Improvement to Simpang/Taiping Road from m.s 49.7 to m.s 53.0	Perak	5	1978
10	New Klang Bridge & Viaduct	Selangor	-	1978
11	Kuala Selangor Bridge including town bypass	Selangor	1.6	1978
12	Kuala Lumpur-Seremban Expressway	Selangor/N.Sembilan	102	1978
13	Kertih Deviation m.s 66.5 to 67.5	Terengganu	1.6	1978
14	Replacement of bridge No:4/72 Jalan Kluang/Jemaluang Road	Johor	-	1979
15	Improvement & relocation between m.s 22.0 & 25.5 Butterworth/Alor Setar road including bridge over rail	Kedah	5.6	1979
16	Improvement to Jerantut/Maran Road including replacement of timber bridge no.65/1 & 65/3 from m.s 102-64.0	Pahang	-	1979
17	Batak Rabok Road, m.s 57.75 Telok Anson, Bagan Datok	Perak	1	1979
18	Reconstruction of Port Weld Road from m.s 8.75 to m.s 10.5	Perak	3	1979
19	Sabak Bernam Bridge	Selangor/Perak	-	1979
20	Jerantut-Jabor Road	Terengganu	171	1979
21	Improvement to route 1 from railway gate Johor Bahru carriageway to 6.75 m.s	Johor	12	1980
22	Improvement to Melaka/Kendong Road from 2.2 m.s. to 7.5 m.s.	Johor	2	1980
23	Improvement to Sg Petani/Kroh Road	Kedah	38	1980
24	Improvement to Alor Star/Bkt/Thai Border road from 12.0 m.s to 24.0 m.s	Kedah	19	1980
25	Improvement to Gemas/Rompin/Bahau Road from m.s. 60.5 to m.s. 41.8 and Bahau/Temerloh Road m.s. 0.0-24.25	N.Sembilan	8	1980
26	Sungai Triang Bridge	Pahang	-	1980
27	Improvement to Bahau-Temerloh m.s 10.9 to m.s 77.0	Pahang	46	1980
28	Improvement to Temerloh/Maran Road between m.s 76.9 and 48.0	Pahang	16	1980
29	Improvement to Tapah/Tanah Rata Road from junction at Route 1 to Perak-Pahang Boundary at 29.2 m.s.	Perak	20	1980
30	Replacement of bridge No:8/1 Simpang/Port Weld	Perak	-	1980
31	Improvement from m.s 10.0 to m.s 23.0 Kangar/Padang Besar Road	Perlis	12	1980
32	Replacement of timber bridge no 45/2 at m.s 44.5 Kuala Lumpur/Ipoh road	Selangor	2.4	1980
33	Strengthening and widening of Kuala Selangor/Sabak Bernam Road from m.s. 37-70.9	Selangor	10	1980
34	Kuala Lumpur-Karak	Selangor/Pahang	42	1980
35	Improvement to m.s 44.0-53.0 Kuala Terengganu /Kota Bharu road	Terengganu	6.7	1980
36	Widening Kuala Terengganu Airport Road	Terengganu	2	1980
37	Improvement to Kuala Terengganu/Kota Bharu Road m.s 29.0 to 31.0	Terengganu	3	1980
38	Improvement and relocation to Tampin/Seremban Road from 12.0 m.s to 42.0 m.s	Johor	10	1981
39	Improvement to vertical curves between m.s 97.0 to 89.25 Air Hitam/Segamat road	Johor	3.5	1981
40	Kuala Lumpur Central area Traffic Improvement Scheme	K.Lumpur	10	1981
41	Kuantan Bypass	Pahang	32.8	1981
42	Provision of hard shoulders to carriageway from m.s 25.0 to 6.0 Bagan Serai/Butterworth road	Pulau Pinang	33	1981
43	Jalan Kuala Terengganu-Kota Bharu m.s 15-15 & m.s 16-16.5	Terengganu	1.6	1981
44	Sungai Tebrau Bridge	Johor	-	1982
45	Upgrading access road to Senai Airport	Johor	3	1982
46	Widening Jalan Duta to dual carriageway	K.Lumpur	2	1982
47	Kuala Lipis bridge over rail	Pahang	-	1982
48	East West Highway	Perak/Kelantan	115	1982
49	Pelabuhan Kelang/Kelang 4-lane divided highway	Selangor	7	1982
50	Kuala Lumpur-Batang Kali	Selangor	40	1982
51	Chendering Deviation	Terengganu	-	1982
52	Improvement to Johor Bahru/Air Hitam from 6.75 m.s to 16.5 m.s	Johor	16	1983
53	Improvement and relocation to Air Hitam/Segamat road m.s 104-109	Johor	8	1983
54	Kuala Kerai-Gua Musang Road	Kelantan	120	1983
55	Port Dickson bypass from 0.6 m.s. south of Port Dickson to 18.61 m.s. on Port Dickson/Seremban Road	N.Sembilan	3	1983
56	Kuantan/Pekan Road widening of shoulders 5.5 m.s. to27.5 m.s.	Pahang	30	1983
57	Kuantan-Segamat Road	Pahang/Johor	149	1983
58	Beautification of Federal road from Subang Airport to Kuala Lumpur	Selangor	6	1983
59	Kuala Besut Bridge	Terengganu	5	1983
60	Kuala Lumpur-Petaling Jaya Traffic Dispersal Scheme	K.Lumpur	10	1984
61	Petaling Jaya-Kuala Lumpur Interchange	K.Lumpur	16	1984
62	Improvement to Jalan Dato' Onn, Jalan Mahameru & Jalan Tun Ismail	K.Lumpur	4	1984
63	Improvement between m.s. 21.0 and 25.0 Seremban/Kuala Pilah Road	N.Sembilan	6	1984
65	Replacement of bridge No: 29/4,26/1 and 29/5 along Jalan Port Dickson/Linggi/Lubok China	Selangor	5	1984
66	Improvement to Teluk Datuk/Kelang Road from m.s. 1.75 to 0.63 m.s.	N.Sembilan	-	1985
67	Improvement Kuala Lumpur/Kuala Selangor m.s. 5.3-9.5 m.s	Selangor	2	1985
68	Improvement from m.s 87.75 to 81.60 on Bentong/Temerloh road including Mentakab Town Bypass & road-over rail bridge	Selangor	6.7	1985
69	Telok Anson/Bagan Datok Road to Kampong Kayan	Pahang	10	1985
70	Replacement of timber bridge no 63/2 Ipoh-Butterworth road	Perak	27	1985
71	North Kelang Straits Bypass	Perak	-	1985
72	Improvement and relocation to Ipoh/Kuala Kangsar Road between m.s 11.5-19.25	Selangor	15	1986
73	Assam Kumbang bridge over rail	Perak	3	1987
74	Penang Traffic Dispersal Scheme	Perak	-	1987
75	Widening bridge No 41/3 at m.s 40.5 Kuala Lumpur-Ipoh Road	P.Pinang	20	1987
76	Highway rehabilitation Program	Selangor	-	1987
77	Replacement of bridge No:2/99 3/99 and 4/99 at Jalan Kluang/Jemaluang	Various states	1056	1987
78	Improvement to Johor Bahru/Pontian Road from m.s. 10.5 to 14.75	Johor	-	1988
79	Improvement from 4.25 m.s to 5.25 m.s Kuala Terengganu/Kota Bharu road	Johor	6	1988
80	East West Highway Phase II - Eastern section	Kelantan	11	1988
81	Widening from m.s 31.0 - 32.5 m.s Kuala Lumpur-Ipoh Road	Kelantan	115	1988
82	Improvement between m.s 91.0 & 87.0 m.s Kuantan/Kemaman/Dungun Road	Selangor	2.4	1988
		Terengganu	7	1988

PETA TOPOGRAFI SIRI L 7030
SKALA 1:50 000



SIRI L 7030
SEMENANJUNG MALAYSIA
SKALA 1:50 000

Semua lembar dalam siri ini adalah terperingkat 'TERHAD'

Permohonan Peta :
Sila nyatakan Siri dan Nombor Lembar.
Misalan: L 7030, Lembar 3469

HURAIAN SIRI

Jenis: Topografi; Berwarna

Unjuran: Berlok Benar Serong Oleh Gauss

Saiz Format: 60cm x 60cm

Cuti-Cuti: Sempadan Antarabangsa, Negeri, Daerah Daerah Kecil, Mukim dan Rizab Penetapan dan pengisytiharan sempadan tersebut 20 Meter; Ukur Tanggung dalam ukuran meter Jalan Sebelah kedua Lebuh Raya Kembar dan Tunggal Jalan Raya Kembar dan Tunggal Jalan Tidak Berturap; Lorong Kaki Arkeleta Meter Lorong Jalan Kaki, Jalan Sedang Dibina ditunjukkan Jalan Keretapi Tunggal ditunjukkan dengan simbol; Bangsal dan Kawasan Terbuka ditunjukkan dengan simbol tersebut. Pola sauran dan garis panduan Tandatanda

PETUNJUK

3655 Nombor Lembar

85 Tahun Penerbitan

1 Nombor Edisi

Peta Indeks ini diterbitkan oleh Pengarah Pemetaan Negara, Malaysia.

