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REPUBLIC OF INDONESIA

**FEASIBILITY STUDY
FOR
JAKARTA RING ROAD**

PROGRESS REPORT

MAY 1977

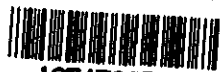
JAPAN INTERNATIONAL COOPERATION AGENCY



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May, 1977

JAPAN INTERNATIONAL COOPERATION AGENCY

ATENCION DE MANUTEN

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1. INTRODUCTION

The Government of Japan has, in compliance with the request of the Government of the Republic of Indonesia, agreed to undertake the feasibility study for the Jakarta Ring Road Project.

According to this decision, the Survey Team by the Japan International Cooperation Agency (JICA), arrived at Jakarta on March 17, 1977 and started their activities based on the scope of works agreed upon by the both Governments.

The Survey Team composed of members of the Supervisory Committee by the Japanese Government and experts on highway planning, highway economics and land use by the Consultant, submitted the Inception Report of this Project on March 21, 1977. Following the discussion on the main contents of the Inception Report, the Survey Team conducted field reconnaissance survey, collection of data and actual surveys on economics, traffics, land use and engineerings which should be completed during their staying in Indonesia up to May 12, 1977 .

While in Indonesia, the full cooperation of various Government Departments has made it possible for the survey to be carried out very smoothly. And the activities scheduled in Indonesia are now duly completed and this report is the product of the survey.

In accordance with the contents in the Inception Report, this Progress Report summarizes, Phase I works, namely, the field activities conducted, findings at site, data and materials collected, study and analysis during the survey period and schedule and contents of subsequent works in Japan, in order to exchange opinions and to receive comments and approval from the Government of Indonesia.

The Survey Team sincerely wishes that this survey will contribute towards the proper and sound development of the Jakarta Metropolitan Area and towards the promotion of international friendship between Japan and the Republic of Indonesia.

2. APPROACH AND METHODOLOGY

The basic conception of the study has already been briefed in the Inception Report submitted to the Government in March, 1977.

Through the Survey Team's site surveys, the conception of the study in the Inception Report does not show any differences. Therefore in this chapter, following the basic conception, the approach and methodology of the following working items by the Survey Team will be introduced by adding new informations and data obtained.

- a. A role of Jakarta Ring Road to the region.
- b. Socio-economic study
- c. Land use study
- d. Traffic study
- e. Engineering study
- f. Toll system
- g. Social impact study
- h. Economic analysis
- i. Financial analysis

a. A role of Jakarta Ring Road to the region

This Road will play a role of a distributor and a bypass to the central area of the city in a short term of the future period, but in a long term of the future period, the role of this road to the region must be played within the main transportation frame of the future Jakarta City.

In this connection, a land use study, a traffic study, an engineering study and other analyses are going to be operated.

b. Socio-economic study

1. As for a socio-economic study, population forecast, percapita income forecast, growth factor for cargo movement such as international & interinsular trade, inter modal distribution and others are going to be analysed.
2. Fundamentaly, the population forecast is to be conducted according to such categories as maximum growth, minimum growth and moderate growth.
3. These three kinds of population forecast will effect on the whole study in many work items.

4. These analyses lead to traffic demand projections for the years of 1985, 1990 and 2000.

c. Land use study

1. As a land use study, following main items will be studied taking the relation to the traffic study into consideration.

- * Population distribution
- * Central core area analysis
- * Distributional plan of functions
- * Cargo terminal plan
- * Port development
- * Network.

2. In the course of these studies mentioned above, some alternatives may occur and shall be studied.

3. Controlling figures of generated traffic volumes for macro zones in the years of 1990 & 2000 must have a certain co-relation with these studies.

d. Traffic study

1. Traffic distributions are developed for the years of 1985, 1990 and 2000.

2. For the conditions of traffic distribution, the networks of a tollway system and a freeway system are set for the relevant years of 1985, 1990 and 2000.
3. In order to control the future traffic figures, the transportation facilities development plans such as airport, port, railway, intra-urban tollway and others are to be reexamined for their realistic target years and figures.
4. Reflecting the future development/growth to the future OD matrices, some combined methods relevant to the network indices, present OD Value and growth factors must be taken to develop from the present OD matrices in 1972.
5. Oriented and destinated traffic volume of each zone must be estimated separately, since cargo and passenger traffic are separately estimated.
6. Some methods are taken to respect the cargo terminal plans during the course of OD matrices development.
7. Some controlling figures must be established for each target year of oriented traffic volume.

8. Inter modal distribution analysis is applied to the oriented and destimated traffic of zones.

e. Engineering study

During the Phase I study, the Survey Team collected the relevant data and conducted field surveys necessary to develop the preliminary design of the Ring Road as a full access controlled expressway.

Moreover, the Survey Team will establish the design criteria and main technical items of the project for discussion with the Government.

In the following Phases, the preliminary design with several alternatives are to be prepared and preliminary cost estimates will also be conducted for economic analysis.

Staged construction method and implementation programmes are also to be examined.

f. Toll system

As for a toll system study, following items are analysed.

1. Application of toll structure
2. Category of vehicles.

3. Toll collection system
4. Administration system and cost.

g. Social impact study

As for the social impact of the Jakarta Ring Road, following items are to be analysed.

1. Effects of a tollway system
2. Effects by change of land use
3. Effects to the community
4. Others.

h. Economic analysis

1. In order to calculate the benefits consisting of time cost savings, running cost savings and others, operating cost of each category of vehicle at different speeds is calculated for the comparing the cost with the Ring Road and the one without the Ring Road.
2. Time value will also be calculated with the Ring Road and without the Ring Road.

3. Other benefits such a saving due to the relief of congestion as negligibility of the stop-restart action is worth considering.
4. Internal rate of return and benefit/cost ratio are calculated for each link for the project life span of 20 years.

i. Financial analysis

1. Calculation of the marginal fare structure for the revenue.
2. Calculation of financial costs of the tollway.
3. Financial Rate of Return.
4. Redemption Plan.
5. Other financial respects.

Above items will be studied and analysed in this theme.

3. MAIN ACTIVITIES CONDUCTED

3.1. General

According to the scope of works agreed upon by both Governments, the Survey Team started their activities in Indonesia by submitting the Inception Report to the Government.

The meeting for discussion on the contents of the Inception Report was conducted on March 26, 1977, and the details are described in the "minutes of meeting" which is attached in this report as Appendix 4.

Then the Survey Team conducted the Phase I works such as collection of necessary data, field reconnaissance survey, actual field survey and preliminary analysis on the main items. The details of the activities by the Survey Team during their stay in Indonesia are tabulated and attached in this report as Appendix 1 "Survey Records".

In this chapter, the summary of the activities, the problems encountered and findings by the Survey Team are briefly introduced hereinunder.

3.2. Collection of Relevant Data.

The Survey Team collected the relevant data and information necessary for the study through the Governmental authorities

and agencies concerned.

During these activities, full assistance and cooperation were given to the Survey Team by the counterparts.

List of Governmental authorities and agencies from which the Survey Team collected data and information are :

Bina Marga : Sub Direktorat Perencanaan Jalan Kota and others;

DKI Jakarta : Dinas Tata Kota, DPU, DLLAJR and others;

P.J.K.A;

Directorate General of Geology;

BAPPEDA-WEST JAVA;

BAPPEDA-DKI;

DPU-West Java;

Cipta Karya;

New International Airport Project Office;

Sea Communication;

Central Bureau of Statistics.

Data and information collected are listed and presented in Appendix 2 of this report.

3.3. Traffic, Economic and Land Use Surveys and Preliminary Analysis.

In this section, the traffic survey, the socio-economic survey and the land use survey which the Survey Team has conducted are explained with some findings.

As for the traffic survey, traffic count survey, travel speed survey, intersection survey and collection of relevant data and informations have been conducted by the Survey Team with the counterpart's full cooperation. While the socio-economic survey, collection and hearing of relevant data, information, reports and statistics have been conducted.

Concerning the land use survey, data collection and hearings have been conducted in order to analyze the present situation, available plannings and main target figures and to qualify the area for land use.

3.3.1. Traffic Count Survey.

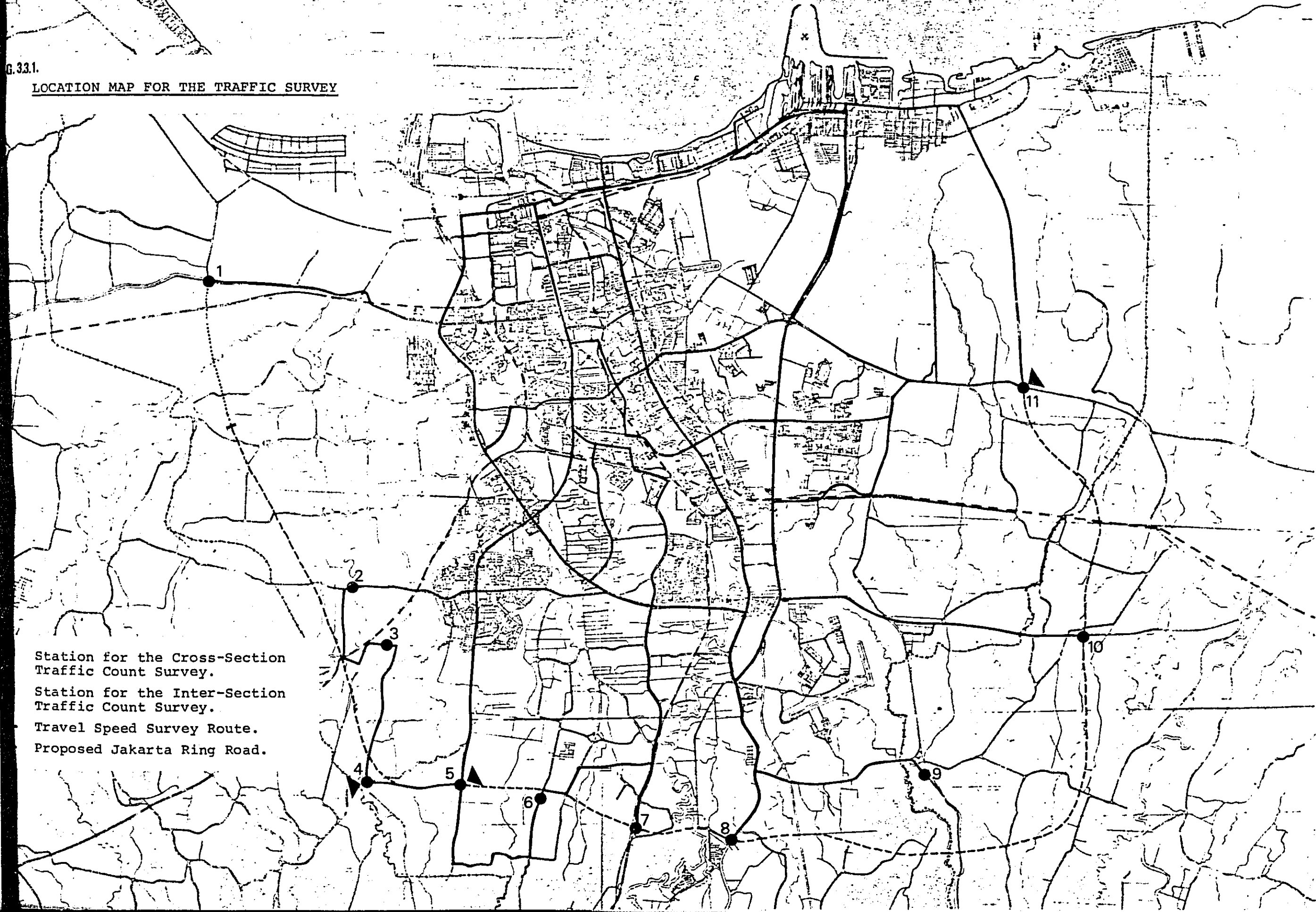
To get the basic data of existing road traffic, the Survey Team conducted the traffic count survey on selected eleven points where the existing radial roads cross the proposed Jakarta Ring Road.

This survey was conducted for twelve hours, from 6 : 00 in the morning to 6 : 00 in the evening. Traffic count was conducted on every direction of the traffic and for every thirty minutes, dividing the traffic into six categories.

The location of the survey posts are shown in Fig 3.3.1. The schedule of the survey actually conducted was as shown below.

G.33.1.

LOCATION MAP FOR THE TRAFFIC SURVEY



Station for the Cross-Section
Traffic Count Survey.
Station for the Inter-Section
Traffic Count Survey.
Travel Speed Survey Route.
Proposed Jakarta Ring Road.

Survey Schedule

<u>Date</u>	<u>Station No.</u>	<u>Remarks</u>
13 April (Wed.)	2	cross section
	3	cross section
	4	intersection
14 April (Thu.)	5	intersection
	6	cross section
	7	cross section
15 April (Fri.)	8	cross section
	9	cross section
	10	cross section
19 April (Tue.)	11	intersection
	1	cross section

The main result of the survey is summarized in the tables on following pages.

This result shows that about 85,000 vehicles/12 hours cross the proposed Ring Road.

TRAFFIC VOLUME ON THE RADIAL ROADS
BY THE SURVEY IN 1977

No. of Post	Direction	Traffic Volume			Peak Hour		
		6.00 - 12.00	12.00 - 18.00	Total	Hour	Volume	Ratio(%)
1.	1 - 2	4822	5417	10239	17.00-18.00	1026	10.0
	2 - 1	5479	4871	10350	7.00 - 8.00	1347	13.0
	Total	10301	10288	20589 (14104)	7.00 - 8.00	2180 (1307)	10.6 (9.3)
2.	1 - 2	1461	2922	4383	13.00-14.00	679	15.5
	2 - 1	2347	1638	3985	7.00 - 8.00	639	16.0
	Total	3808	4560	8368 (4407)	7.00 - 8.00	918 (458)	11.0 (10.4)
3.	1 - 2	1650	1364	3014	7.00 - 8.00	413	13.7
	2 - 1	948	1626	2574	17.00-18.00	316	12,3
	Total	2598	2990	5588 (3564)	17.00-18.00	606 (380)	10.8 (10.7)
4.	1 - 2	1588	2214	3802	17.00-18.00	438	11.5
	2 - 1	2173	2172	4345	13.00-14.00	680	15.6
	Total	3761	4386	8147 (7897)	13.00-14.00	961 (662)	11.8 (8.4)
	2 - 3	1154	1472	2626	17.00-18.00	295	11.2
	3 - 2	1248	1467	2715	14.00-15.00	294	10.8
	Total	2402	2939	5341 (4086)	14.00-15.00	522 (424)	9.8 (10.4)
	1 - 3	370	347	717	7.00 - 8.00	85	11.9
	3 - 1	404	475	879	15.00-16.00	93	10.6
	Total	774	822	1596 (957)	7.00 - 8.00	170 (93)	10.7 (9.7)
5.	1 - 2	1172	1429	2601	16.00-17.00	289	11.1
	2 - 1	1260	1337	2597	16.00-17.00	253	9.7
	Total	2432	2766	5198 (3824)	16.00-17.00	542 (386)	10.4 (10.1)
	2 - 3	397	401	798	7.00 - 8.00	98	12.3
	3 - 2	386	433	819	16.00-17.00	91	11.1
	Total	783	834	1617 (1152)	16.00-17.00	163 (105)	10.0 (9.1)
	1 - 3	2099	2284	4383	16.00-17.00	436	9.9
	3 - 1	2587	1953	4540	7.00 - 8.00	555	12.2
	Total	4686	4237	8923 (6013)	7.00 - 8.00	938 (608)	10.5 (10.1)

Note : 1) In the parenthesis, figures show the volume excluding two-wheeled traffic.