Seksyen 11 Versi 2
April 1983

付図－２　1/10,000地形図のカバーリングエリア

SIMBOL-SIMBOL

Bagi peta-peta dalam Siri L7010 dan T735

JALAN KERETAPI *(RAILWAYS)*

1. Benteng *Embankment* 2. Stesen *Station* 3. Perhentian *Halt* 4. Tarahan *Cutting*

1. Tunggal *Single Track* 2. Kembar *Double Track* 3. Sedang Dibina *Underconstruction* 4. Terowongan *Tunnel*

1. Jalan Raya Atas *Road Over* 2. Jalan Raya Bawah *Road Under* 3. Lintasan Keretapi *Level Crossing*

Keretapi Ringan *Light Railway* 1. Tunggal *Single Track* 2. Kembar *Double Track*

JALAN RAYA *(ROADS)*

Berturap Berguna Semua Musim *All Weather, Sealed Surface* 1. Kembar *Dual Carriageway* 2. 2-hala *2-way* 3. 1-hala *1-way*

Tidak Berturap, Berguna Semua Musim *All Weather, Unsealed Surface* 1. 2-hala *2-way* 2. 1-hala *1-way*

1. Tidak Berturap, Berguna Musim Kemarau *Dry Weather, Unsealed Surface* 2. Penanda Batu *Milestone*

1. Lorong Boleh Berkereta Motor *Motorable Track* 2. Denai *Footpath*

CIRI BUDAYA DAN PELBAGAI BINAAN
CULTURAL FEATURES & MISCELLANEOUS CONSTRUCTIONS

1. Talian Penghantaran Elektrik *Electricity Transmission Line* 2. Talian Telefon *Telephone Line*

1. Tangki (lain daripada air) *Tank (other than water)* 2. Kubu dan Kota *Fort* 3. Tiang Wayarles *Wireless Mast*

1. Padang Terbang *Airfield* 2. Pelabuhan Terbang *Seaplane Anchorage*

1. Ciri-ciri Kesan Purba *Archaeological Feature* 2. Padang Tembak *Rifle Range*

Rumah Api dan Matarah Pandu Berapi *Lighthouse and Permanent Beacon with Light*

1. Lombong di Muka Bumi *Surface Mine* 2. Lombong Siam *Subterranean Mine*

1. Talian Paip (lain daripada air) *Pipe Line (other than water)* 2. Tanah Perkuburan *Cemetery*

1. Derek Minyak *Oil Derrick* 2. Tembok *Wall* 3. Pagar *Fence*

BANGUNAN *(BUILDINGS)*

Bandar dan Kawasan Tapu Bina *Towns and Built-up Areas*

1. Bangunan Diamkan *Number of Buildings Generalized* 2. Rumah Sebuah *Individual Building*

1. Gereja *Church* 2. Masjid *Mosque* 3. Tokong Cina *Chinese Temple*

1. Kuil Hindu *Hindu Temple* 2. Kuil Buddha *Buddhist Temple*

CIRI MUKA SUNGAI DAN AIR (WATER & RIVER FEATURES)

1. Batu Hanyut *Rocks Awash* 2. Batu Karam *Rocks Submerged* 3. Batu Timbul *Rocks*

Sungai *River* 1. Dua Garisan *Double Line* 2. Satu Garisan *Single Line* 3. Tidak Tentu *Indefinite*

Sungai *River* 1. Pasang Surut *Tidal* 2. Tidak Pasang Surut *Non-tidal*

1. Lukah *Fish Trap* 2. Feri (Kereta) *Ferry (Vehicle)* 3. Sungai Bawah Tanah *Underground Stream*

1. Air Terjun *Waterfall* 2. Batu Timbul *Rocks* 3. Jeram *Rapids*

1. Pasir Laut *Coastal Sand* 2. Lumpur *Mud* 3. Pasir Darat *Inland Sand*

1. Talian Paip Air *Water Pipe Line* 2. Kolam Air Bekal *Service Reservoir* 3. Empangan *Dam*

Tasik, Kolam, Kolam Air *Lake, Pool, Reservoir* 1. Tentu *Definite* 2. Tidak Tentu *Indefinite*

1. Terusan atau Tali Air *Canal* 2. Pintu Kawalan Air *Water Control Gate*

1. Air Panas *Hot Spring* 2. Telaga Awam *Public Well* 3. Lopak *Lopak*

Garisan Pantai *Shoreline* 1. Tentu *Definite* 2. Tidak Tentu *Indefinite* 3. Jeti, Dermaga, Tembok Gelombang *Pier, Wharf, Breakwater*

JAMBATAN *(BRIDGES)*

1. Jambatan Batu atau Besi *Masonry or Steel Bridge* 2. Jambatan Kayu *Wooden Bridge*

1. Pembetung *Culvert* 2. Titian *Footbridge*

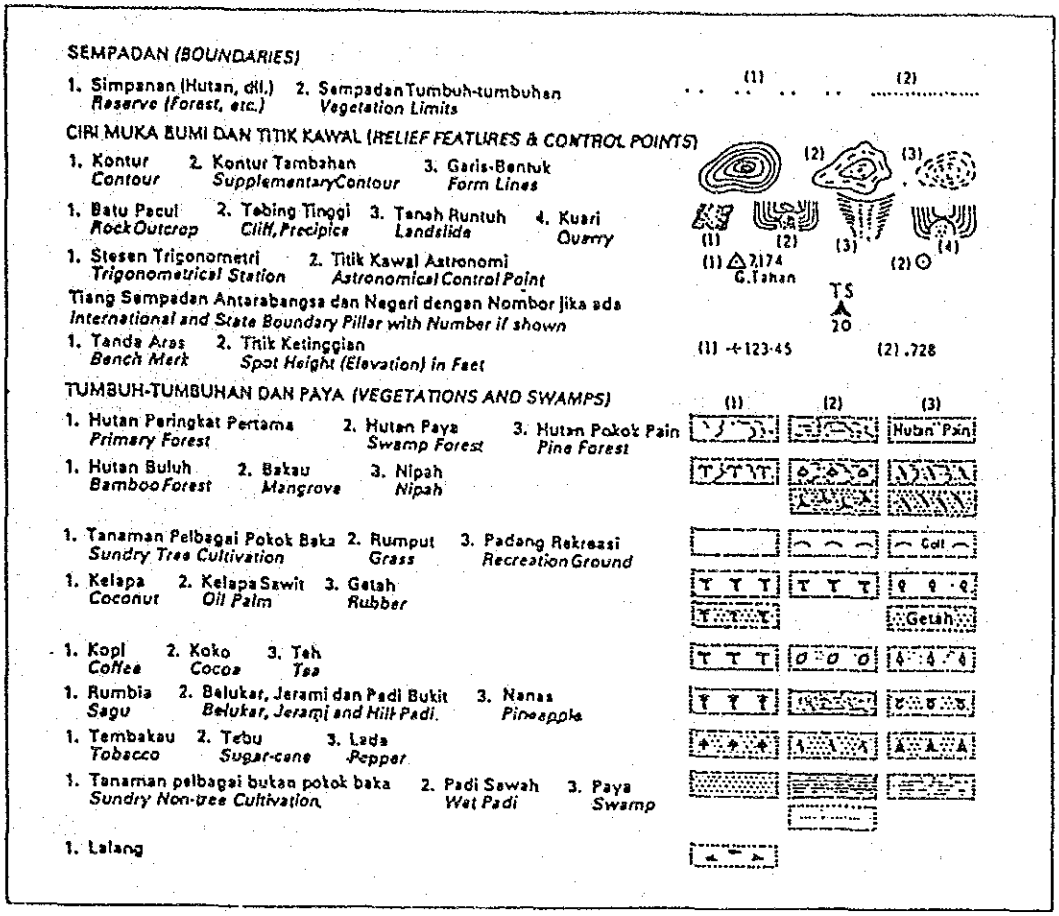
SEMPADAN *(BOUNDARIES)*

1. Antarabangsa *International* 2. Bahagian Kedaulatan di Pulau-pulau *Division of Insular Sovereignty* 3. Negeri *State*

1. Bahagian atau Residensi *Division or Residency* 2. Daerah *District* 3. Daerah Kecil *Sub-District*

1. Mukim *Mukim* 2. Perbandaran, Lembaga Bandar atau Daerah Bandar *Municipal, Town Council or Urban District*

Bagi peta-peta dalam Siri L7010 dan T735



付図－３（２）　1/10,000地形図に記載されている情報（その２）

資　料

1. Scope of Work (S/W)
2. Minutes of Meeting
3. 要請書
4. 必要資料リストと資料の所在、収集状況
5. 質問状への回答

1. Scope of Work (S/W)

SCOPE OF WORK

FOR

THE STUDY ON THE HIGHWAY NETWORK

DEVELOPMENT PLAN

IN

MALAYSIA

AGREED UPON BETWEEN

THE ECONOMIC PLANNING UNIT,

PRIME MINISTER'S DEPARTMENT

ON BEHALF OF

THE GOVERNMENT OF MALAYSIA

AND

THE JAPAN INTERNATIONAL COOPERATION AGENCY

KUALA LUMPUR, 19th. MARCH, 1990

.....

DR. GAN KHUAN POH,
DIRECTOR, INFRASTRUCTURE
AND UTILITIES SECTION,
ECONOMIC PLANNING UNIT,
PRIME MINISTER'S DEPARTMENT
on behalf of
THE GOVERNMENT OF MALAYSIA

.....

MR. KUNIHIKO TAKADA
LEADER,
PRELIMINARY STUDY TEAM
on behalf of
THE JAPAN INTERNATIONAL
COOPERATION AGENCY

I. INTRODUCTION

In response to the request of the Government of Malaysia, the Government of Japan has decided to conduct the Study on the Highway Network Development Plan in Malaysia (hereinafter referred to as "the Study").

In accordance with the relevant laws and regulations in force in Japan, the Japan International Cooperation Agency (hereinafter referred to as "JICA"), the official agency responsible for the implementation of technical cooperation programmes of the Government of Japan, will undertake the Study in close cooperation with the authorities of Malaysia.

The present document sets forth the scope of work with regard to the Study.

2. OBJECTIVES OF THE STUDY

The objectives of the Study are:

(1) To formulate a development plan of the national highway network targeted to the year 2010.

(2) To prioritise new and improved linkages in the planned network with respect to technical and economic viewpoints and to formulate a road development programme taking into consideration the possibility of tolling.

3. STUDY AREA

The Study covers the whole of Malaysia.

4. SCOPE OF THE STUDY

In order to achieve the objectives mentioned above, the Study shall cover the following items:

4.1 Collection and Review of Available Information

To collect and review available data, reports, and other information relevant to the Study.

4.2 Inventory and Physical Condition Survey

(1) To conduct an inventory survey on transportation network facilities, especially on the network of federal roads, to supplement existing inventory information.

(2) To outline physical conditions critical to construction or improvement of highway network based on existing data and materials.

4.3 Traffic Survey and Analysis of Present Travel Characteristics

(1) To analyze available data on all modes of passenger and freight transport on the principal routes.

(2) To carry out OD survey, traffic count survey, and other surveys as required to supplement existing traffic and transportation data.

(3) To establish present vehicle OD matrix

(4) To analyze present travel characteristics

4.4 Analysis of Performance of Existing Highway Network

(1) Data collection and analyses of travel speed and accidents

(2) Assessment of adequacy of existing highway network in terms of traffic capacity, geometric standard, and safety.

4.5 Analysis and Forecast of Socio-Economic Framework

(1) to analyze national and regional socio-economic characteristics and development prospects.

(2) To identify major economic and regional development policies.

(3) to forecast future socio-economic frameworks for the period up to the year 2010.

4.6 Formulation of Highway Development Strategy and Alternative Concepts of Highway Development

(1) To define the roles of road transportation especially in connection with freight transportation, regional and tourism development, conforming to the institutional framework as prescribed by the Government of Malaysia.

(2) To formulate development strategy for national highway network such as hierarchy concept.

(3) To formulate alternative concepts of highway network development.

4.7 Traffic Demand Forecast and Formulation of National Highway Network Development Plan

(1) Forecast of future vehicle OD matrices in every 5 years coinciding with Malaysia Plans up to the year 2010.

(2) Establishment of highway network model and traffic assignments.

(3) Preliminary estimates of construction costs.

(4) Formulation of a national highway network development plan targeted to the year 2010 including hierarchical levels of links, development type such as new road or upgrading, and traffic safety consideration.

4.8. Formulation of Road Development Programme

(1) To prioritize new and improved linkages in the planned network with respect to technical and economic viewpoints taking into account traffic forecasts in every 5 years.

(2) To explore possibilities of toll roads for priority expressway links.

(3) To formulate a road development programme.

4.9. Conclusions and Recommendations

5. STUDY SCHEDULE

The Study will be carried out in accordance with the attached tentative schedule.

6. REPORTS

JICA shall prepare the following reports in English and submit them to the Government of Malaysia.

(1) Inception Report (25 copies)

This report will be submitted at the commencement of the Study and will describe the overall approach and implementation programme of the Study.

(2) Progress Report (1) (25 copies)

This report will be submitted within four (4) months after the commencement of the Study and will contain a statement of all work performed during the reporting period.

(3) Progress Report (2) (25 copies)

This report will be submitted within eight (8) months after the commencement of the Study and will contain the preliminary results of the analyses and surveys such as traffic survey, inventory survey, and analysis of performance of existing highway network.

(4) Interim Report (1) (40 copies)

This report will be submitted within twelve (12) months after the commencement of the Study and will contain highway development strategy and alternative network concepts.

(5) Interim Report (2) (40 copies)

This report will be submitted within sixteen (16) months after the commencement of the Study and will contain the proposed national highway network development plan and preliminary results of prioritization.

(6) Draft Final Report (40 copies)

This report will be submitted within twenty (20) months after the commencement of the Study and will contain all the results of the Study. The Government of Malaysia will provide the written comments on the Draft Final Report in English within four (4) weeks after receipt of the report.

(7) Final Report (60 copies)

This report will be submitted within two (2) months after the receipt of the written comments on the Draft Final Report by the Government of Malaysia.

The Study team shall ensure that all data, information, maps, drawings, materials, and findings connected with the study are kept confidential and not disposed of or revealed to any third party except with the prior written consent of the Government of Malaysia. Such maps and aerial photographs are to be returned to the Government of Malaysia immediately upon completion of the Study. All reports when finalized and submitted to the Government of Malaysia shall remain the property of the Government of Malaysia.

7. UNDERTAKINGS OF THE GOVERNMENT OF MALAYSIA

To facilitate smooth conduct of the Study, the Government of Malaysia shall take the following necessary measures:

(1) To inform the members of the Study Team of any existing risk in the Study area and to take any measures deemed necessary to secure the safety of the Study Team.

(2) To secure the necessary entry permits for the Study Team to conduct field survey in Malaysia and exempt them from consular fees.

(3) To exempt the members of the Study Team from taxes and duties as normally accorded under the provision of the Malaysian General Circular No. 1 of 1979, on equipment, machinery and other materials brought into and out of Malaysia for the conduct of the Study.