2) Peak ratios show the one to the total volume of 12 hours traffic.

No. of Post	Direction	Traffic Volume			Peak Hour		
		6.00 - 12.00	12.00 - 18.00	Total	Hour	Volume	Ratio(%)
6.	1 - 2	1707	1570	3357	7.00 - 8.00	336	10.9
	2 - 1	1633	1640	3273	7.00 - 8.00	416	12.7
	Total	3420	3210	6630 (4454)	7.00 - 8.00	782 (532)	11.8 (11.9)
7.	1 - 2	1176	1750	2926	14.00-15.00	364	12.4
	2 - 1	1824	1293	3117	7.00 - 8.00	520	16.7
	Total	3000	3043	6043 (3879)	7.00 - 8.00	726 (404)	12.0 (10.4)
8.	1 - 2	6679	6757	13436	11.00-12.00	1267	9.4
	2 - 1	6574	6266	12840	7.00 - 8.00	1348	10.5
	Total	13253	13023	26276 (20935)	7.00 - 8.00	2521 (1909)	9.6 (9.1)
9.	1 - 2	551	642	1193	16.00-17.00	126	10.6
	2 - 1	530	592	1122	16.00-17.00	122	10.9
	Total	1081	1234	2315 (687)	16.00-17.00	248 (69)	10.7 (10.0)
10.	1 - 2	261	422	683	16.00-17.00	98	14.3
	2 - 1	302	377	679	16.00-17.00	98	14.4
	Total	563	799	1362 (659)	16.00-17.00	196 (105)	14.4 (15.9)
11.	1 - 2	4064	3936	8000	9.00-10.00	808	10.1
	2 - 1	3209	3606	6815	16.00-17.00	705	10.3
	Total	7273	7542	14815 (12864)	16.00-17.00	1477 (1149)	10.0 (8.9)
	2 - 3	436	418	854	8.00 - 9.00	95	11.1
	3 - 2	331	341	672	8.00 - 9.00	71	10.6
	Total	767	759	1526 (968)	8.00 - 9.00	166 (82)	10.9 (8.5)
	1 - 3	424	331	755	8.00 - 9.00	84	11.1
	3 - 1	259	278	537	16.00-17.00	70	13.0
	Total	683	609	1292 (720)	8.00 - 9.00	141 (69)	10.9 (9.6)

COMPOSITION OF TRAFFIC ON THE RADIAL ROADS
BY THE SURVEY IN 1977

No. of Post	Seppeda	Opelet	Sedan	Bus	Pick up	Truck	Total
1.	6485 (-)	4179 (29.6)	3922 (27.8)	651 (4.6)	1796 (12.8)	3556 (25.2)	20589 (100.0)
%	31.5	20.3	19.0	3.2	8.7	17.3	100.0
2.	3961 (-)	1460 (33.1)	2084 (47.3)	204 (4.6)	438 (10.0)	221 (5.0)	8368 (100.0)
%	47.3	17.5	24.9	2.5	5.2	2.6	100.0
3.	2024 (-)	599 (16.8)	2370 (66.5)	183 (5.1)	295 (8.3)	117 (3.3)	5588 (100.0)
%	36.2	10.7	42.4	3.3	5.3	2.1	100.0
*) 4.	3804 (-)	2075 (18.4)	5088 (45.1)	483 (4.3)	1096 (9.7)	2538 (22.5)	15084 (100.0)
%	25.2	13.8	33.7	3.2	7.3	16.8	100.0
*) 5.	4749 (-)	883 (8.0)	7033 (64.0)	771 (7.0)	1059 (9.7)	1243 (11.3)	15738 (100.0)
%	30.2	5.6	44.7	4.9	6.7	7.9	100.0
6.	2176 (-)	1455 (32.7)	2260 (50.7)	70 (1.6)	392 (8.8)	277 (6.2)	6630 (100.0)
%	32.8	21.9	34.1	1.1	5.9	4.2	100.0
7.	2164 (-)	1571 (40.5)	1003 (25.8)	260 (6.7)	286 (7.4)	759 (19.6)	6043
%	35.8	26.0	16.6	4.3	4.7	12.6	100.0
8.	5341 (-)	9635 (36.5)	6945 (33.2)	1289 (6.1)	1885 (9.0)	3181 (15.2)	26276 (100.0)
%	20.9	29.1	26.4	4.9	7.2	12.1	100.0

Note : In the parenthesis shown the figures excluding two-wheeled.

*) shows the total inflow volume to the intersection.

No. of Post	Sepeda	Opelet	Sedan	Bus	Pick up	Truck	Total
9.	1628 (-)	297 (43.2)	245 (35.6)	6 (0.9)	98 (14.3)	41 (6.0)	2315 (100.0)
%	70.3	12.8	10.6	0.9	14.3	6.0	100.0
10.	703 (-)	186 (28.2)	132 (20.0)	2 (0.3)	98 (14.9)	241 (36.6)	1362 (100.0)
%	51.6	13.7	9.7	0.1	7.2	17.7	100.0
*) 11.	3717 (-)	3697 (26.6)	2729 (19.6)	847 (6.1)	1658 (11.9)	4985 (35.8)	17633 (100.0)
%	21.1	21.0	15.5	4.8	9.4	28.2	100.0

3.3.2. Travel Speed Survey.

The Survey Team conducted the travel speed survey on several roads in DKI area to get overall travel speed on the existing road network. The survey was conducted as follows.

1. Driving the car along the predetermined survey road, time and distance from the starting point were recorded by using a stop watch and the tripmeter of the car, when the car passed the check point (an intersection).
2. In case of the car stopping on the way of the survey route, stopping and restarting time and reason of stopping were recorded on the data sheet.

The survey was conducted for six days from 14 April to 19 April and the main results of the survey are shown in Table 3.3.1. and Figures 3.3.3. The recording sheet for travel speed survey is also attached for reference.

FIG. 3.33.

TRAVEL SPEED KM/H

PELABUHAN TO PRICK

LAUT JAWA

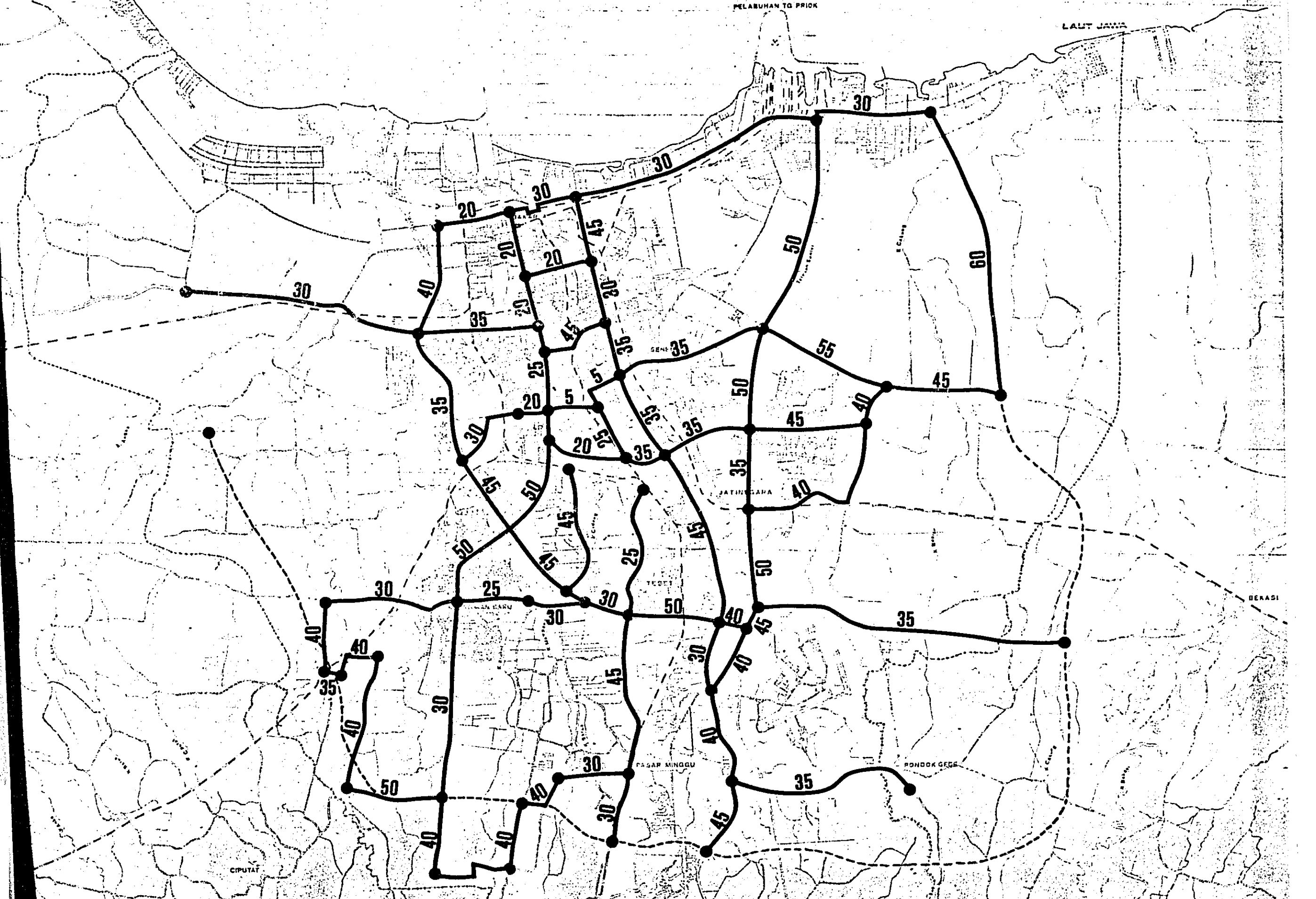


Table 3.3.1.: The main results of the travel speed survey.

Total of survey distance	336.1 km.
Total travel time	10 hr. 13' 53" (36,833")
Total stopped time	1 hr. 7' 15" (4,035")
1. traffic signal	2,121" (52.6%) 71 stops
2. traffic jam	1,333" (33.0%) 62 stops
3. weaving in rotaries	184" (4.6%) 10 stops
4. traffic accidents	153" (3.8%) 2 stops
5. turning to the right	97" (2.4%) 10 stops
6. road side friction in the Kampung area.	56" (1.4%) 4 stops
7. obstruction by bus stopping.	53" (1.3%) 8 stops
8. other reasons	38" (0.9%) 5 stops

3.3.3. Trends of Residential and Industrial Developments.

The Survey Team has conducted the land use survey through site reconnaissance, data collection on existing situations and plannings, hearings on plannings and targets and so on.

In this Progress Report, the results of activities conducted are shown as follows.

1. Residential area.

DKI Jakarta has a total area of about 59.000 hectares in 1974 and the population of 5.1 million.

The distribution of the land use in 1972 in DKI Jakarta is introduced in the following, according to the JMATS.

Land use	Area (Ha.)	%
Residential area legal	6,339	11 .
Residential area illegal	9,097	16
Infrastructural facilities	8,521	15
Culture and recreation	984	2
Industry	910	2
Private services/Handcrafts	180	0.5
Trade	734	1.5
Agriculture	27,767	49
Unused and undevelopment	1,830	3
Total :	56,362	100

The population was 4.85 million in 1972 in the area of DKI Jakarta and the density was calculated as 314 persons/ha in average to the residential area and as 86 persons/ha, to the whole city area.

Summarizing the population trend in DKI Jakarta by the region of Walikota, the trend of growth shows the expanding tendency of population to the suburban area from the central area.

Population trend in DKI Jakarta by Walikota

	(thousand)			
	1971	1973	1975	1976
DKI Jakarta	4,576 (359)	4,644 (369)	4,810 (379)	5,055 (400)
1. Central Jakarta	1,274 (100)	1,257 (100)	1,269 (100)	1,265 (100)
2. North Jakarta	618 (49)	603 (48)	636 (50)	664 (52)
3. West Jakarta	824 (65)	856 (68)	890 (70)	949 (75)
4. East Jakarta	806 (63)	832 (66)	885 (70)	972 (77)
5. South Jakarta	1,054 (83)	1,096 (87)	1,130 (89)	1,205 (95)

Note : The figures in parenthesis show the index which fixed the population of Central Jakarta as 100.

Comparing with DKI Jakarta, other surrounding areas show, the population trend as follows.

	Unit in thousand.		
	1971	1973	1975
Tangerang	1,067	1,069	1,155
Bekasi	831	880	897
Pogor	1,864	1,922	2,022
West Java.	21,620	22,125	22,770

The population density in 1975 were as follows.

DKI Jakarta	81,9 persons/ha (59,000 ha)
Tangerang	9,0 persons/ha (128,000 ha)
Bekasi	5,6 persons/ha (160,000 ha)
Bogor	9,2 persons/ha (221,000 ha)

According to the city planning of DKI Jakarta, the target of the population in 1985 is 6.5 million in DKI area where the average population density is 100 persons/ha and the area of DKI Jakarta is estimated to be 65,000 ha in 1985.

Other targets are shown bellow.

Standard of residence condition :

- 9 m²/capita (by the central government)
- 12 m²/capita (by the government of DKI Jakarta).

Family size :

- 5 persons/family (the central and DKI governments).

According to the city planning of DKI Jakarta, the development plannings of residential along the corridor of Jakarta Ring Road are shown in Fig.3.3.5.






2. Commercial and business area.

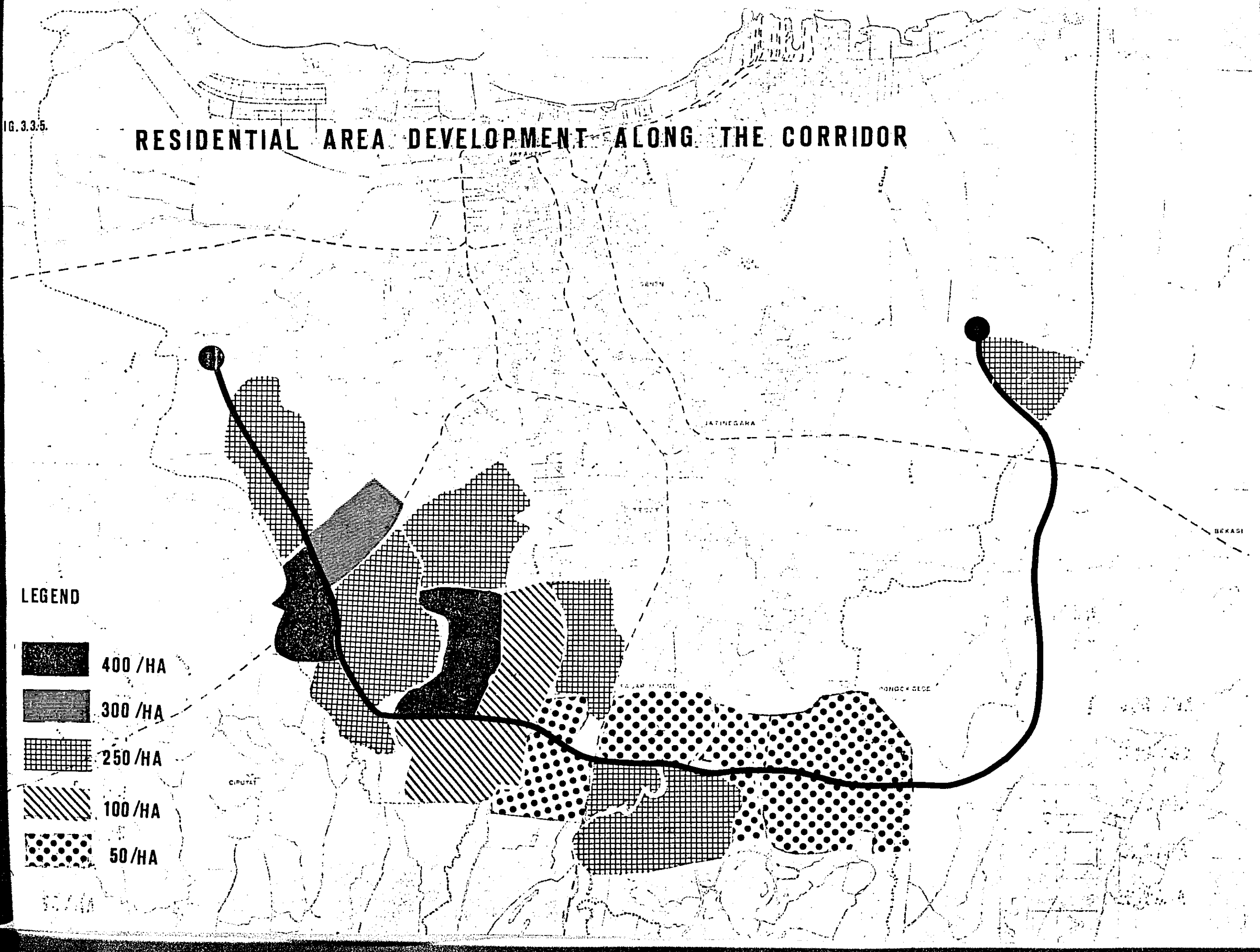
The existing situation of DKI Jakarta shows one central business district system concentrating the area around

IG. 3.3.5.

RESIDENTIAL AREA DEVELOPMENT ALONG THE CORRIDOR

LEGEND

-  400 / HA
-  300 / HA
-  250 / HA
-  100 / HA
-  50 / HA



MONAS and activity centres of DKI Jakarta are thirty two.

According to the masterplan of Jakarta in 1985, commercial, business and governmental area is planned to be 2,150 ha and the density of workers in the area is to be 620 workers/ha, corresponding to the total workers to be 1,330 thousand.

3. Industrial area.

Factories in DKI area are distributed comparatively wide at present.

Workers density in Jakarta shows about 50 - 75 workers/ha. at present, while 100 workers/ha is planned in JABOTABEK Plan and 160 workers/ha. in Jakarta Master Plan including 7,000 hectares of industrial area envisaged.

Distribution of factories in Jakarta.

1. North Jakarta	14%
2. West Jakarta	19%
3. East Jakarta	22%
4. Central Jakarta	21%
5. South Jakarta	24%

Main proposed industrial areas in Jakarta are summarized as follows.

a. Pulogadung district.

This district is an oriented district for industry in Jakarta and any kinds of industries are permitted to locate. Planned workers in this district will be 120 thousand in 1985 equivalent to one tenth of the whole workers of industrial origins in Jakarta. The supply of industrial water already scored 1000 liters/second in 1975.

b. Cilincing district.

Goods processing industry is permitted to locate.

c. Ancol district.

This area is assembling industry district.

d. Plurt District.

Assembling and electronics industries are locating.

e. Area along the existing Jakarta - Tangerang Road.

Dirty factories are located with the relation to Cilegon Steel Complex.

f. Pal Merah District (southern Part of the city).

Batik industry is to be concentrated here.

g. Gandaria district (along the Bogor road).

Only clean factories are permitted to locate, for the preservation of water supplied to Jakarta.

4. Terminal Facilities.

Terminal facilities for bus, taxi and cargo are distributed and planned as shown in Fig.3.3.6.

Central markets in DKI area are as follows.

- | | |
|-------------------|--|
| 1. Pasar Minggu | : Agricultural products |
| 2. Ps. Kuramajati | : Agricultural products |
| 3. Cengkareng | : Agricultural products
(under planning). |
| 4. Cibinong | : Rice |
| 5. Jakom | : Building Materials
(under planning). |

3.3.4. Qualification Survey of the Area for Land Use.

The Survey Team has divided the corridor of Jakarta Ring Road into ten sections evaluating them with following items.

1. Soil and topographic conditions.

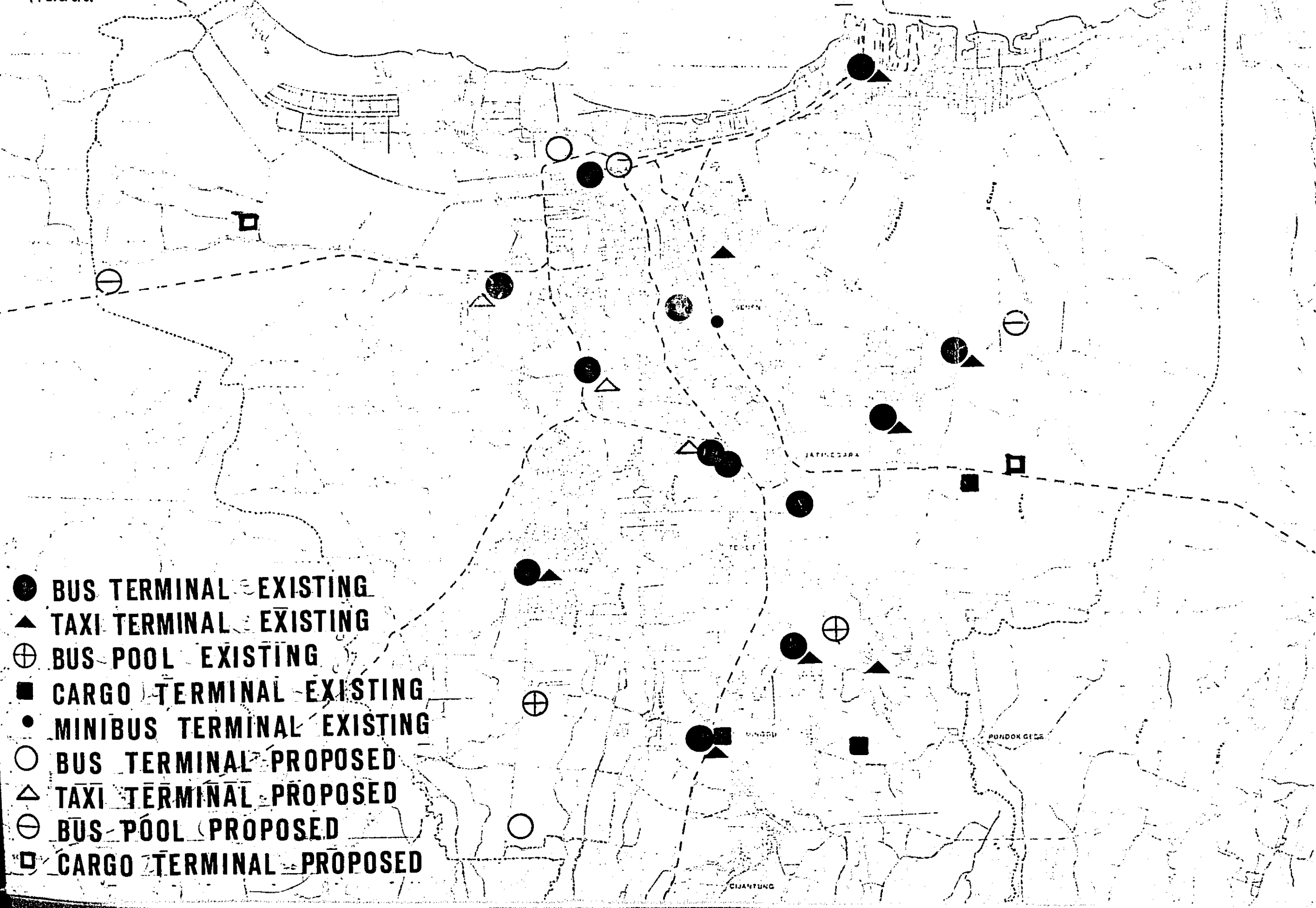
Evaluated using such materials as the soil map, the topographic map, the aero-photo and the findings by site reconnaissance.

2. Existing land use and development plannings.

Evaluated using such materials as the aerophoto, the development planning map along the corridor and the findings by site reconnaissance.

FIG. 3.3.6.

LOCATION OF TERMINAL FACILITIES



3. Regulations for land use.

Using the city planning map, regulations for land use are checked.

4. Labour forces and capability of industrial water supply on industrial areas specified in the city planning.

3.4. Engineering Surveys and Preliminary Analysis.

During the stay in Indonesia, the Survey Team conducted various engineering surveys at site with the Government's counterparts. The main activities conducted are introduced with findings on the following pages.

3.4.1. Supplemental Topographic Survey.

The purpose of this survey is to obtain the latest informations along the alignment corridor and at the same time to examine the accurate data on the water courses and roads to be crossed by the Ring Road.

The alignment corridor of the Ring Road is mostly located within the boundary of D.K.I except the section from Sta. 28+500 to Sta. 42+000 which is in the territory of Bekasi.

Therefore, topographic map of scale 1:5000 and aerial photo of scale 1:5000 provided are covering the section within D.K.I, and the section outside D.K.I is covered by aerial photo of scale 1:5000.

In the D.K.I area, 1:1000 scale topographic maps are also available.

Under these conditions, the Survey Team conducted the detailed field reconnaissance survey along the alignment corridor and made clear the following items :

- present conditions of development schemes not shown in the topographic maps.
- actual land use pattern.
- details of crossing roads, railways, irrigation canals, rivers and public facilities.
- actual positions of the possible obstacles for the alignment location.

Based on the survey results, the followings will be utilized in preparing the preliminary designs.

- In the topographic map of scale 1:5000, recent buildings and structures are not shown. However, they are all in the aerial photo of scale 1:5000, since the photo was taken in 1976.
- The aerial photos of scale 1:15,000 were taken in 1963. However, the area covered by these photo is outside D.K.I. and has not been developed so far. Therefore, if supplemented by the results of field reconnaissance, these aerial photos will be utilized.

3.4.2. Soils and Materials Survey.

Since the subsurface soil investigation was conducted for the detailed design of the Ring Road by the Government, there are comparatively enough data collected for this feasibility study.

The Survey Team conducted field reconnaissance along the alignment corridor and selected four stations to collect soil samples. These samples were accomplished by means of auger boring and sent to the laboratory in Bandung for testing.

Physical tests these samples were informed to the Survey Team on April 10, 1977.

These four stations selected are introduced as follows :

1. at the proposed interchange site with Jakarta -
Tangerang Highway.
2. at the crossing point of Jalan Ciputat Raya.
3. at the crossing point of K. Sunter.
4. at the crossing point of the existing Jakarta-Bekasi
Railway.

Since there are many test results available, the compaction test for fill materials, C.B.R test and the consolidation test are not considered. However, to obtain the geotechnical condition of the proposed structural foundation, 5 rotary borings at following positions were conducted.

1. at the proposed interchange site with Jakarta -
Tangerang Highway.
2. at the proposed bridge site of K. Pasanggrahan.
3. at the proposed bridge site of Ciliwung

4. at the proposed bridge site of Eastern Banjir Canal.
5. at the proposed interchange site with existing
Jakarta - Bekasi Road.

In requesting these rotary borings to the Government, the Survey Team handed over the following brief specifications.

1. Rotary boring shall be made at five selected stations. The Survey Team will indicate the exact positions at site.
2. The depth of boring to be conducted shall be not less than thirty meters.
However, if the hard strata of N value more than fifty are encountered, additional five meters boring in these hard strata will be enough to stop boring.
3. At every one meter, the standard penetration test (measuring N value) shall be conducted.
4. At every startum, the physical tests including grain size analysis, water content and dry density by disturbed sample collected shall be conducted.
5. The photographs showing the exact position of boring, working conditions and collected samples shall be taken.

6. The altitude of the boring top shall be surveyed.

7. All the test results and data shall be submitted to the Survey Team by May 10, 1977.

In selecting the possible material sites for the Ring Road, the Survey Team visited the office of Jagorawi Highway and Geological Institute in Bandung for collecting informations. Moreover, Engineering Geologic Map of Jakarta - Bogor Area and Geologic Map of West Java were investigated in detail and the following 7 sites were selected for actual investigations.

1. G. Putri ; Monadnock of Basalt
2. Kadungmanggu ; River Deposits
3. G. Cibodas ; Monadnock of Limestone
4. Gunungsindur ; River Deposits
5. G. Dago ; Monadnovk of Andesite
6. Kragitan ; River Deposit
7. Merak ; Volcanic Complex.

The main purpose of the field investigation on these possible material sites was to study the quantity, quality and outcrop condition of aggregates.

The Survey Team paid an inspection visit to the existing quarry site and material site in order to know the collecting method and machineries used.

Including the measures of specific gravity and absorption. However, the sample from Gunung Putri was not collected, since the quality of this Basalt monadnock is guaranteed by visually inspection.

3.4.3. Hydrological and River Survey.

Hydrological and river surveys are aimed at establishing a design criteria for bridges and drainage structures on the proposed Ring Road. At the same time, these surveys are to be conducted to determine the lowest safe finished grade at the fill sections where the ground is inundated by flood water.

Since the project area has a typical equatorial heavy rainfall, special attention should be paid to the frequent short-duration and high - intensity storms. The rainfall data of past 30 years in the project area were obtained for analysis through the Meteorological and Geophysical Service of the Department of Air Communications.

Moreover, DKI has a masterplan for drainage and flood control of Jakarta which fits into the plan of development of Jakarta City for the near future. The details are clearly described in the report "Masterplan for Drainage and Flood Control of Jakarta, Dec.1973 by NEDECO".

According to this plan, the flood discharge of rivers which run into Jakarta City is to be discharged to the proposed Western and Eastern Banjir Canals.

The flood water from such rivers on Ciliwung, Cideng, Krukut, Grogol, Secretaris and Angke is to be drained by Western Banjir Canal and the flood discharge by Cipinang, Sunter, Buaran and Cakung rivers is to be treated by the Eastern Banjir Canal.

These proposed canals are to be located at about 5 km downstream side along the proposed Ring Road.

Therefore, in order to determine the design discharge of each river which crosses the proposed Ring Road alignment, the discharge data in the masterplan will be utilized effectively.

In addition to these data, the Survey Team conducted actual field survey along the alignment corridor to investigate the existing hydrological condition, the characteristics of the area effected and the conditions of existing rivers.

Fortunately, the Survey Team could observe the actual flood condition since the field investigation was conducted at the end of rainy seasons.

The results of field investigation on existing rivers are tabulated and presented in next page.

MAIN DRAINAGE AND BRIDGE SURVEY DATA

No.	Name of River	Station	Nearest Village	Discription of Site			
				Width of River	Width of flood	Stream	Existing Structure
1.	K. Pasanggrahan	10 + 400	Pondok Pinang	10 ^m	60-70	Silty water Meandering flow	at 3 Km up stream 20 m span R C Bridge.
2.	K. Krukut	15 + 200	-	5 ^m	7	Silty water Swift flow	at 2,2 Km up stream 6,2 m span R C Bridge
3.	Ciliwung	22 + 000	Tanjung Barat	30 ^m	35	Silty water Swift flow Meandering flow	Note : Navigation of bamboo's raft.
4.	K. Sunter	28 + 400	Pantar Jati	10	15	Silty water Swift flow Meandering flow	at 1,0 Km up stream 10 m span R C Bridge
5.	Saluran Induk Tarum Barat	37 + 700	Kampung Dua	15	-	Silty water	at 0,5 Km up stream R C Bridge span 30 m
6.	S. Cakung	44 + 800	Buaran	10	15	Silty water	at 0,2 Km down stream 6 m span steel beam Bridge.