(4) To exempt the members of the Study Team from Malaysian income tax on their official emoluments in respect of their period of assignment in Malaysia in connection with the conduct of the Study, but the Government of Malaysia shall retain the right to take such emoluments into account for the purpose of assessing the amount to be applied to income from other sources.

(5) To provide the necessary facilities to the Study Team for remittance as well as utilization of funds introduced into Malaysia from Japan in connection with the conduct of the Study.

(6) To secure permission for entry into private properties or restricted areas for the conduct of the Study.

(7) To provide the Study Team with medical services when needed, but the expenses will be chargeable to the members of the Study Team.

(8) To make arrangements for the Study Team to take back to Japan the data, maps, drawings and materials connected with the Study subject to the approval of the Government of Malaysia, in order to prepare the reports.

(9) To provide the Study Team with available data, maps, aerial photos and information necessary for the execution of the Study.

(10) To appoint counterpart personnel to the Study Team during the Study period.

(11) To provide the Study Team with suitable office spaces with clerical service and necessary office equipment.

(12) To provide the Study Team with adequate means of local transport for official travel only.

(13) To indemnify any members of the Study Team in respect of damages arising from any legal action against him in relation to any act performed or omissions made in undertaking the Study except when the two Governments agree that such a member is guilty of gross negligence or wilful misconduct.

(14) To nominate the Economic Planning Unit of the Prime Minister's Department as the coordinating agency for the Study.

8. UNDERTAKINGS OF JICA

In order to conduct the Study, JICA shall take the following measures:

(1) To dispatch, at its own expense, the Study Team to Malaysia.

(2) To pursue technology transfer to the Malaysian counterpart personnel in the course of the Study.

9. CONSULTATION

JICA and the Government of Malaysia shall consult each other in respect of any matter that is not agreed upon in this document and which may arise from or in connection with the Study.

ATTACHMENT

TENTATIVE SCHEDULE

MONTH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
WORK IN MALAYSIA	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			
WORK IN JAPAN	—							—	—	—	—	—	—	—	—	—					—	—	
REPORT PRESENTATION	△ IC/R			△ PR/R(1)				△ PR/R(2)				△ IT/R(1)				△ IT/R(2)				△ DF/R			△ F/R

IC/R: Inception Report

PR/R: Progress Report

IT/R: Interim Report

DF/R: Draft Final Report

F/R : Final Report

2 . Minutes of Meeting

MINUTES OF MEETING

ON

THE SCOPE OF WORK

FOR

THE STUDY

ON

THE HIGHWAY NETWORK DEVELOPMENT PLAN

IN

MALAYSIA

AGREED UPON BETWEEN

THE ECONOMIC PLANNING UNIT

OF

THE PRIME MINISTER'S DEPARTMENT

ON BEHALF OF

THE GOVERNMENT OF MALAYSIA

AND

THE JAPAN INTERNATIONAL COOPERATION AGENCY

KUALA LUMPUR, 19th. MARCH, 1990

DR. GAN KHUAN POH,
DIRECTOR, INFRASTRUCTURE
AND UTILITIES SECTION,
ECONOMIC PLANNING UNIT,
PRIME MINISTER'S DEPARTMENT
On Behalf Of
THE GOVERNMENT OF MALAYSIA

MR. KUNIHIKO TAKADA,
LEADER,
PRELIMINARY STUDY TEAM,
On Behalf Of
THE JAPAN INTERNATIONAL
COOPERATION AGENCY

The Japanese Preliminary Study Team (hereinafter referred to as "the Team"), organized by the Japan International Cooperation Agency (hereinafter referred to as "JICA") and headed by Mr. Kunihiko Takada (Chief of Traffic Engineering Division, Road Department, Public Works Research Institute, Ministry of Construction) visited Malaysia from March 6 to March 20, 1990, in connection with the Study on the Highway Network Development Plan in Malaysia (hereinafter referred to as "the Study").

The Team had a series of discussions on the Scope of Work of the Study with relevant authorities of the Government of Malaysia. The Team also carried out field surveys on the highway network in Malaysia.

The first Steering Committee meeting was held on March 15, 1990, to finalize the Scope of Work. The attendance list is as attached in Annex I.

The main items on the contents of the Study which were agreed upon by both sides are as follows:-

1. It was agreed that the title of the Study be amended to read "The Highway Network Development Plan".

2. It was agreed that the Study would cover the whole of Malaysia.

3. It was agreed that the Study would focus primarily on inter-urban road network and shall not include intra-urban facilities except to the extent that inter-urban traffic may be affected, e.g. bypasses and ring roads in urban areas.

4. On Clause 4.1 of the Scope of Work (hereinafter referred to as the S/W), it was agreed that the Study shall review all available traffic data on the existing network, and where found inadequate, shall conduct further surveys to supplement the data. In the review of traffic data, the Study shall examine the methodology of analysis adopted by the Public Works Department (PWD) and recommend improvements wherever appropriate. It was also agreed that the Highway Planning Unit (HPU) will conduct the Roadside Origin-Destination survey at 35 stations. The Study will be responsible in conducting other traffic surveys including the Vehicle Ownership Interview Survey.

5. On Clause 4.2 of the S/W, it was agreed that the Study make use of the existing road inventory of the Federal Roads. Additional surveys may be required to supplement existing data.

6. On Sabah and Sarawak, the Team explained that though the Development Plan would cover these two States, the methodology for traffic data collection and forecast would be modified from that used for Peninsular Malaysia because of the differing road and traffic conditions.

7. On Clause 4.4 of the S/W, it was agreed that the Study would review the road safety situation in Malaysia and the deficiencies of the road which contribute towards the occurrence of accidents. Methodologies of traffic accident data collection and analysis shall be examined and improvements recommended where appropriate. The scope of the review and examination shall be confined mainly to road engineering aspects only.

8. On Clause 4.6 of the S/W, it was agreed that the Study would examine and analyse current regulations and the distribution of the fiscal burden between road transportation and other modes particularly those affecting modal competition and allocations such as user taxation and charges.

9. On Clause 4.6 and 4.7 of the S/W, it was agreed that the Study would conduct an examination of the impact on the prevailing freight transportation system

particularly along the main transportation corridors by the implementation of the proposed plan.

10. On Clause 4.8 of the S/W, it was agreed that the route numbering system used by the PWD Malaysia be adopted. There shall be established a clear heirarchy of roads, following the road categories and standards as given in PWD's publication entitled " A Guide On Geometric Design of Roads", Arahan Teknik (Jalan) 8/86. The Malaysian Highway Authority Standards and Guidelines shall also be followed. The Study may suggest modifications to the road categories where deemed necessary. Each road shall have a unique route number and shall be assigned a category and a geometric standard.

11. On Clause 4.8 (2) of the S/W, it was clarified that analysis would be carried out by the Study on the criteria of selecting routes for tolling and preliminary assessment of tolling. The Study would not look into the viability of privatisation.

12. It was also agreed that for Clause 4.8 (3) of the S/W, the road development programme should establish specifically the following programmes of road development under an overall integrated network to cater for the nation's road demand up to the year 2010:

a) New road links

b) Upgrading of existing roads

c) Road safety improvements (road engineering)

d) Toll Highways

13. It was agreed that the Study shall be conducted in Malaysia as much as possible except for analyses which are impossible and/ or extremely expensive if conducted in Malaysia and except for the time required for renewal of contract in Japan. The transfer of technology shall be effected to the greatest extent possible. In this respect, to facilitate continuity of the Study, the Malaysian side requested that equipment used in the Study be left in this country for its use.

14. JICA should bear the transportation cost necessary for field surveys such as inventory survey, traffic survey, and travel speed survey.

The Team agreed to convey to the Government of Japan strong requests by the Malaysian side that:

a) On Clause 4.7 of the S/W, the Government of Malaysia requested the Study to use appropriate traffic forecasting model adapted to Malaysian conditions. However, the software used shall, as

far as possible, be able to be downloaded on to personal computers and shall be given to the Government of Malaysia at the end of the Study.

b) Training programme in Japan for a substantial number of Malaysian counterpart personnel be provided during the course of the Study.

c) The vehicle-ownership interview survey be extended to cover the whole of Malaysia.

d) A motor vehicle, preferably a four-wheel drive, and a reasonable number of personal computers be provided for use in connection with the Study.