3.4.4. Inventories of Existing Structure and Road.

In order to make clear figures of the existing railways and roads to be crossed by the Ring Road, the field survey was conducted.

At every possible crossing point with existing roads, width, number of lanes and surrounding conditions are surveyed.

The survey data of main road crossings and railway crossing are introduced hereinafter.

In the list of main road crossings, the city planning roads with future plan are also included.

3.4.5. Local Contractor's Capability and Capacity Surveys.

In order to assess the capability and capacity of local contractors, the list of contractors registered to the government was collected. The list of qualified contractors is prepared based on Eina Marga's prequalification standard on such items as financial conditions, number of engineers, list of machineries, list of works completed and now on working, etc.

Therefore, the interpretation of this list will result in the proper assessment of the local contractors.

MAIN ROAD CROSSING SURVEY DATA

No. 1/4.

No.	Name of Road	Station	Nearest Village	Discription of Site					P l a n	
				Width of Road (ROW)	Number of Lane	Surface Condition	Site Condition	Width of ROW	Number of Lane	Construc- tion Stage
1.	Jakarta - Merak Highway	0 + 000	Meruya Penggilingan	-	-	-	Field Paddy	40 ^m	10	1980-1985
2.	-	0 + 500	Meruya Penggilingan	4,5 (7,0)	2	Asphalt	Field Paddy	-	-	-
3.	-	1 + 300	Merpuya Udik	4,2 (7,0)	2	Asphalt	L: Field Paddy. R: Orchard	-	-	-
4.	-	3 + 000	Joglo 1	4,5	-	Soil	Housing	-	-	-
5.	Jl. Ciludug Raya.	5 + 400	Parukangan	4,5 (9,0)	2	Asphalt	L: Housing R: Field Paddy.	26	4	1980-1985
6.	-	6 + 000	Petukangan	3,5 (7,0)	2	Asphalt	L: Orchard R: Farm	-	-	-
7.	Jl. Pasanggrahan.	7 + 500	Bintaro	5,1 (9,0)	2	Asphalt	Orchard.	-	-	-
8.	Jl. Bintaro Permai Raya.	7 + 800	Bintaro Permai.	4,6 (7,0)	2	Asphalt	Housing	-	-	-

MAIN ROAD CROSSING SURVEY DATA

No. 2/4.

No.	Name of Road	Station	Nearest Village	Discription of Site						
				E x i s t i n g			P l a n			
				Width of Road (ROW)	Number of Lane	Surface Condition	Site Condition	Width of ROW	Number of Lane	Construc- tion Stage
9.	Jl. Tanah Kusir	9 + 500	Cempaka Puh.	4,4 (7,0)	2	Asphalt	L: Field R: Farm	-	-	-
10.	-	9 + 800	Cempaka Puh.	5,5	-	Soil	Farm	-	-	-
11.	Jl. Depro	10 + 000	Cempaka Puh.	3,0 (5,0)	1	Asphalt	Farm	-	-	-
12.	Jl. Ciputat Raya.	10 + 800	Pondok Pinang	7,0 (15,0)	3	Asphalt	Housing	26	4	1980 - 1985
13.	-	11 + 700	Pondok Indah	6,4 (15,0)	3	Asphalt	L: Field R: Paddy Field.	-	-	-
14.	Jl. Fatmawati	13 + 800	Cilandak	9,0 (11,0)	2	Asphalt	Housing	22	4	1980
15.	-	16 + 200	Cilandak	7,0 (9,0)	2	Asphalt	Housing	18	4	1980
16.	Jl. Ragunan	17 + 000	Pasar Minggu	13,0 (20,0)	4	Asphalt	Field	30	6	1985

MAIN ROAD CROSSING SURVEY DATA

No. 3/4.

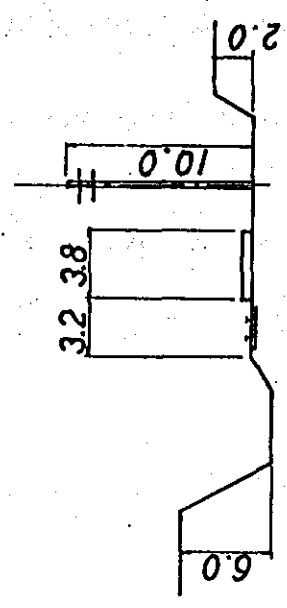
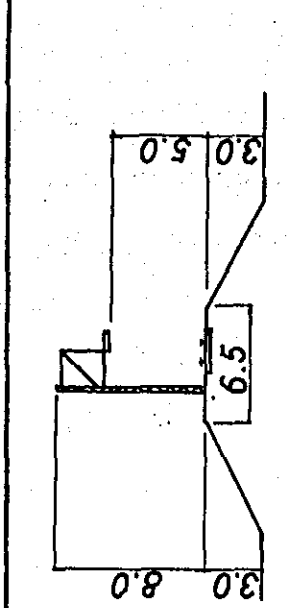
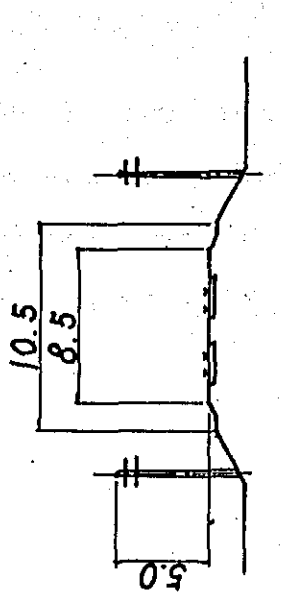
No.	Name of Road	Station	Nearest Village	Discription of Site						
				E x i s t i n g			P l a n			
				Width of Road (ROW)	Number of Lane	Surface Condition	Site Condition	Width of ROW	Number of Lane	Construc- tion Stage
17.	-	18 + 000	Jati Padang Melinjo	5,0 (7,0)	2	Asphalt	Orchard	-	-	-
18.	Jl. Lenteng Agung.	19 + 000	Tanjung Barat	5,5 (7,0)	2	Asphalt	L: Housing R: Field	-	-	-
19.	Jl. Cijanjur II.	21 + 400	Kel.Gedong	5,0 (7,0)	2	Asphalt	Housing	-	-	-
20.	Jl.Pasar Rebo	22 + 000	Pasar Rebo	4,5	2	Asphalt	Housing	-	-	-
21.	Jl.Raya Bogor	22 + 000	Pasar Rebo	3,7 (20,0)	4	Asphalt	Housing	53,0	10	1980 - 1985
22.	Jagorawi Highway.	24 + 000	-	-	-	-	-	100.0	10	1980
23.	-	27 + 000	Setu	4,5	1	Soil	Farm	-	-	-
24.	Jl. Hankam	28 + 700	Pondok Melati	5,5 (7,0)	2	Asphalt	Paddy Field	30,0	6	1980 - 1985
25.	-	30 + 100	Kampung Sawah I.	5,0 (7,0)	2	Soil	Farm	-	-	-

MAIN ROAD CROSSING SURVEY DATA

No. 4/4.

No.	Name of Road	Station	Nearest Village	Discription of Site					P l a n			
				E x i s t i n g		Surface Condition	Site Condition	Width of ROW	Number of Lane	Width of ROW	Number of Lane	Construc- tion Stage
				Width of Road (ROW)	Number of Lane							
26.	-	33 + 000	Kebantenan	5,5 (7,0)	2	Macadam	L: Orchard R: Rubber Plantation	-	-	-	-	
27.	Inspection Road of Salur an Induk Tarum Barat.	37 + 700	Kampung Dua	5,5 (7,0)	2	Asphalt	L: Canal R: Farm	53	10	1980 -1 985	-	
28.	-	39 + 900	Pondok Pucung.	4,5 (9,0)	1	Soil	Orchard	-	-	-	-	
29.	-	43 + 000	Pulogebang	3,0 (4,0)	1	Macadam	Rubber Plantation	-	-	-	-	
30.	Jl. Jakarta - Bekasi.	45 + 900	Cakung	18.0 (21,0)	4	Asphalt	Housing	50,0	10	1980 -1 985	-	

RAILWAY CROSSING SURVEY DATA

No.	Name of Railway.	Temporary Station	Nearest Station or Village	Remarks	Description of Site	
					Existing Cross Section (Unit in meter)	
1.	Jakarta-Serpong Line.	7 + 800	Pondok Bitung Station, Bintaro Permai.	Single Track		
2.	Jakarta - Depok Line	19 + 000	Tanjung Barat	Single Track and Elec - trified.		
3.	Jakarta - Bekasi Line	41 + 200	Cakung Station.	Double Tracks		

3.4.6. Construction Cost Survey.

To obtain the most realistic estimate of construction cost, the recent construction cost survey was conducted. Cost of construction machinery, construction materials and labour cost are separately collected from various sources.

Moreover, land acquisition and compensation costs are also be asked to supply from D.P.U. Jakarta.

4. DISCUSSION ON MAIN WORKING ITEMS

4.1. General.

The collected data and findings by field surveys were preliminary analysed by the Survey Team in parallel with their field activities.

Especially the analysis on main working items which should be determined at this stage for preparing the Interim Report in Japan, is pinpointed, since the next formal discussion after the submission of the Progress Report between the Government and the Survey Team, is scheduled to be at the time of submission of the Interim Report expected in September, 1977.

Under these circumstances, the Survey Team summarizes the data collected and survey results and made the first hand analysis on main items. Then these results of analysis were developed through the informal discussions with authorities concerned.

Introduced hereinunder is the results of studies by the Survey Team. However, these results are not decisive but will be determined through the discussion between the Government and the Survey Team.

4.2. Traffic, Land Use and Economic Analysis.

To establish the approach and methodology of the traffic analysis, land use study and economic and financial analysis for the Jakarta Ring Road Project feasibility study, main and fundamental items should be discussed during the site survey period regarding the obtained data and informations.

The Survey Team and authorities concerned have discussed on the items summarized on following pages.

4.2.1. Zone Division.

For the first step of the study, the project area including the influence area of the proposed Jakarta Ring Road is divided into certain number of zones. Administrative region division, other similar studies zone divisions such as JMATS and SST, and existing and future road networks are taken into considerations to decide the zone division for this study.

The results are introduced and shown in Fig.4.2.1.-2

Total zone number	66	zones
DKI JAKARTA	41	zones
TANGERANG	7	zones
BOGOR	8	zones
BEKASI	6	zones
Other area	4	zones

JAKARTA RING ROAD PROJECT

ZONE CODE TABLE

Zone No.	Kotamadya /Kabupaten	Kecamatan	Kelurahan	Zone No.	Kotamadya /Kabupaten	Kecamatan	Kelurahan
1. (01)	1. JAKARTA PUSAT	1. Gambir (1-6)	1. Cideng 2. Duri Pulau 3. Petojo Utara 4. Petojo Selatan. 5. Kebon Kelapa 6. Gambir.	5 (105)	1. JAKARTA PUSAT	7. Tn. Abang (1-7)	1. Kampung Bali 2. Kebon Kacang 3. Kebon Melati 4. Petamburan 5. Karet Tengsin 6. Bendungan Hilir. 7. Gelora
2 (02)	1. JAKARTA PUSAT	2. Sawah Besar (1-5)	1. Mangga Dua Selatan. 2. Karang Anyar 3. Kartini 4. Pasar Baru 5. Gn. Sahari U.	6 (201)	2. JAKARTA UTARA	2. Penjaringan. (1-8)	3. Pejagalan 4. Penjaringan 5. Marga Dua U. 6. Pademangan U. 7. Pademangan T.
3 (03)	1. JAKARTA PUSAT	3. Kemayoran (1-5)	1. Gn. Saharai Selatan. 2. Kemayoran 3. Kebon Kosong 4. Serdang 5. Harapan Mulya	7 (202)	2. JAKARTA UTARA	3. Tanjung Priok. (1-5)	1. Sunter 2. Pepanggo 3. Sungai Bambu 4. Kebon Bawang 5. Tj. Priok.
		5. Cempaka Putih. (1-7)	1. Tanah Tinggi 2. Johar Baru 3. Galur 4. Kampung Bawah 5. Rawa Sari 6. Cempaka Putih Barat. 7. Cempaka Putih Timur.	8 (203)	2. JAKARTA UTARA	4. Kota (1-7)	1. Kota Utara 2. Lagoa 3. Kota Selatan 4. Tugu 5. Rawabadak
						5. Cilincing (1-5)	1. Kali Baru 2. Cilincing 3. Semper
4 (104)	1. JAKARTA PUSAT	4. Senen (1-6)	1. Senen 2. Kwitang 3. Kenari 4. Keramat 5. Paseban 6. Bungur	9 (204)	2. JAKARTA UTARA	4. Kota	6. Kelapa Gading 7. Pegangsaan II
				10 (205)	2. JAKARTA UTARA	5. Cilincing	4. Marunda 5. Sukapura
		6. Menteng (1-5)	1. Kebon Sirih 2. Gondang Dia 3. Cikini 4. Menteng 5. Pegangsaan	11 (206)	2. JAKARTA UTARA	2. Penjaringan.	1. Kanal Muara 2. Kapuk Muara 8. Muara Angke

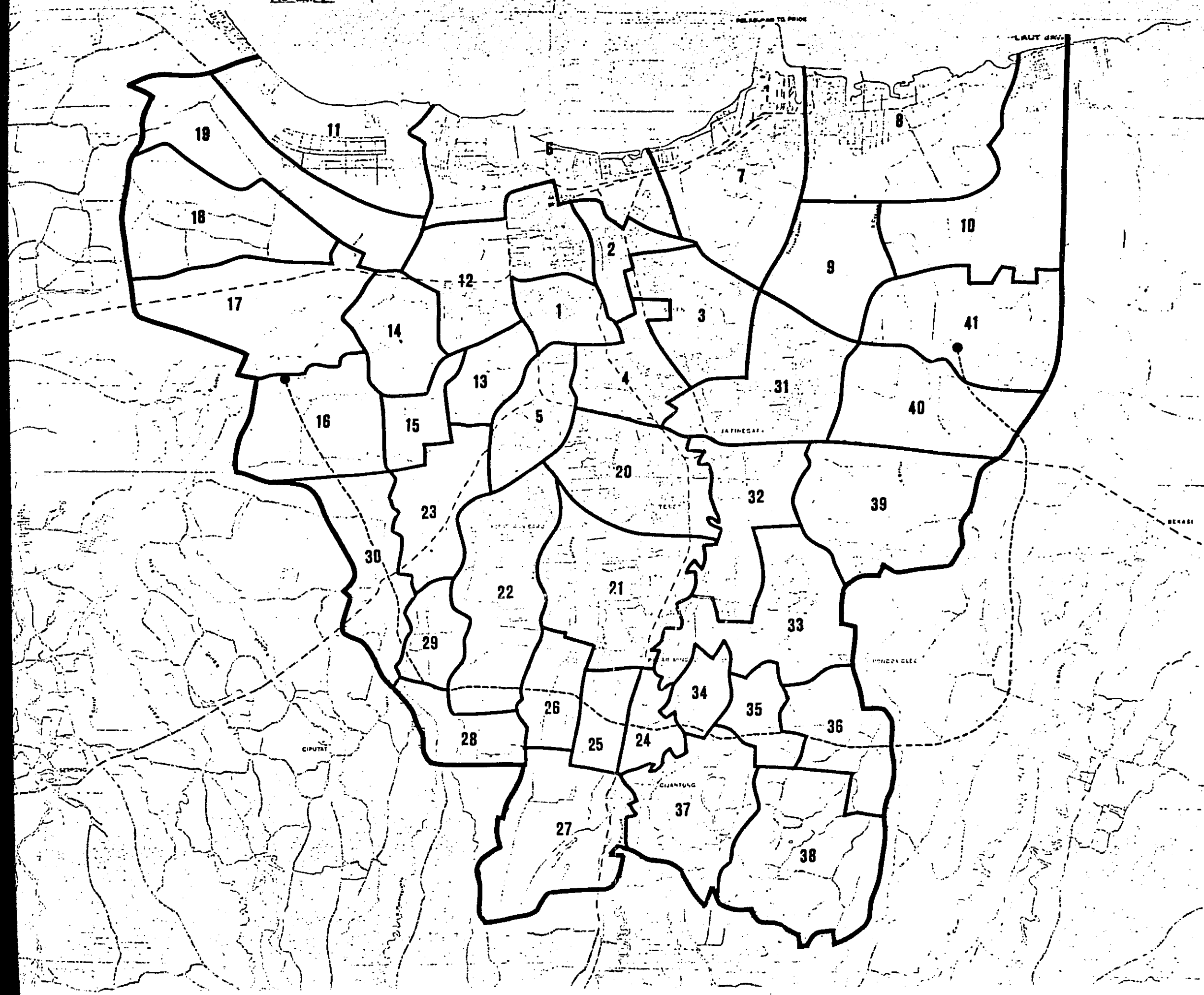
no.	Kotamadya /Kabupaten	Kecamatan	Kelurahan	Zone No.	Kotamadya /Kabupaten	Kecamatan	Kelurahan			
2 1)	3. JAKARTA BARAT	2. Grogol Petamburan. (1-8)	1. Grogol 2. Jelambar 3. Tanjung Duren 4. Tomang	18 (307)	3. JAKARTA BARAT	1. Cengkareng.	4. Pegadungan 5. Kali Deres 6. Cengkareng			
		3. Taman Sari. (1-8)	1. Pinangsia 2. Mangga Besar 3. Tangki 4. Glodok 5. Kagungan 6. Krukut 7. Taman Sari 8. Maphar	19 (308)			1. Cengkareng	2. Kamal 3. Tegal Alur 7. Kapur Kedaung 8. Kali Angke		
		4. Tambora (1-10)	1. Pekojan 2. Malaka 3. Tambora 4. Jembatan Lima 5. Angke 6. Jembatan Besi 7. Kerndang 8. Tanah Sareal 9. Duri 10. Kali Baru	20 (401)	4. JAKARTA SELATAN	1. Tebet (1-7)	1. Menteng Dalam 2. Tebet Barat 3. Tebet Timur 4. Kebon Baru 5. Bukit Duri 6. Manggarai Selatan. 7. Manggarai			
						2. Setyabudi (1-8)	1. Setyabudi 2. Guntur 3. Karet 4. Karet Semanggi. 5. Karet Kuningan. 6. Kuningan Timur. 7. Ps. Manggis 8. Menteng Atas			
2)	3. JAKARTA BARAT	2. Grogol Petamburan.	5. Jati Pulau 6. Kota Bambu 7. Slipi 8. Pal Merah.							
3)	3. JAKARTA BARAT	5. Kebon Jeruk (1-11)	2. Kedoja 3. Duri	21 (402)	4. JAKARTA SELATAN	3. Mampang Prapatan (1-11)	1. Kuningan Barat. 2. Mampang Prapatan. 3. Pela Mampang 4. Tegal Parang 5. Bangka 6. Pancoran 7. Duren Tiga 8. Kali Bata 9. Cikoko 10. Pangadegan 11. Rawajati			
4)	3. JAKARTA BARAT	5. Kebon Jeruk	8. Kebon Jeruk. 9. Suka Bumi Ilir 10. Kelapa Dua 11. Suka Bumi Udik.							
5)	3. JAKARTA BARAT	5. Kebon Jeruk	4. Meruja Ilir 5. Meruja Udik 6. Joglo 7. Serengseng							
5)	3. JAKARTA BARAT	1. Cengkareng. (1-10)	1. Semanan 9. Duri Kosambi 10. Rawa Buaya						4. Pasar Minggu (1-10)	1. Pejaten 2. Pasar Minggu
		5. Kb. Jeruk	1. Kembangan							

Zone No.	Kotamadya /Kabupaten	Kecamatan	Kelurahan	Zone No.	Kotamadya /Kabupaten	Kecamatan	Kelurahan
22 (403)	4. JAKARTA SELATAN	5. Kebayoran Baru (1-10)	1. Senayan 2. Rawa Barat 3. Selong 4. Gunung 5. Kramat Pela 6. Melawai 7. Petogogan 8. Pulo 9. Gandaria Utara 10. Cipete Utara	30 (411)	4. JAKARTA SELATAN	6. Kebayoran Lama.	6. Petukangan Utara. 7. Petukangan Selatan. 8. Ulujami 9. Pasanggrahan. 10. Bintaro.
		7. Cilandak	1. Gandaria Selatan. 2. Cipete Selatan. 3. Cilandak			5. JAKARTA TIMUR	1. Matraman (1-5)
23 (404)	4. JAKARTA SELATAN	6. Kebayoran Lama. (1-10)	1. Grogol Utara 2. Grogol Selatan. 3. Cipulir 4. Kebayoran Lama.	31 (501)	5. JAKARTA TIMUR	2. Pulau Gadung (1-6)	1. Kayu Putih 2. Jati Rawamangun. 3. Pisangan Timur. 4. Cipinang 5. Pulau Gadung 6. Jatinegara Kaum.
24 (405)	4. JAKARTA SELATAN	4. Pasar Minggu.	3. Tanjung Barat			32 (502)	5. JAKARTA TIMUR
25 (406)	4. JAKARTA SELATAN	4. Pasar Minggu	4. Jati Padang	33 (503)	5. JAKARTA TIMUR		
26 (407)	4. JAKARTA SELATAN	4. Pasar Minggu.	5. Ragunan. 6. Cilandak			33 (503)	5. JAKARTA TIMUR
27 (408)	4. JAKARTA SELATAN	4. Pasar Minggu	7. Jagakarsa 8. Lenteng Agung 9. Serengseng Sawah. 10. Cianjur	33 (503)	5. JAKARTA TIMUR		
28 (409)	4. JAKARTA SELATAN	7. Cilandak	4. Lebak Bulus 5. Pondok Labu			33 (503)	5. JAKARTA TIMUR
29 (410)	4. JAKARTA SELATAN	6. Kebayoran Lama.	5. Pondok Pinang				

Zone No.	Kotamadya /Kabupaten	Kecamatan	Kelurahan	Zone No.	Kotamadya /Kabupaten	Kecamatan	Kelurahan
			8. Bale Kambang 9. Makasar	42	TANGERANG	Tangerang Batuceper	
34 (504)	5. JAKARTA TIMUR	4. Kramat- jati. 5. Ps. Rebo.	10. Kampung 2. Gedong	43	TANGERANG	Cileduk Ciputat	
				44	TANGERANG	Legok	
35 (505)	5. JAKARTA TIMUR	4. Kramat- jati. 5. Ps. Rebo (1-18)	11. Dukuh 3. Rambutan 4. Ceger	45	TANGERANG	Curug Cikura Ps. Kemis	
36 (507)	5. JAKARTA TIMUR	5. Ps. Rebo	1. Lubang Buaya 5. Bambu Apus 6. Setu	46	TANGERANG	Teluknaga Sepatan	
37 (508)	5. JAKARTA TIMUR	5. Ps. Rebo	8. Susukan 9. Ciracas 10. Cijantung 11. Baru 12. Kali Sari 13. Pekayon	47	TANGERANG	Mauk Rajeg Kronjo Kresak	
				48	TANGERANG	Balaraja Tigaraksa	
38 (508)	5. JAKARTA TIMUR	5. Ps. Rebo	17. Cipayung	49	BOGOR	Bogor Ciomas Kedung - halang. Semplak	
		5. Ps. Rebo	14. Kelapa II Wetan. 15. Munjul 16. Cilangkap 17. Cibubur 18. Pondok Rang- gon.	50	BOGOR	Sawangan	
				51	BOGOR	Depok	
39 (509)	5. JAKARTA TIMUR	3. Jati - negara.	8. Pondok Bambu 9. Kelender 10. Duren Sawit 11. Malaka 12. Pondok Kelapa	52	BOGOR	Cibinong Cimanggis	
				53	BOGOR	Gn. Putri	
40 (510)	5. JAKARTA TIMUR	6. Cakung (1-6)	1. Rawa Terate 2. Jatinegara 3. Penggilingan 6. P. Gebang.	54	BOGOR	Ciawi Cisarua Cijeruk Citeureup Jonggol Cileungsi Cariu	
41 (511)	5. JAKARTA TIMUR	6. Cakung (1-6)	4. Cakung 5. U. Menteng				

Zone No.	Kotamadya /Kabupaten	Kecamatan	Kelurahan	Zone No.	Kotamadya /Kabupaten	Kecamatan	Kelurahan
55	BOGOR	Ciamnea Cibungbu- lang. Rumpin Gunung Sindar Parung					
56	BOGOR	Leuwiliang Jasinga Parung Panjang					
57	BEKASI	Bekasi					
58	BEKASI	Pondok Ge- de.					
59	BEKASI	Bebelan Celingcing					
60	BEKASI	Tambun Cibitung Cikarang					
61	BEKASI	Setu Cibarusah Lemahabang					
62	BEKASI	Cabang - bungin. Sukatani Pebayuran					
63	JAWA BARAT						
64	JAWA SELATAN	Jogyakarta South of Jawa Pusat					
65	JAWA UTARA						
66	Out of Java.						

ZONING MAP /DKI AREA



4.2.2. Land Use Plan.

Concerning the land use study, following fundamental principles will be taken into consideration throughout the study.

1. As the land use study distribution pattern of functions will be mainly studied.
These patterns will be quantified for the years of 1985, 1990 and 2000.
2. The fundamental target figures for land use plan such as population, industrial outputs and others should have alternatives prepared by the Survey Team through the analysis of the collected informations.
3. In the study, one centre core system of C.B.D. and multicore system of C.B.D. will be evaluated with the calculation of capacity of C.B.D and access transportation facilities.
4. One of the main proposals of functions which will locate in the area of the corridor is that of cargo terminals.
5. Deliberate considerations on the relation of the growth of Jakarta and other JABOTABEK area will be paid on each item of the land use study.

4.2.3. Traffic Forecast.

In connection with the site survey and data collection to be conducted in Indonesia, the approach and methodology for traffic forecast are discussed and described on respective main items as follows.

1. Passenger traffic and cargo traffic.

Traffic forecast of the study should be done on two categories of traffic, one is the passenger traffic and the other is the cargo traffic. The forecast will be done on the basis of the socio-economic study and the land use study as well as the traffic study. The passenger traffic will be forecasted for the peak hour traffic applying the inhabited population and workers in working places of a zone as factors for calculation of the oriented and the destined traffic volumes of the zone.

On the other hand, the cargo traffic will be forecasted for the daily traffic through analysing and studying of future commodity flows.

2. Forecast of car ownership.

Car ownership forecast will be done applying the respective factors to the zonal population consisting of three or four categories of inhabitant density and will be checked or controlled through analysing the

relation to per capita income and per capita car ownership.

3. Land use study and traffic forecast.

In any ways, land use plans will be reflected on the traffic volume forecasted through the socio-economic figures or cargo movement/generation relating with the land use plan alternatives.

Future O-D matrices will be forecasted by means of some combined method which makes it possible to reflect the difference of development by zones adopting the present OD matrices of year 1976 updated the matrices of year 1972's as the fundamental OD patterns.

The total traffic volume oriented and destined in the area should be controled by the figures corresponding to the land use alternatives to reflect the effects of the plan.

4. Development Programme of transportation facilities (target year and figures).

The development programme of transportation facilities such as airport, port, railway and road can not be fixed through discussion. This kind of programme has a strong relation and effects on the land use study

and its forecast.

The Survey Team has collected the plan and figures at the final stage of the development and will modify them as the development programmes respecting the progress speed and available programmes.

These programmes lead the developed traffic generation and the intermodal traffic distribution.

As for the road network, tollways and toll-freeways, the Survey Team modifies for the years 1985, 1990 and 2000.

4.2.4. Economic and Financial Analysis.

On the economic analysis and the financial analysis, the methodology should be corresponding to the similar studies.

Those analysis should include following study items :

1. Calculation of the benefits and the economic costs.
2. Calculation of internal rate of returns and benefit cost ratio on the links.
3. Sensitivity analysis
4. Evaluation of alternatives
5. Calculation of revenue.
6. Evaluation of financial matters.

4.2.5. Impact Study.

Through the discussion between the Survey Team and the counterpart on the study, the impacts of the Ring Road should be studied categorizing into two. One is the impact of the Ring Road as a big elements of Jakarta transportation network. The other is the impact of it as a part of the tollway system, newly introduced to the country. The former, will be reflected mostly on the land use along the corridor, the distribution of functions. On the other hand, the latter will be reflected mostly on social matters which are very difficult to measure quantitatively.

The study will be conducted on the items mentioned in the Inception Report, considering categorized two impact types above mentioned.

4.3. Main Engineering Items.

Following the execution of engineering surveys at site, the preliminary analysis on main engineering items were conducted. They are alignment corridor, design criteria, crossing roads and railways and interchanges which are necessary to develop the outline design in the subsequent Phase II works.

Considerations on these items are summarized in the following.

4.3.1. Alignment Corridor.

Bina Marga had already completed the detailed design of Jakarta Outer Ring Road in 1975 and 1976.

On the other hand, D.K.I. also has a plan of the Ring Road as a city planning road. The Survey Team studied the both alignments in details and has come to the conclusion that these two alignments are not so different each other.

In selecting the most appropriate alignment of the Ring Road, the Survey Team defined the alignment corridor with 500 meters width based on these two alignments. The Survey Team will in the course of the study determine the most appropriate alignment within this corridor, taking into consideration the required geometrical design criteria and development schemes already approved by D.K.I.

Along this corridor, the Survey Team conducted the field reconnaissance survey and the followings are general description of the project area and the corridor.

In the project area, outskirts of Jakarta, the topography is with very gentle slope and is separated into two natural divisions land swells and flat valleys.

The area of land swells are utilized for such dry farming as rubber trees, orchard, etc. and in this area many villages are scattered.

The area of flat valleys are used mainly as paddy fields. In the land swells of the project area, the pleistocene facies are observed broadly on the Tertiary laterite soil, which was formed by the weather action.

The volcanic facies consist of tuffaceous clay, tuffaceous sand and tuffbreccia. On the other hand alluvial deposits consist of clay and sand are distributed in mainly flat valleys.

1. Interchange with Jakarta - Tangerang Highway to Pondok Indah (Sta. 0+000 - Sta. 11+000).

The proposed interchange with Jakarta - Tangerang Highway, starting point of Jakarta Ring Road is located in the paddy field near village Jerukmanis situated 7 km west of Grogol.

In this area, many small houses are observed along the existing small road and scattered houses are in the orchard. The alignment goes down to the south and crosses the existing Jakarta - Serpong railway line and Pasanggrahan river at Sta. 7+800 and Sta. 10+400, respectively.