However, with regard to item a) of the request above, the Team indicated that this request needs careful examination from various view points such as technological feasibility, copyright of software and contractual practice of JICA.

3．要請書

GOVERNMENT OF MALAYSIA

ECONOMIC PLANNING UNIT
PRIME MINISTER'S DEPARTMENT

TERMS OF REFERENCE

FOR

THE HIGHWAY NETWORK DEVELOPMENT PLAN

FEBRUARY, 1990

1. BACKGROUND

Transport planning in the last three decades was guided by the policies and strategies as recommended by a series of studies,notably the General Transport Survey, 1967. The rapid pace of economic growth in the last three decades and the accompanying changes in the volume and pattern of commodity and traffic flows requires a fresh look at the sector. In this respect, the proposed study will review the important transport flows for the road network system and determine future strategies to upgrade the road system to effectively meet the demands of a rapidly changing economy. The new Plan will,therefore, provide a long-term planning horizon for road network development, in line with the objective of raising national economic efficiency.

2. INTRODUCTION

2.1 Malaysia comprises thirteen states covering a total land mass of 329,750 square kilometers with a population of 16 million in 1988. At the end of 1988, the number of registered vehicles stood at 4 million, of which about 60 and 30 per cent were motorcycles and motorcars respectively. At the end of 1988, the total road length was approximately 42,300 kilometers, of which about 34,500 kilometres or 81 per cent were paved and administered by the Federal and State Governments and the Municipalities.

2.2 Road transport plays a dominant role in the nation's transportation system, which is essential to the social and economic development of the nation. In view of its flexibility, it presently handles a significantly high proportion of the passenger and freight movements in the country.

3. OBJECTIVES

3.1 The broad objectives of the Study are to analyse the state of transportation system in Malaysia and to develop an economical, safe and efficient primary road network plan for the country taking into account the need for greater modal interfaces and coordination. The recommended development plan should conform to the national objectives and aspirations for industrial development and the overall growth of the nation.

4. SCOPE OF WORK

4.1 General

4.1.1 The Highway Development Plan shall cover Peninsular Malaysia, Sabah and Sarawak. The Study will focus primarily on inter-city road network and shall not include intra-city traffic except to the extent inter-city traffic may be affected, e.g. bypasses and ring roads in urban areas. The plan period shall be twenty (20) years, i.e. up to the year 2010.

4.2 Assessment Of Adequacy Of Existing Road Network

4.2.1 The Consultant shall make use of existing road inventory of the Federal Roads. Additional surveys may be required to supplement existing data. The additional survey, if necessary, shall be consistent in methodology with that currently applied by JKR.

4.2.2 The Consultant shall review all available traffic data on the existing network, and where found inadequate, shall conduct further surveys to supplement the data. In the review of traffic data, the Consultant shall examine the methodology of analysis adopted by JKR and recommend improvements wherever appropriate.

4.2.3 The Consultant shall assess the adequacy of each existing route in terms of traffic carrying capacity and geometric standard. The assessment of structural capacity of the pavements shall not be included in this study. On the adequacy of the bridges, the Consultant shall take note that a separate study will be carried out, and reference to JKR shall be made for proper coordination.

4.2.4 The Consultant shall review the road safety situation in Malaysia and the deficiencies of the road which contribute toward occurrence of accidents. Methodologies of traffic accident data collection and analysis shall be examined and improvements recommended where appropriate. The scope of the review and examination shall be confined mainly to the road engineering aspects only.

4.2.5 The Consultant shall perform all technical studies, economic and financial analyses, investigations and related work as required to attain the objectives given in Section 3 above. In the context of this work, the Consultant shall be solely responsible for the analyses and interpretations of all data received and for the findings, conclusions and recommendations contained in its reports.

4.3 Determine Road Traffic Demand

4.3.1 The Consultant shall examine and analyse available data and information and to carry out field survey to the extent necessary in order to determine the traffic demand. The Consultant shall:

a. analyse available data on passenger and freight traffic by all modes of transport on the principal routes and prepare the breakdown in the traffic flow by mode and by principal commodities. The analysis shall cover data covering the past ten (10) years.

b. analyse current traffic data and to forecast traffic taking into account generated traffic due to planned development.

c. identify access roads to new major development areas and tourist resorts.

4.3.2 Traffic projection covering a period of 20 years shall be made using appropriate models adapted to Malaysian conditions.

4.3.3 The Consultant should take note of the model developed in the National Axle Load Study and should examine its usage in this study.

4.4 Road Network Development Plan

4.4.1 Basing on the traffic demand and the transport needs and together with the existing road network, the Consultant shall develop a national road network development plan. Route numbering system used by the Jabatan Kerja Raya (JKR) Malaysia shall be

adopted. There shall be established a clear hierarchy of road, following the road categories and standards as given in JKR's publication entitled "A Guide On Geometric Design of Roads", Arahan Teknik (Jalan) 8/86. The Consultant may suggest modifications to the road categories where deemed necessary. Each road shall have a unique route number and shall be assigned a category and a geometric design standard.

4.4.2 The Road Development Plan shall show the required road development at four stages, coinciding with the next four five-year Malaysia Plans; i.e. 6th Malaysia Plan (1991 - 1995), 7th Malaysia Plan (1996 - 2000), 8th Malaysia Plan (2001 - 2005) and 9th Malaysia Plan (2006 - 2010).

4.4.3 Specifically, the Highway Development Plan shall establish the following programmes of road development under an overall integrated network to cater for the nation's road transport demand up to the year 2010:

a. New road links

b. Upgrading of existing roads

c. Road safety improvements (road engineering)

d. Toll expressway network

e. Ring roads to reduce traffic congestion in major cities.

4.5 Road Development Programme

4.5.1 The Consultant shall prepare road development programmes in 5 year periods coinciding with the Malaysia Plans. The programme shall contain specific projects, their estimated costs and time schedules of implementation. Each project shall be economically appraised

so that a priority ranking of projects can be made. The appraisal methodology to be adopted shall be discussed and agreed upon by the Governments of Malaysia.

4.5.2 Toll Expressway Programme - The toll expressway network shall be derived from the Development Plan developed above. The Consultant shall take note that toll expressways are administered by the Highway Authority Malaysia. Detailed analysis shall be carried out on the criteria of selecting routes for tolling, the social and economic ramifications and the viability of privatisation of new routes.

4.6 Modal Competition

4.6.1 With the objective of promoting fair competition between modes the Consultant shall examine and analyze related regulations and the distribution of the fiscal burden between road transportation and other modes particularly those affecting modal competition and allocations such as user taxation and charges.

4.6.2 In addition, the prevailing freight transportation system particularly along the main transportation corridors shall be examined, giving emphasis to modal comparative costs, with a view to recommending strategies to guide future policies.

5. TIME SCHEDULE FOR CONSULTING SERVICES AND REPORTS

This Study shall be completed within a period of 18 months. The Consultant shall prepare and submit the following reports (in English) to the Government of Malaysia:-

(i) Inception Report (25 copies) - 2 months after commissioning date. The report shall give brief, factual information on the work performed, all data collected, problems encountered, preliminary findings and detailed proposed methodology for the Study.

(ii) Progress Report I (25 copies) - 5 months after commissioning date, giving a statement of all work performed during the reporting period and the schedule of work for the next reporting period.

(iii) Progress Report II (25 copies) - 8 months after commissioning date, giving a statement of all work performed during the reporting period and the scheduled of work for the next reporting period.

(iv) Progress Report III (25 copies) - 12 months after commissioning date, giving a statement of all work perfomed during the reporting period and the schedule of work for the next reporting period.

(v) Interim Report (40 copies) 15 months after commissioning date, containing all findings and recommendations in the Highway Development Plan Study and recommendations on the investment packages particularly with respect to those identified as priority projects which are to be studied in detail.

(vi) Draft Final Report (40 copies)- 18 months after commissioning date, incorporating all comments by the Government on findings and recommendations of the Interim Report.

(vii) Final Report (60 copies) incorporating all revisions deemed appropriate after receipt of comments on the Draft Final Report from the Government of Malaysia.

...

(viii) Technical Notes shall be prepared on Traffic Forecast, Traffic Models, Economic/Financial Evaluation and other issues to be agreed upon by both parties.

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

The following will be provided to the Consultants by the Government of Malaysia to the extent that they are available:-

(a) Previous feasibility studies on transportation and others that will have an impact on transport requirements.

(b) Development plans in all sectors.

(c) Statistical data on socio-economic characteristics of the population in the region.

(d) Traffic data.

(e) Relevant maps of the country.

(f) Other available relevant miscellaneous data and information.

(g) Counterpart personnel will be assigned to the study.

7. OWNERSHIP OF DOCUMENTS

(a) All maps, reports and data etc, supplied to the Consultant shall be returned to the Government at the end of the Study. On completion of the contract, the Consultant shall hand over to the Government all relevant data, design calculations and work sheets and other related documents prepared in the execution of this contract and such materials shall become the property of the Government.

(b) All origin - destination and volumetric data collected during the course of the Study shall be presented to the Government of Malaysia in a standardised format and in accordance with or compatible to the 90 zones system readable by any IBM compatible PC.

Infrastructure Section
Economic Planning Unit.

February, 1990

4．必要資料リストと資料の所在、収集状況

1）マレイシア側に提示した必要資料リスト

THE PRELIMINARY STUDY
ON
HIGHWAY NETWORK DEVELOPMENT PLAN

DATA REQUESTED

Useful data and information for the succeeding full-scale study have been listed below. The Preliminary Study Team wishes to obtain those data as much as possible during its stay in Malaysia in order to make this pre-F/S successful.

Considering the importance and volume of each data, they are divided into two categories as described bellow.

Category A : the actual or sample material shall be supplied by the end of the Preliminary Study in Malaysia, which is March 19th, 1990.
Category B : the availability of each data and information shall be indicated by March 19th, 1990.
Letter of category is put on the head of each item.

1. Socio-economic Data

B (1) Area by land-use type, and its historical change at some periods
B (2) Sectoral GNP and GDP, and individual income from 1980 onward
A (3) Predicted future population and its target year and area unit
B (4) Main resort and tourism sites, and the number of visitors

2. Development Plan

A (1) Outline of the 6th Malaysia Development Plan
A (2) Investment plan for traffic and transport in the 5th and 6th Malaysia Plan
B (3) Scheme and strategy on regional land development, and future land use plan
A (4) Existing regional development plan (map or table)
B (5) Development plan on tourism, residential area, industrial area, etc.

3. Transport

A (1) Development plan on air, railway, and sea transportation
B (2) Trend of transport modal and investment change, if possible for intra-urban and inter-urban separately.

4. Administration

A (1) Organization and responsibility of JKR, HPU, MHA, EPU
A (2) Laws and regulations relating to road construction and operation, cultural properties, preserved area, etc.
A (3) Budget for road development of JKR and MHA from 1980 onward
A (4) Record of loans for road construction and road improvement
A (5) Financial data for existing toll way under operating
A (6) Outline of Route Numbering System

5. Highway Development

A (1) Policy and investment amount of the 6th Development Plan

A (2) Outline of the progress of the 5th Development Plan
A (3) Planned highway, toll highway and toll expressway
B (4) Criteria for toll road
A (5) Historical change of road length by administrative and functional class, including toll road
A (6) Maps and tables which show the sections where new construction or large scale improvements have been conducted within last ten years
B (7) Form and items of existing road inventory and covering area
A (8) Method and manual for collecting road inventory being carried out in JKR

6. Traffic Data

B (1) Outline on methodology of annual traffic survey
A (2) Historical change of traffic demand
B (3) Existing forecasting model, including zoning map, network model, etc.
B (4) Sample list of traffic data available such as O/D survey, traffic count, travel speed, spot vehicle speed, traffic accident, etc.

7. Technical Data

B (1) Geological data, including the data on slope slide caused by natural disaster
A (2) List of design standards for geometric design, bridge design, pavement design, etc

8. Map related

A (1) Precise information concerning with existing available maps for both a master plan and a feasibility study
B (2) Existence and availability of aerial photograph, land use map, preservation area map, development regulated district map, etc.

2）資料の所在、収集状況

1．Socio －economic Data

(1)　10年ほど前に作られた地図がマレーシア全体の土地利用を示した最後のものであり、以降改訂されたものの出版はない。しかし、農業省に行けば土地利用現況に関する地図や情報が得られる。

(2)　ＧＮＰやＧＤＰに関する統計データは統計局から公表されており、本格調査時には提供できる。

(3) ＨＰＵでは将来人口を予測したデータがあるかどうかの情報を得ることができなかった。

(4) 観光地および観光客に関する情報はMinistry of Culture & Tourism に行けば得ることができる。

2．Development Plan

(1) 第６次マレーシアプランについては現在策定中であり、公表できるものは現時点では何もない。

(2) 第５次５か年計画における投資計画は資料－53として入手済み、第６次については現時点では確定していない。

(3) 地域計画については各５か年計画に記述されており、第５次分についてはコピーを入手

(4) 都市毎の開発計画図が存在することはＰＷＤで確認済み

(5) 各開発計画のマレーシア全土に渡った地図の存在は確認できず。しかし、各々の省庁に行けば、開発計画は入手できるとのこと。ＥＰＵにおけるヒアリングにおいても一枚の図に落し込んだものはないが、本格調査時には提示できるとの回答を得ている。

3．Transport

(1) 各交通・運輸機関の開発計画は存在し、ＭＯＴ（Ministry of Transport）に行けば入手できる。

(2) National Transport Policy Review に記載されている。

4．Administration

(1) 1980年以降ではないが資料－３として一部入手済み

(2) Road Transport Act、1987を入手済み

(3) 資料－56でＪＫＲについては概要を知ることができる。

(4) 資料－57の世銀、アジ銀データを入手済み

(5) 資料－58で現在ＭＨＡが管理する道路の財務状況は知ることができる。

(6) 資料－66に記載されている

5．Highway Development

(1) 現時点では確定していない

(2) 1986－1990 Mid Term Review（JICAにて既に入手済み）に記載されている
(3) Highwayについては資料－46、南北有料高速道路については資料－８として入手
(4) 確たるものは存在しない
(5) 資料－15として入手
(6) 資料－64として入手
(7) 資料－67として入手
(8) 方法についての記述はないが資料－67で概要を知ることができる。また、維持補修関係でのｲﾝﾍﾞﾝﾄﾘｰも整備しつつあり、それについては資料－49として入手

6. Traffic Data
(1) 資料－16として入手
(2) 交通需要の経年的な変化については資料－６を過去に遡って集めれば良い
(3) 資料－26によりAxle Load Studyで開発されたモデルの内容とネットワークを、資料－35と36によりゾーニングを把握できる
(4) ＯＤ調査については資料－48により、交通事故については資料－50により内容を把握できる

7. Technical Data
(1) 地質図については資料－39と40により、災害危険地域については資料－33の地図の見方参考書により地形図に含まれている情報からある程度判断可能である。
(2) Design Standardの存在状況については資料－66により、幾何構造基準については資料－10から知ることができる