This river has usually 10 meters of flowing width, however, it expands to more than 60 meters at its high flood. After crossing this river, the alignment bends to the east direction and crosses many small orchards.

The terrain condition in this section is not so difficult and the alignment to meet the required geometric design criteria, will be determined without any difficulties.

2. Pondok Indah to Jagorawi Highway (Sta. 11
(Sta. 11+000 - Sta. 24+000).

In this section, there are many development plans already approved by the Government on both sides of the corridor.

The alignment bends to the east and passes through paddy fields in the flat valley and orchard or housing area at land swells alternately.

After crossing Jakarta - Bogor Railway at Sta.19+000, the alignment bridges Ciliwung River at Sta.21+000, which is the largest river to be crossed by the Ring Road. After crossing the built up area, the Ring Road overpasses Jl. Raya Bogor and Jagorawi Highway at Sta. 22+000 and Sta. 24+000, respectively.

In this area, it seems to be the most difficult section to select the alignment, since there are many development schemes are approved.

3. Jagorawi Highway to Saluran Induk Tarum Barat (Sta. 24+000 - Sta. 37+700).

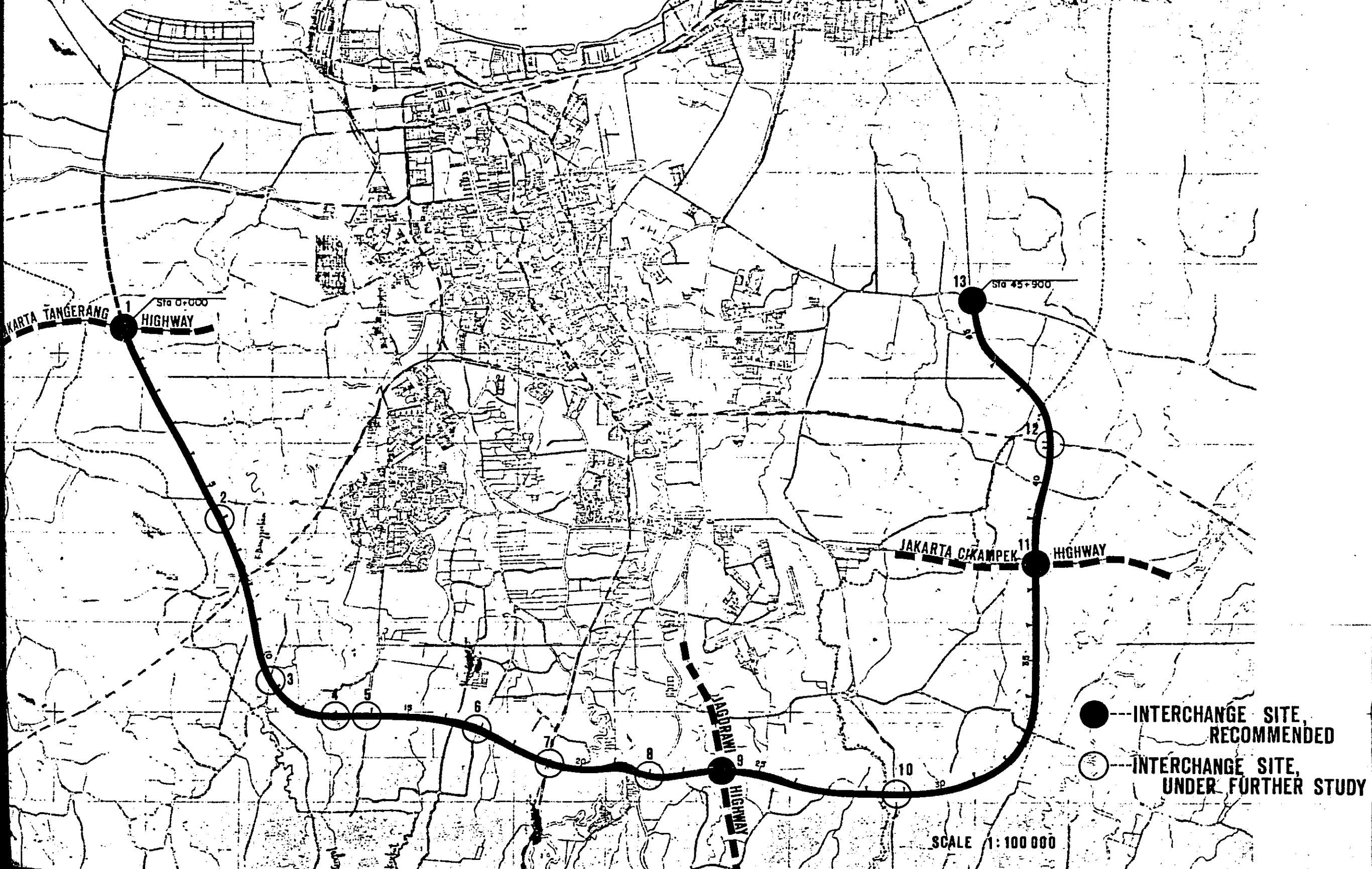
After crossing Jagorawi Highway, alignment traverses through firm land and bridges K. Sunter at Sta.28+400. In the southern side of the Ring Road at Sta.27+000, they are planning to construct HANKAM (military head-quarter) at which about 40,000 officers are scheduled to be stationed. Therefore, some facilities to access to HANKAM from the Ring Road should be determined.

The alignment bends its direction to the north and approaches to Saluran Induk Tarum Barat at Sta.37+700 where the interchange with Jakarta-Cikampek Highway will be provided.

In this section, there will not be any difficulties in determining the proper alignment.

FIG. 4.3.1.

ALIGNMENT CORRIDOR AND POSSIBLE INTERCHANGE SITES



- INTERCHANGE SITE, RECOMMENDED
- INTERCHANGE SITE, UNDER FURTHER STUDY

SCALE 1:100 000

4. Saluran Induk Tarum Barat to Jakarta-Bekasi

Existing Road. (Sta. 37+700 - Sta. 45+900).

Between Sta. 37+700 and Sta. 41+200, the route passes the edge of land swells from south to north.

At Sta. 41+200, the alignment overcrosses the existing Jakarta - Bekasi railway.

Moreover, the route crosses proposed major canal at Sta. 42+000.

The total span of bridging the canal may be more than 100 meters in length.

From this crossing up to the Interchange with Jakarta-Bekasi Road, the alignment crosses paddy fields and swampy area. However, approaching to the Jakarta - Bekasi Road, there are many small houses and several factories. In this section, the terrain is not so difficult to select the most appropriate alignment. The alignment corridor explained above are shown in Fig. 4.3.1.

4.3.2. Design Criteria.

In the project area, three regional highways, from Jakarta to Cikampek, Ciawi and Tangerang are under desinging and cunstruction.

The Jakarta Ring Road is planned to connect these three regional highway and from the unified network as a Jakarta West Java tollway system.

The design criteria of these three regional highways are mainly based on "Standard Specifications for Geometric Design of Expressway and Freeway (Draft 1976)" and "Standard Specifications for Geometric Design of Rural Highway (1970)" by Bina Marga. Inevitably, the design criteria of the Ring Road should be determined in accordance with these specifications.

The proposed Ring Road is planned to circle the outskirts of Jakarta where flat terrain is predominant, and is to be specified as Freeway in flat terrain through sparsely developed area.

Taking the above consideration in mind, the Survey Team prepared the recommended design criteria for the proposed Ring Road.

They are all conformed to the current Government standard except the item of minimum radii as presented as below.

Design Criteria of the Ring Road

Design Speed	120	km/h.
Minimum ROW width (No Frontage road)	60.0	m
Lane width	3.75	m
Shoulder width (outside)	3.0	m
(inside)	1.5	m
Minimum Median width	5.5	m
Cross fall of Pavement	2	%
Cross fall of Shoulder	4	%

Minimum Radii	630	m
(Desirable)	880	m
Maximum Gradient	3	%
Minimum Stopping Sight Distance	225	m
Minimum Side Slope (Fill)	4 : 1	
(Cut)	3 : 1	

The largest radius of culvature compatible with the surrounding conditions shall be used whenever possible. Moreover, the lower value of superelevation is recommended to ensure more comfortability to users in expressway.

In view of the reserved 500 meters corridor, larger minimum horizontal radii are recommended for the Ring Road, which composed to the maximum superelevation of 8 percents. The typical cross section of the Ring Road and the comparison table of design criteria are presented as fig. 4.3.2. and table 4.3.2, respectively.

Table 4.3.2.

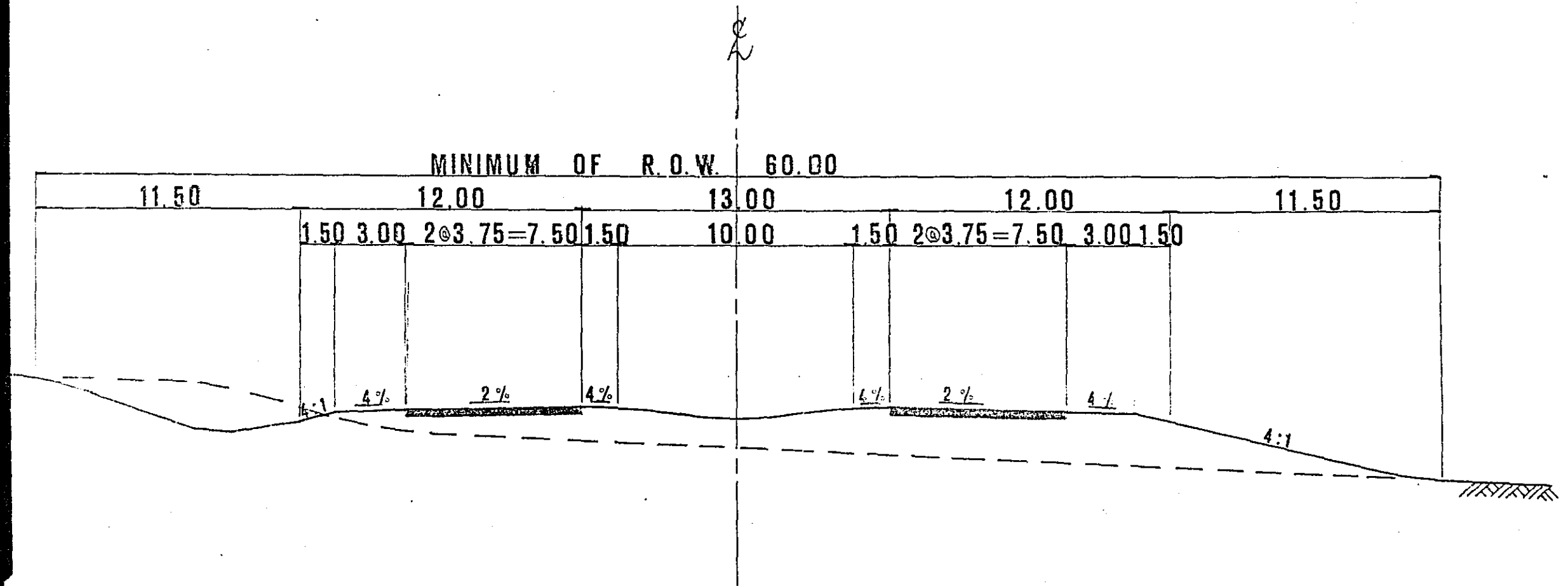
LIST OF DESIGN CRITERIA

		Recommended Design Criteria (flat)	Standard Specifications (1976) (flat)		Standard Specifications (1970) (flat)		Jagorawi Highway	Jakarta - Merak Highway.		Jakarta - Cikampek Highway.	Japanese Highway Standard Specification.	
			Sparcely Developed	Developed								
Design Speed	km/h	120	120	100	120	100	120	120	100	120	120	100
Minimum of R.O.Width (stage road outside)	m	-	50,0(4 lane) 60,0(6 lane)	50,0(4 lane) 60,0(6 lane)	-	-	-	-	-	-	-	-
Minimum of R.O.Width (stage road inside)	m	-	80,0(4 lane) 90,0(6 lane)	80,0(4 lane) 90,0(6 lane)	-	-	-	-	40,0	-	-	-
Minimum of R.O.Width (frontage road)	m	60,0	-	-	40,0	40,0	90,0	60,0	-	70,0	-	-
Minimum of R.O.Width	m	3,75	3,75	3,75	3,75(2x)	3,75(2x)	3,75(2x)	3,75(2x)	3,75(2x)	3,75(3x)	3,5+3,75	3,5+3,75
Minimum of R.O.Width (outside)	m	3,0	3,0	3,0	3,5	3,0	3,0	3,0	2,0	3,0	3,0	3,0
Minimum of R.O.Width (inside)	m	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,0	1,5	0,75	0,75
Minimum of Median Width	m	5,5	5,5	5,5	10,0	10,0	13,0	10,0	4,0	13,0	4,5	4,5
Maximum of Pavement	%	2	2	2	2	2	2	2	2	2,5	2	2
Maximum of Shoulder	%	4	4	4	4	4	2 & 4	4	4	2 & 4	2	2
Minimum Radii	m	630 (880)	530 (760)		560	350	-	570(880)	380(640)	800	570(1000)	380(700)
Maximum Gradient	%	3	3		3	5	-	3	5	3	2 (5)	3 (6)
Minimum Stopping Distance.	m	225	225	165	225	165	-	225	165	-	210	160
Minimum Side Slope (Fill)	-	4 : 1	4 : 1	4 : 1	-	-	3:1	-	-	4:1	1.5 : 1	1.5 : 1
Minimum Side Slope (Cut)	-	3 : 1	3 : 1	3 : 1	-	-	3:1	-	-	-	2 : 1	2 : 1

Note : Figures in parenthesis in item "Minimum Radii" shows desirable value. : Figures in parenthesis in item "Maximum Gradient" shows exceptional value.

FIG.4.3.2.

TYPICAL CROSS SECTION
(4 LANE)



4.3.3. Crossing Road and Railways.

As described in Section 3.4.4. of this report, the proposed Ring Road crosses many existing and planning railways and roads.

The treatment of these crossings with the Ring Road will be studied in details one by one. However, the Survey Team established the following general criteria to deal with these possible crossings.

1. Regional Expressway.

The Ring Road are to be connected to three regional highways, from Jakarta to Cikampek, Ciawi and Tangerang. At these connecting point, interchanges are to be provided.

2. Existing Major Road.

From the standpoint of traffic volume transported, there are four existing major roads to be crossed by the Ring Road. Moreover, they are traffic arteries connecting Jakarta with surrounding major cities and DKI has improvement and widening plans on these roads. They are, Jl. Ciputat Raya, Jakarta - Depok Road, Jakarta - Bogor Road and Jakarta - Bekasi Road. At these crossing points, the provision of interchanges will be proposed after the detailed study to be conducted from now on.

3. Existing Minor Road.

There are many minor roads to be crossed by the Ring Road. However, they are almost paved roads and play comparatively important roles in respective regions. Therefore, grade separation with these roads will be recommended.

4. Roads under planning.

According to the city plans by DKI, there are several planned city roads which will be constructed in future. At this stage, the realistic implementation programme of these construction is not clear. Therefore, the design of the Ring Road should be conducted taking into consideration the necessary provisions for these planning roads in future.

5. Underpass.

When considered necessary, the underpass for pedestrians or cattles to cross the Ring Road will be provided.

6. Railways.

There are three existing railway lines in the proposed alignment of the Ring Road. Since they are recommended to be a part of mass transit system of the first stage

by JMATS report, grade separation with spaces for double tracking and electrification for these railways will be provided.