8. Map Related
(1)、(2) については事前調査報告書内に記述したとおりである。ただし、保存・保護区域図、開発規制区域図などについての情報は多くを得ることはできなかった。本格調査時に関係省庁で確認する必要がある。

番号	資料の名称	形態	版型	ページ数	オリジナル・コピーの別	部数	収集先名称又は発行機関	寄贈・購入の別	取
1	Information Malaysia 1989 Yearbook	くるみ綴	A4	714	オリジナル	1	HPU		
2	Malaysia Yearbook of Statistics 1988	くるみ綴	A4	336	オリジナル	〃	統計局		
3	HPU, EPU, MHAの組織, 機能, 管轄道路	ホッチキス	A4	27	コピー	〃	HPU		
4	Ports in Malaysia	ホッチキス	A4	2	コピー	〃	〃		
5	REAAA/PIARC Work Shop on Truck Loads on Roads 6th Conference Association of Asia and Australasia	ホッチキス	A4	33	コピー	〃	〃		
6	Transport Statistics 1987/1988	くるみ綴	A4	138	オリジナル	〃	〃		
7	Traffic Volume Malaysia 1978-1988	〃	〃	178	〃	〃	〃		
8	PLUS	くるみ綴	A4	22	オリジナル	〃	〃		
9	Malaysian Ports	ホッチキス	〃	104	コピー	〃	〃		
10	A Guide on Geometric Design of Roads	ホッチキス	A4	105	コピー	〃	〃		
11	Traffic Data Bank System BST vol. 1	リング綴	A4	46	オリジナル	〃	〃		
12	Road Transport Act 1987 (ACT 333)	くるみ綴	B5	181	オリジナル	〃	〃		
13	Working Paper for Road Inventory System for Federal/States/Local Roads	ホッチキス	A4	11	コピー	〃	〃		
14	Road Map of Malaysia	地図	B5	1	オリジナル	〃	EPU		
15	1975年以降の管理区分分類による道路延長の推移	表	B5	1	コピー	〃	〃		
16	現行交通量観測の方法	ホッチキス	A4	2	コピー	〃	〃		
17	Sabah-Sarawak Road Transport Review Phase I vol. I, II (JICA)	ホッチキス	A4	150	コピー	〃	〃		
18	〃 Phase II	〃	〃	45	〃	〃	〃		
19	Medium and Long Term Industrial Master Plan Malaysia Volume III Part 6	ホッチキス	A4	77	コピー	〃	〃		
20	Axle Road Study Technical Note No. 5	ホッチキス	A4	29	コピー	〃	〃		
21	〃 〃 No. 7	〃	〃	177	〃	〃	〃		

番号	資料の名称	形態	版型	ページ数	オリジナル・コピーの別	部数	収集先名称又は発行機関	備考
22	Axle Road Study Technical Note No. 8	ホッチキス	A4	63	コピー	1	EPU	
23	〃 〃 No. 9	〃	〃	51	〃	〃	〃	
24	〃 〃 No. 11	〃	〃	17	〃	〃	〃	
25	〃 〃 No. 24	リング綴	A4	380	オリジナル	〃	〃	
26	〃 〃 No. 25	〃	〃	185	〃	〃	〃	
27	〃 〃 No. 30	〃	〃	394	〃	〃	〃	
28	〃 Inception Report on Phase II	〃	〃	177	〃	〃	〃	
29	〃 1st Quarterly Progress Report on Phase II	仮製本	A4	17	オリジナル	〃	〃	
30	A Functional Urban Hierarchy for National Development	ホッチキス	A4	74	コピー	〃	MHA	
31	現在進行中の New Town Development 地域名	表	A4	1	コピー	〃	〃	
32	Map of Federal and Major State Roads Peninsular Malaysia 1/750,000	地図	A1	1	オリジナル	〃	〃	
33	TAFSIRAN PETA UNTUK	くるみ綴	A4	85	オリジナル	〃	〃	
34	National Origin-Destination Survey 位置図	地図	A0	1	コピー	〃	EPU	
35	Zoning & Network for Traffic Analysis (72 zones)	〃	〃	1	〃	〃	〃	
36	Zoning Map for Road-Side OD Survey (91 zones)	〃	〃	1	〃	〃	〃	
37	常時交通量観測位置図 (Malaysia, Sabah/Sarawak)	図	A4	2	コピー	〃	〃	
38	既実施路側OD交通調査地点位置図	図・表	A0/A4	3	〃	〃	〃	
39	Geological Map Peninsular Malaysia	地図	A0	1	オリジナル	〃	JKR	
40	〃 Sarawak	〃	〃	〃	〃	〃	〃	
41	State of Road Map Melaka	〃	A1	〃	〃	〃	〃	
42	〃 Johore	〃	〃	〃	〃	〃	〃	

番号	資料の名称	形態	縮尺	ページ数	オリジナル・コピーの別	部数	収集先名称又は発行機関	新規・拡入・追加の別	記
43	State of Road Map Perlis	地図	A0	1	オリジナル	1	JKR		
44	〃 Negeri Sembilan	地図	A0	1	オリジナル	〃	〃		
45	Road Inventory System	ホッチキス	A4	5	コピー	〃	〃		
46	Route Information System	折り綴	A5	1	オリジナル	〃	〃		
47	Axle Load Study で開発した プログラムの名前とサイズ	リスト	A3/A4	5	コピー	〃	〃		
48	National OD Survey Interview Format	図	A4	1	〃	〃	〃		
49	Existing and Developing Input Data Form for Pavement Management System	表	A4/A3	4	〃	〃	〃		
50	交通事故データ記入様式	リスト	A3/A4	3	〃	〃	〃		
51	Per Capita GDP by State in 1986 & 1988	図	A4	1	〃	〃	MHA		
52	GDPの経年変化（1980-1987）	表	A3/A4	2	〃	〃	〃		
53	Public Development Expenditure for Transport 1981-1990	表	A4	2	〃	〃	〃		
54	第5次5ヶ年計画における道路部門への投資計画	表	A4	1	〃	〃	〃		
55	MHAの各プロジェクトへの支出 1981-1988	表	A3	1	〃	〃	〃		
56	半島マレーシアの道路と橋梁への実際支出 1980-1989	リスト	A4	1	〃	〃	JKR		
57	WB & ADB の Loan Amount	表	A4	2	〃	〃	〃		
58	MHA管轄の Penang Bridge と KL-Karak Toll Road の財務表	リスト	A4	2	〃	〃	〃		
59	半島マレーシアの主要州道の延長	表	A4	1	〃	〃	HPU		
60	既存地図のガバリッジエリア	地図	A4	2	〃	〃	〃		
61	現在進行中の Axle Load Study の活動予定表	表	A4	1	〃	〃	〃		
62	1988年現在の州毎の連邦道・州道の舗装状況	表	A4	1	〃	〃	〃		
63	南北有料高速道路とクランバレー有料高速の建設計画	表	A4	1	〃	〃	〃		

番号	資料の名称	形態	版照	ページ数	オリジナル・コピーの別	部数	収集先名称又は発行機関	新規・購入・追録の別	取
64	1978～1988に完成した道路プロジェクト	ホッチキス	A3/A4	2	コピー	1	HPU		
65	5カ年計画技料 運輸・通信部門 第3次～第5次 地域・都市計画部門 第5次 (4分冊)	〃	A4	110	〃	〃	〃		
66	Malaysian Roads General Information 1990	くるみ製	A4	36	オリジナル	〃	〃		
67	1974年に調査された道路台帳の例	ホッチキス	A3	13	コピー	〃	〃		

5．質問状への回答

1）マレイシア側へ提示した質問状

THE PRELIMINARY STUDY
ON
HIGHWAY NETWORK DEVELOPMENT PLAN

Questionnaire

This questionnaire is prepared for the formulation of the national road network plan to obtain basic information and data which are necessary for the succeeding full-scale study.

It is expected that the full-scale study team would request additional and detailed data and information for the conduct of the full-scale study according to the detailed plan of the study which shall be presented and discussed with submission of the inception report.

The items in this questionnaire are prepared basically for making the Scope of Work. Please note that due to the lack of time for enough discussion, we would like to get the answer in writing, as much as possible. Considering the importance and volume of each questionnare, they are divided into three categories as described bellow.

Category A : the answer should be supplied at the meeting of T/C or S/C, which will be held during Preliminary Study in Malaysia.

Category B : the answer should e supplied by the end of Preliminary Study in Malaysia, which is March 19th, 1990.

Category C : the answer should be supplied by the end of Preliminary Study, if it can be prepared easily.

1. Policy for Establishment of Master Plan on National Road Network

C (1) in connection with the Malaysia Development Plan

C (2) in connection with the National Socio-economic Development Plan

C (3) in connection with the other Transportation Development Plan

2. Concepts Relevant to the Study

C (1) Concept of road network development in Malaysia

C (2) Any other plan/program that may affect the national road network

C (3) Any rule to decided whether a road should be a highway or a toll road

C (4) Concept for selection of national highway from federal roads and/or state roads, and the total length of national highway as of the end of 1989

C (5) Construction and operation of highway, including toll highway
- Organization and its role/responsibility
- Financing
- Repayment plan
- Toll system and fee (for toll highway)

C (6) Implementation schedule for toll expressway and national highway with high priority
- Selection rule of priority of routes and sections

C (7) OD Survey
- Availability of existing OD survey data
- Accuracy requested
- Zoning for survey (number, boundary, etc.)

3. Confirmation on the TOR

Clause 1 of TOR

B 1) In the TOR there is a comment that the development policy and development strategy of highways were based on the recommendations in the " General Transport Survey '67 ". In order to effectively understand the policy and strategy which were adopted in Malaysia what reports should be reviewed ? What can be pointed out as the characteristic policy and strategy ?

B 2) What kind of changes occurred in the last three decades as the result of rapid economic growth, and what kind of big change is expected in the future ?

2.1

B 1) what is used as the indicator of road development in Malaysia ?

3.1

B 1) What does a clause in the TOR mean that is "taking into account the need for greater modal interfaces and coordination"?

4.1.1

C 1) According to the TOR the planning target year is to be the year of 2010. What is a special reason to decide a 20 years span as the planning term.

A 2) What kind and scale of projects are expected within the next 20 years?

4.2.1

B 1) How and what is intended to supplement the existing road inventories ?

4.2.2

B 1) Please clarify the particular issues which are now considered to be serious as traffic problems.

4.2.3

B 1) If there is any problem of road traffic capacity and geometric standard, please identify primary issues on them.

4.2.4

C 1) What method is used presently as a collecting method of traffic accidents.

C 2) Please point out some remarkable features on traffic accidents in Malaysia.

4.2.5

A 1) The study is understood to be not a feasibility study, but a sort of road network master plan. It is recognized that a master plan differs on the aspects of range and accuracy from feasibility study.

Please explain to us the meaning of "all technical studies" used in the TOR.

A 2) What level is expected on economic and financial analysis?

It is requested by the Preliminary Study Team that several alternatives shall be conceived at first for the master plan by taking into consideration investment available, then both analyses should be implemented for the roads or links with high priority.

4.3.1

C 1) What kind of surveys were conducted which are available for the analysis during past 10 years?

C 2) What is a covering range of the transportation development studies carried out until now, eg. area, network, modal distribution, development plan included in the study, existence of master plan, etc.

C 3) Is there any traffic volume data concerning with the annual commodity movement?

4.3

A 1) At the succeeding stage a traffic survey shall be conducted to grasp the existing situation. How many roads and zones are programmed for the traffic analysis, ie: traffic forecasting?

4.4.1

C 1) Please explain the Route Numbering System, and if possible, provide us with some material for easy understanding.

4.4.3

C 1) Please explain the definition or extent of upgrading of existing roads.

C 2) Is repairing work of pavement included in the work?

C 3) Is there a standard on simple pavement?

A 4) Toll expressway network will be usually recommended through the financial analysis, therefore at the stage of establishment of master plan the network of toll expressway will not be determined.

4.5.1

A 1) What are generally the factors as the evaluation criteria in prioritization?

4.5.2

A 1) A successful prioritization depends on the advice and assistance of your government, therefore the Preliminary Study Team suggests to only implement of financial analysis as toll road.

4.6.1 & 4.6.2

B 1) What materials are available for implementation?

A 2) What is the issue on unfair competition?

A 3) What is the opinion on unfair competition?

A 4) Please explain more precisely the intention and contents of modal competition, in particular on analysis of related regulations and the distribution of the fiscal burden.

5

A 1) It is understood that a road transport review study had already been carried out in Sabah and Sarawak. Please clarify the special reason for an additional study should be carried out once again.

Others

B 1) What is a primary procedure and terms for each stage from planning until implementation?

C 2) Please point out the control points which should be taken into account at the stage of route selection.

2）HPU よりの書面による回答

HIGHWAY NETWORK DEVELOPMENT PLAN

1. Policy for establishment of Master Plan on National Road Network.

(1) EPU
(2) EPU
(3) EPU

2. Concepts relevant to the Study

(1). Refer to paper entitled 'Road Development Strategies in Malaysia'
(2). a). Simpang Pulai - Kuala Berang
b). Second Linkage between Johor and Singapore
c). Railway Improvements
d). New axle loading and gross vehicle weights
(3). No specific rule
(4). Road function as stated briefly in the General Information but it only covers Federal roads
(5). Construction and operation of highways - addressed in 'Data Requested'
Financing/repayment, toll system and fee - information supplied.
(6). Implementation of Toll Expressway and high priority national highways -information supplied
(7). OD Survey - information supplied.

3. Confirmation on the TOR.

(1). Reports to be studied, among others are:
Railway Master Plan Study
Airport Master Plan Study
Port Master Plan Study
Industrial Master Plan Study
Sabah Sarawak Road Transport Review
National Axle Load Study
National Transport Policy Review Study
Various Structure Plan/Transport Master Plan studies

(2). Higher economic growth (GDP, GNP etc), industrial development, higher population and road density. Higher vehicle ownership rate resulting in higher traffic demand. These growth expected to continue within the Study period.

2.1 Economic Indicators - B/C Ratio, IRR, NPV, FYIRR

3.1 'Taking into account the need for greater modal interfaces and coordination' means ' greater coordination and closer links between various transport modes'.

1

4.1.1 1. 20 years gives a reasonable good time frame and it covers the next 4 Malaysian Five Years Development Plans.

2. 4 types of programmes anticipated namely; New Roads, Roads Upgrading, Toll Roads and Road Safety Programmes and only confined to major programmes.

4.2.1 Some information on our Road Inventory are outdated and needs updating.

4.2.1 Typical Traffic problems in Malaysia:
- low level of service resulting from inadequate road capacity and low geometric road
- high composition of heavy commercial vehicles
- heavy reliance on road transportation for transportation of goods

4.2.3 Yes, as addresses above in para 4.2.1

4.2.4 a. Information supplied by Mr. Shimogami
b. Information supplied by Mr. Shimogami

4.2.5 a. 'All technical studies' means 'all technical works as agreed in the Scope of Works of the Study'.

b. From economic analysis normal economic indicators are expected to be derived.

4.3.1 a. Volumetric Counts, Origin Destination Surveys, spot speed.

b. Various studies undertaken all over the country with scattering distribution except for modal distribution study.

c. Yes, data can be made available basing on our OD data.

4.3 a. Discussed

4.4.1 Discussed

4.4.3 a. Capacity and geometric improvements

b. Pavement upgrading or rehabilitation is excluded from the Study

c. Standard pavement design manual exists

d. The Study should look into the economic viability of tolling after the formulation the network Master Plan.

4.5.1 a. Factors for priority ranking: B/C Ratio, IRR, NPV and FYIRR

4.5.2 a. No issue

4.6.1 a. No much transport data is readily available except for traffic data and transport data collected during the National Transport Policy Review Study. In this

respect, supplementary data collection has to be carried out.

b. The issue is to promote unwarranted and unbiased competition among various transport modes.

c. As explained above.

d. As discussed

5 a. The Government is still waiting for the Final Report of the Sabah Sarawak Road Transport Review Study.

Others:

a. Normal processes is adopted namely:
Planning
Design
Construction
Maintenance

b. As discussed

3) Questionnaire 1の(1)、(2)および(3)に対するＥＰＵでのヒアリング結果

* マレイシアでは20年先を展望してＯＰＰ（Outline Perspective Plan）を作成しており、1971～1990が現在生きている。1991～2010に対応したＯＰＰを今年から来年にかけて作成する計画となっており、第６次マレイシアプラン（1991に完成予定）を含めてまとめて行く予定である。ＯＰＰにはＧＤＰ、Industrial Growth, Socio-economyなどを Targetにした内容となり、５か年計画ではPolicy,Object,Strategy等がまとめられる。
* 本格調査のスタートから６ヶ月間の成果を取り込んで現在進行中の第６次５か年計画をレビューしたい。
* 本格調査の実行時には人口、GDP等のDataを入手可能である
* 運輸・交通セクターへの過去の各計画期間中の投資財源は次のとおりであり、他のセクターと比較して非常に高い比率となっている。

'71～'80 : 30%　'81～'85: 16%　'86～'90: 12%

* 開発計画についてはレポートや図の形でまとまったものはないが、スタディーチームが乗り込んで来たときには多くの情報を与える