However, special provisions will not be designed for other railway lines recommended in JMATS report, since the implementation of these railways are not decided at present.

4.3.4. Interchanges.

The selection of the possible interchange site shall be carefully investigated based on the results of traffic studies, the existing and proposed networks in the area near by and the future city planning and land use planning in the project area.

However, the initial construction cost of the interchange and its operation cost in case of tollway will also be major items to be considered.

The Survey Team is now under study the points but can not definitely determine the proposed interchange sites along the Ring Road.

However, the Survey Team tentatively determined the following interchange sites for recommendation and for further studies.

POSSIBLE INTERCHANGE SITES

No.	Sta. (Approx)	Name of Crossing Road
1.	0 + 000*	Jakarta-Tangerang Highway (Under Planning).
2.	6 + 000	Jakarta-Serpong Highway (planning).
3.	10 + 800	Jalan Ciputat Raya
4.	13 + 000	Road east of Pondok Indah (planning).
5.	13 + 800	Jalan Fatmawati
6.	17 + 000	Jalan Ragunan (Pasar Minggu)
7.	19 + 000	Jakarta - Depok Road
8.	22 + 000	Jakarta - Bogor Road
9.	24 + 000*	Jagorawi Highway (Under Construction).
10.	28 + 700	Existing Road.
11.	37 + 000*	Jakarta Cikampek Highway (Under planning).
12.	41 + 200	Planning Road along the existing railway.
13.	45 + 900*	Jakarta Bekasi Road.

Note : * Shows the recommended sites for the provision of interchanges and the others are under further studies.

The mentioned above are possible interchange sites from physical conditions, however, the final determination of interchanges shall be made so as to maintain the role of the Ring Road at its maximum.

4.4. Other Main Items.

There will be many items to be discussed, however, the Survey Team takes up herein two major items for discussion, they are toll system and alternatives.

4.4.1. Toll System.

In connection with the toll system of Jakarta Ring Road, the Survey Team is tentatively proposing as follows.:

1. Toll Structure.

Considering the Jakarta and West Java tollway system, which are consisted of regional tollways, Jakarta Ring Road, and Intra Urban Tollway, the toll tariff for Jakarta Ring Road will be studied in respect of the Km-tariff for the regional tollways, while the intra urban tollway adopts the flat tariff.

The tariff should be decided at the marginal point of revenues through analysing the relation of toll and traffic volume.

Toll should be decided within the limitation of calculated benefit volume per trip.

2. Toll Collection System.

For toll collection, several system will be studied taking various relevant points into consideration.

3. Category of Vehicles for tariff.

Vehicles permitted on the tollway will be motorized vehicles excluding two wheeled ones.

Type of vehicles will be classified into several categories and determined in the subsequent study.

4. Conditions for Administrating System.

Administration of the Ring Road as a tollway should be done by a certain agency as recommended in the report on Jakarta West Java Tollway System, which will also take care of other regional tollways totaling about 140 kilometers including the Ring Road.

4.4.2. Alternatives.

In determaing the alternatives to be studied, following items will be taken into consideration.

1. Target figures such as population, C.B.D functions and so on.
2. Distribution patterns of land use functions.
3. Development programme of transportation facilities and subsequent intermodal distribution.
4. Construction method including staged construction.
5. Toll structure.
6. Design Criteria.
7. Others.

Some items of these alternative will be analized in terms of sensitivity and the others will be determined in detail in the case studies.

5. WORK SCHEDULE AND SCOPE OF WORKS IN SUBSEQUENT PHASES.

The Survey Team has now duly completed all activities specified in Phase I works as described in the Inception Report and this Progress Report is the fruit of Phase I works. The following Phase II and Phase III works which will be conducted mainly in Japan are briefly summarized as follows :

Phase II works : Based on the agreed results of the Progress Report, further studies on socio-economic study, land use study and the traffic study shall be conducted and the future traffic volume will be estimated.

Moreover, outline designs, economic evaluation and financial analysis shall be made. The finding and recommendation of these studies are summarized as the Interim Report and submitted to the Government for review and comment.

Phase III works : The outline designs will be developed to the stage of preliminary designs and the economic and financial analyses will also be conducted in full detail, taking into account the comments to be given on the Interim Report. The Draft Final Report will be then prepared, incorporating the comments on the report. The Final Report will be submitted to the Government at the end of this phase.

The Survey Team made preliminary analysis on the survey results and collected data, on the basis of the methodology and conception of the study introduced in the Inception Report. However, the duration to be devoted to each work item in the Inception Report is slightly changed according to the results of Phase I work.

Therefore, the Survey Team hereby prepared modified work schedule of subsequent phases and it is presented on next pages. Work items and their code numbers used in the Inception Report remain unchanged, and completed work items in the Phase I are erased in the schedule.

According to the schedule, main working durations and submission dates of reports are not changed, and summarized as follows.

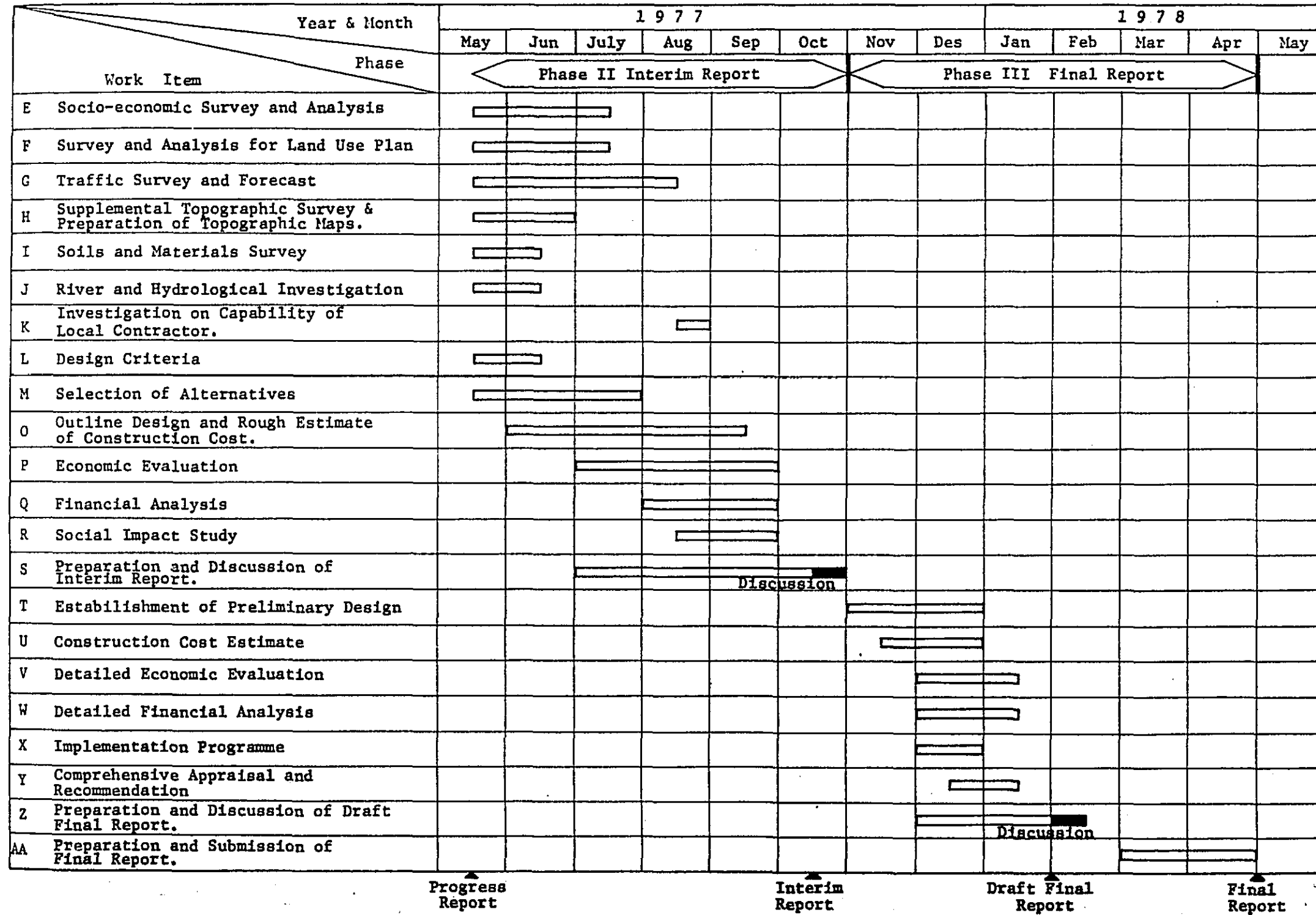
Phase II works : From May, 1977 up to October, 1977
Phase III works : From November 1977 up to April, 1978
Interim Report : Middle of October, 1977
Draft Final Report : at the end of January, 1978
Final Report : at the end of April, 1978.

JAKARTA RING ROAD FEASIBILITY STUDY

Fig. 5.1.

WORK SCHEDULE OF SUBSEQUENT PHASES

■: Work in Indonesia
□: Work in Japan



APPENDIX 1

SURVEY RECORDS

SURVEY RECORD

Month and Date	Activities
March	17 (Thr) First Teams Arrival (Tokyo - Jakarta) Mr. Chiba, Mr. Shibuya, Mr. Yamakama and Mr. Ogawa.
	18 (Fri) Visit to Bina Marga
	19 (Sat) Staff Meeting.
	20 (Sun) Holiday.
	21 (Mon) Meeting with Bina Marga
	22 (Tue) Discussion with Bina Marga, Project Officer
	23 (Wen) Discussion with Bina Marga, Project Officer
	24 (Thr) Discussion with Bina Marga, Project Officer. Second Team and Supervisory Committees Arrival (Tokyo - Jakarta) Mr. Nakada, Mr. Kajiura, Mr. Yomogida, Mr. Yamaguchi, Mr. Endo, Mr. Itoh, Mr. Matsumura, Mr. Sakai and Mr. Iitoyo.
	25 (Fri) Visit to Bina Marga
	26 (Sat) Meeting with Director General of Bina Marga Meeting with Bina Marga.
	27 (Sun) Holiday.
	28 (Mon) General Reconnaissance as a team.
	29 (Tue) Discussion with DKI. General Reconnaissance of Engineer Group and Economist Group.
	30 (Wen) Field Reconnaissance.
	31 (Thr) Field Reconnaissance.

Month and Date		Activities
April	1 (Fri.)	Meeting with Bina Marga Discussion with Director General of Bina Marga.
	2 (Sat.)	Preliminary Soil Sampling Team Leader and Supervisory Committees Departure (Jakarta - Tokyo) Mr. Nakada, Mr. Kajjura, Mr. Ogawa and Mr. Chiba.
	3 (Sun.)	Holiday.
	4 (Mon.)	Data Collection in Bandung.
	5 (Tue.)	Data Collection in Bandung.
	6 (Wen.)	Data Collection in Bandung.
	7 (Thr.)	Staff Meeting.
	8 (Fri.)	National Holiday.
	9 (Sat.)	Discussion with Jagorawi Highway Project Office.
	10 (Sun.)	Holiday.
	11 (Mon.)	Field Survey (Highway Engineers and Structure Engineer).
	12 (Tue.)	Field Survey (Highway Engineers and Structure Engineer). Quarry Site Survey.
	13 (Wen.)	Field Survey. Traffic Count Survey Quarry Site Survey.
	14 (Thr.)	Traffic Count Survey Travel Speed Survey Quarry Site Survey Determination of Rotary Boring Site.

Month and Date	Activities
15 (Fri.)	Traffic Count Survey Travel Speed Survey Discussion with Bina Marga
16 (Sat.)	Staff Meeting
17 (Sun.)	Holiday.
18 (Mon.)	Discussion with DKI. Execution of Rotary Boring
19 (Tue.)	Traffic Count Survey Travel Speed Survey Execution of Rotary Boring.
20 (Wen.)	Execution of Rotary Boring.
21 (Thr.)	First Teams Departure (Jakarta - Tokyo) Mr. Itoh and Mr. Endo.
22 (Fri.)	Staff meeting on Progress Report
23 (Sat.)	Discussion with DKI
24 (Sun.)	Holiday
25 (Mon.)	Drafting of Progress Report.
26 (Tue.)	Drafting of Progress Report
27 (Wen.)	Discussion with Bina Marga, Project Officer.
28 (Thr.)	Traffic Congestion Survey
29 (Fri.)	Staff Meeting
30 (Sat.)	Discussion with Bina Marga on Draft Progress Report.

Month and Date		Activities
May	1 (Sun.)	Holiday
	2 (Mon.)	Second Team's Departure (Jakarta-Tokyo) Mr. Yomogida, Mr. Yamaguchi, Mr. Matsumura, Mr. Sakai and Mr. Iitoyo.
	3 (Tue.)	Supervisory Committee and Team Leader's Arrival (Tokyo - Jakarta). Mr. Miyazaki, Mr. Nakada, Mr. Egashira, Mr. Ogawa and Mr. Chiba.
	4 (Wed.)	Visit to Bina Marga and Japanese Embassy Site Reconnaissance.
	5 (Thr.)	Team meeting on Progress Report Site Reconnaissance.
	6 (Fri.)	Meeting with Bina Marga
	7 (Sat.)	Meeting with Japanese Embassy.
	8 (Sun.)	Holiday.
	9 (Mon.)	Submission of Progress Report
	10 (Tue.)	Meeting with Bina Marga
	11 (Wed.)	Visit to Bina Marga and Japanese Embassy
	12 (Thr.)	Supervisory Committee and Survey Team's Departure (Jakarta - Tokyo). Mr. Miyazaki, Mr. Nakada, Mr. Egashira, Mr. Ogawa, Mr. Chiba, Mr. Shibuya and Mr. Yamakawa.

APPENDIX 2

DATA AND REPORTS COLLECTED

LIST OF MAPS, DATA AND REPORTS COLLECTED

M A P S

No.	Title	Year	Source	Supplier	Remarks
A1	Topographical Map (Java) S=1/250,000 20 sheets, 1 set.	-	Dt.Geologi	-	(5/4)
A2	Topographical Map (West Java) S=1/50,000 50 sheets, 1set	-	Dt.Geologi	-	(5/4)
A3	Topographical Map (Jakarta) S=1/20,000 10 sheets, 1set	-	Dt.Geologi	-	(5/4)
A4	Topographical Map S = 1/5,000 15 sheets, 1set	-	D.K.I.	B/M	(28/3)
A5	Topographical Map S = 1/1000 133 sheets, 1set	-	D.K.I.	B/M	(28/3)
A6	Road Map S=1/50.000 1 sheet , 3 sets	1976	D.K.I.	D.K.I.	(26/3)
A7	Road Map S=1/250,000 1 sheet, 1 set	1976	B/M	B/M	(6/4)
A8	Highway Network Plan Map S=1/50,000 1 sheet, 3 sets	1976	D.K.I.	D.K.I.	(28/3)
A9	Engineering Geological Map of Jakarta-Bogor Area S=1/50,000 1 sheet, 1 set	1970	Dt.Geologi	-	(5/4)
A10	Geological Map S = 1/250,000 3 sheets, 1 set	-	Dt.Geologi	-	(5/4)

No.	Title	Year	Source	Supplier	Remarks
A11	Existing Land Use Map S = 1/20,000 1 set	-	D.K.I.	D.K.I.	*
A12	Existing Land Use Map S = 1/50,000 2 sets	-	D.K.I.	B/M	(28/3)
A13	Land Use Planning Map S = 1/20,000 2 sets	-	D.K.I.	D.K.I.	(28/3)
A14	Land Use Planning Map S = 1/50,000 2 sets	-	D.K.I.	D.K.I.	(28/3)
A15	Administrative Boundary Map S = 1/50,000	1977	D.K.I.	D.K.I.	(7/4)
A16	Aero - Photo S = 1/5,000. 40 sheets, 1 set	1975	D.K.I.	B/M	(28/3)
A17	Aero - Photo (copy) S = 1/5,000 18 sheets, 1 set	1975	D.K.I.	B/M	(28/3)
A18	Aero - Photo S=1/5,000 7 sheets.	1975	D.K.I.	B/M	(13/4)
A19	Aero - Photo S = 1/15,000 55 sheets, 1 set	1963	PENAS	B/M	(18/4)
A20	Administrative Map S = 1/50,000	1976	TNG.	TNG.	(14/4)
A21	DKI Central Core Area Plan Regulations (Color Photo) 5 sheets, 1 set	-	D.K.I.	D.K.I.	(18/4)
A22	Topographical Map S = 1/5.000 1 set.	-	D.K.I.	D.K.I.	(30/4)

No.	Title	Year	Source	Supplier	Remarks
A23	Topographical Map S = 1/1,000		D.K.I.	D.K.I.	(30/4)
A24	Development Plan along the Corridor S=1/20,000 2 sets.		D.K.I.	D.K.I.	(30/4)
A25	Aero-photo S=1/15,000 20 Sheets, 1 set.		PENAS	-	(29/4)
A26	Terminal Facilities 1977 location map in DKI. S =1/100,000 1 set.		D.K.I.	D.K.I.	(30/4)
A27	Jakarta Planning Atlas 1975 (Factory Location Map) S=1/50,000 2 sheets, 1 set.		D.K.I.	D.K.I.	(30/4)
A28	Lokasi Pusat-pusat Aktivitas S=1/50,000 1 sheet, 1 set.		D.K.I.	B/M	(28/3)
A29	Road Planning Map in DKI (with Planned lane numbers) S =1/100,000 1 sheet.		D.K.I.	D.K.I.	(28/4)

* Means data and reports collected by the reconnaissance team.

REPORTS AND DATA (ENGINEERING)

No.	Title	Year	Source	Supplier	Remarks
B1	Rainfall Data	1931-1960	-	B/M	(28/3)
B2	MASTERPLAN FOR DRAINAGE and FLOOD CONTROL of JAKARTA	Dec. 1973	DPUTL, Dt.Air	D.K.I.	(28/3) (River Data Intensity Duration Graph.)
B3	JAGORAWI HIGHWAY, SOILS and MATERIALS REPORT.	Mar. 1973	S.T. LOUIS	B/M	(28/3)
B4	LAPORAN PENYELIDIKAN TANAH PADA RENCANA PROYEK JAKARTA OUTER RING ROAD STA.1750-STA.13.375	-	S.T.	B/M	(28/3)
B5	LAPORAN PENYELIDIKAN TANAH PADA RENCANA PROYEK JAKARTA OUTER RING ROAD STA.14.050-STA.28.150	-	S.T.	B/M	(28/3)
B6	LAPORAN PENYELIDIKAN TANAH UNTUK JEMBATAN JEMBATAN PADA RENCANA JALAN JAKARTA OUTER RING ROAD BAGIAN TIMUR.	-	-	B/M	(28/3)
B7	LAPORAN PENYELIDIKAN JALAN UNTUK RENCANA JALAN JAKARTA OUTER RING ROAD BAGIAN TIMUR.	-	-	B/M	(28/3)
B8	LAPORAN PENYELIDIKAN TANAH UNTUK PROYEK OUTER RING ROAD JAKARTA.	Jan.1976	BIEC	B/M	(28/3)

No.	Title	Year	Source	Supplier	Remarks
B9	JAKARTA INTERNATIONAL AIRPORT STUDY VOLUME I & II.	Aug.'71	US.Agency for International Development.	D.K.I.	Soil Data (28/3)
B10	Report on Preliminary Soil Sampling, JAKARTA RING ROAD PROJECT	Apr.'77	P.T. SEECONS		Sampling was done by the Team (7/4)
B11	JAKARTA OUTER RING ROAD (design of Highway S=1/1,000) West Southern Part STA.0+000 - STA.31+604	1975	Dt.B/M	B/M	(26/3)
B12	JAKARTA OUTER RING ROAD (Cross Section) West Southern Part.	1975	Dt.B/M	B/M	(26/3)
B13	JAKARTA OUTER RING ROAD (Construction Plans) East Part Link Jagorawi - Cakung	1976	Dt.B/M	B/M	(26/3)
B14	JAKARTA OUTER RING ROAD (Cross Section) East Part Link Jagorawi - Cakung.	1976	Dt.B/M	B/M	(26/3)
B15	PROYEK JALAN - CILINCING - CAKUNG (Construction Drawings)	-	Dt.B/M	B/M	(31/3)
B16	Jakarta Bypass Highway (Construction Drawings)	1962	ROBERT W. LOWRY, INC	B/M	(31/3)
B17	JAGORAWI HIGHWAY (CONSTRUCTION PLANS) SECTION A (STA.10+992-30+000). SECTION B (STA.30+000-50+620).	-	Dt.B/M	B/M	(31/3)

No.	Title	Year	Source	Supplier	Remarks
B18	Jagorawi Highway Final Engineering Design Report Volume I & II	Aug.'73	Sverdrup Parcel Int'l. Inc.	B/M	*
B19	Standard Specification for Geometrics Design of Expressway and Freeway (Draft) No.13A.	1976	B/M	B/M	*
B20	Loading Specification for Highway Bridges No. 12	1970	Dt.B/M	B/M	(5/4)
B21	Loading Specification for Highway Bridge (Revised Draft)	Feb.'77	Dt.B/M	B/M	(5/4)
B22	Specifications and Standards for Reinforced Concrete Slab Highway Bridge.	1969	Dt.B/M	B/M	(1/4)
B23	JAKARTA OUTER RING ROAD PROJECT PAVEMENT DESIGN CALCULATION (Using B/M Method).	-	B/M	B/M	(28/3)
B24	CONSTRUCTION COST ESTIMATES (HIGHWAY - BETTERMENT PROGRAM).	1971	Lion Asso.	B/M	(5/4)
B25	Price Table of Construction Materials JAKARTA, BOGOR, CIANJUR, CIREBON AREA.	May, June 1976	-	B/M	* (26/3)
B26	BID ANALYSIS BANJAR - PANGANDARAN CILEUNYI-W/C JAVA BORDER W/c JAVA BORDER-WANGON - CILACAP.	-	-	B/M	(7/4)
B27	Jagorawi Recommended Sources of Material (Map S=1/250,000)	-	B/M	B/M	(5/4)
B28	Construction Material Source (Cileunyi-Nagreggo) (Local Map).	-	-	B/M	(5/4)

No.	T i t l e	Year	Source	Supplier	Remarks
B29	Standard Drawings of RC Highway Bridge	-	Dt. B/M	B/M	(16/4)
B30	JAKARTA-WEST JAVA TOLLWAY SYSTEM FEASIBILITY STUDY JAKARTA-CIKAMPEK HIGHWAY DRAWINGS.	1975	Dt. B/M	B/M	(16/4)
B31	Contractor Evaluation Data.	1976	B/M	B/M	(23/4)
B32	Railway Construction Gauge.	1977	PJKA	PJKA	(6/4)
B33	Land Acquisition Cost. data in DKI	Dec. '76	D.K.I.	D.K.I.	(30/4)
B34	Construction Unit Price of main Construction Pay Items (Jagorawi).	1977	B/M	B/M	(8/4)
B35	Construction Unit Cost in Jakarta.	Dec'76			*

REPORT AND DATA
(TRAFFIC, ECONOMICS & LAND USE)

No.	T i t l e	Year	Source	Supplier	Remarks
C1	Jakarta-West Java Tollway System Feasibility Study (Final Report:Part A)	Oct.'76	B/M	B/M	*
C2	Jakarta-West Java Tollway System Feasibility Study. (Draft Final Report) Part A:VOL.I,II,III & Summary.	Jan.'76	B/M	B/M	*
C3	Jakarta Metropolitan Area Transportation Study Report & Drawings.	Apr.'75	-	B/M	*
C4	JMATS Technical Report. No. 3.	-	-	B/M	*
C5	Program Lima Tahunan Jaringan Jalan di Indonesia (Buk 1,2 &3)	-	B/M	B/M	*
C6	Some Land Use Aspect of DKI Jakarta Metropolitan in relation to the tollway system plan.	-	B/M	B/M	*
C7	Rencana Peruntukan Wilayah (Map)	-	-	B/M	*
C8	The Masterplan of Jakarta 1965 - 1985	1969	DKI	DKI	(7/4)
C9	Land Use Plan of DKI (Map) S = 1/20,000	1976	DKI	DKI	* (26/3)

No.	Title	Year	Source	Supplier	Remarks
C10	JABOTABEK REPORTS	-	Dt.Cipta Karya.	B/M	(26/3)
1.	A planning approach of its absorption capacity for new settlements within the Jakarta Metropolitan region. (English Report)				
2.	Kumpulan Tanggapan dan Saran mengenai rencana (plan for Jabotabek) (Indonesia Report).	1974			
3.	Pedoman Pengembangan fisik daerah Jabotabek (Physical development plan) (Indonesia Report).	-			
4.	Development Strategy for Pelita II.	Jan.'75			
5.	Pokok-Pokok Pengembangan Wilayah (Physical development plan 1974-1979)	Dec.'74			
6.	Petunjuk Pengarahan pengembangan (Summary Report) (Indonesia Report).	Feb.'75			
C11	Rencana Kota :		Dt.Cipta Karya.	B/M	(26/3)
1.	Bekasi (2)				
2.	Tangerang (1,2)				
3.	Cikarang (1,2)				
4.	D e p o k (1)				
5.	Cibinong (1,2)				

No.	T i t l e	Year	Source	Supplier	Remarks
C12	Traffic Count Data (39 points) in DKI Area	1976	DKI	B/M	(26/3)
C13	SPA - A shortest path algorism.	-	B/M	B/M	*
C14	Alloc Hoeristic solutions to multi - facility location pro blems on a graph.	-	B/M	B/M	*
C15	Training Program for Public Highway Corpo- ration.	1976	B/M	B/M	*
C16	Lalu Lintas Jalan (Law and regulations of road traffic).	-	-	B/M	*
C17	Lalu Lintas dan Angkut an.	1965	-	B/M	*
C18	Pembinaan Umpan Tekno logi Bidang Ke Bina Marga.	1975	-	B/M	*
C19	OD Matrices 1972 in West Java. (Passenger and Cargo)	1972	B/M	B/M	(21/3)
C20	Land Use Study Drawings	1976	B/M	B/M	(28/3)
C21	Tanjung Priok Masterplan Report	1975	Sea Comm.	DKI	(14/4)
C22	Vehicle Operating Cost Data.	1976	B/M	B/M	(16/4)
C23	Rencana Kota Bogor (1,2), Bekasi (1), Depok (2).		Cipta Karya	Cipta Karya	(13/4)

No.	T i t l e	Year	Source	Supplier	Remarks
C24	Socio-Economic Statistics	1969-1976	C,B,S,	C,B,S,	(19/4)
C25	Other Statistics	-	C,B,S,	C,B,S,	(19/4)
C26	Trans Java Highway F/S Final Report (Vol. I & II)	1971	B/M	B/M	(13/4)
C27	Traffic Count Data	1971-1975	B/M	B/M	(28/4)
C28	JMATS Data	1972	JMATS	B/M	(30/4)

APPENDIX 3

PARTICIPATED PERSONNEL

PARTICIPATED PERSONNEL

THE JAPANESE GOVERNMENT SUPERVISORY COMMITTEE

- Mr. S. MIYAZAKI (Chairman) - Director of Tollway Div. Ministry of Construction.
- Mr. T. NAKADA - Chief Planner, City Planning Div. Ministry of Construction.
- Mr. S. KAMIJO - Special Grade Engineer Regional Highway Div. Ministry of Construction.
- Mr. H. ARAKI - Sub-Director of Urban Highway Div. Ministry of Construction.
- Mr. S. YOKOUCHI - Sub-Director of Highway Administrative Div. Ministry of Construction.
- Mr. T. SAKAI - Sub-Director of Tollway Div. Ministry of Construction.
- Mr. Y. KAJIURA - Traffic Control Div. Tokyo Metropolitan Expressway Corp.
- Mr. Y. EGASHIRA - Senior Highway Engineer, Hanshin Expressway Corp.

THE INDONESIAN GOVERNMENTAL PERSONNEL

Dr. Ir. POERNOMOSIDI HADJISAROSA - Director General
Mr. SURYATIN - Director of Highway Planning
Mr. DJUNED DJOHARI
Mr. PANDJAITAN (Project Officer)
Mr. WIYOTO WIYONO
Mr. SUNARYO
Mr. RISMAN MARIS - D.P.M.J.
Mr. WAHYU ADJIE - D.P.M.J.
Mr. SUDARMANTO DARMONEGORO - Soil Institute
Mr. PURWADI - BIPRAN
Mr. SUNARDI - BIPRAN
Mr. ABEROR DAHWAN - BIPRAN
Mr. MOH ANAS ALY - BIPRAN

D . K . I .

Mr. KANDAR	-	D.T.K.
Mr. WISNU MURTI	-	D.T.K.
Mr. EDIWAN SUKIMAN	-	D.T.K.
Mr. SRI UNTARI	-	D.T.K.
Mr. DJATNIKA	-	D.T.K.
Mr. ISMAIL ZUBIR	-	D.T.K.
Mr. ANDJAT D. LAMELY	-	D.T.K.
Mr. PRIYONO M.	-	D.T.K.
Mr. ARI MUCHSIA	-	D.T.K.

CIPTA KARYA

Mr. WIDARBO RUSLAN - Tata Kota

D.P.U.

Mr. Drs. PUNTA R. BE. - D.P.U.

Mr. DJUWENI - D.P.U.

Mr. SUHARTO - D.P.U.

DLIAJR - DKI

Mr. SUWARTO

BAPPEDA - JAB

Mr. SUKANDA MARGAPERMANA

P.J.K.A.

Mr. SANJOJO - Chief Planner

DIR. JEN. GEOLOGI

Mr. SUHARTO.

JICA SURVEY TEAM

Mr. H. CHIBA. (Team Leader)
Mr. M. SHIBUYA (Senior Highway Engineer/Deputy Team Leader).
Mr. S. YOMOGIDA (Highway Engineer)
Mr. H. YAMAGUCHI (Highway Engineer)
Mr. H. ENDO (Structural Engineer).
Mr. S. ITOH (Soil & Material Engineer)
Mr. N. YAMAKAWA (Transportation Planner/Economist)
Mr. T. MATSUMURA (Traffic Engineer)
Mr. H. SAKAI (Regional Planner)
Mr. T. IITOYO (Construction Planning Specialist)
Mr. OGAWA (Coordinator)

INDONESIAN COUNTERPARTS FROM BINA MARGA

Mr. WIHARSO (Highway Engineer)
Mr. BASKI SETIAWAN (Economist)
Mr. BUDISANTOSO (Traffic Engineer/Land Use Planner)
Mr. BHUDJONO (Soil Engineer)

APPENDIX 4

MINUTES OF MEETING

FEASIBILITY STUDY OF JAKARTA RING ROAD PROJECT

MINUTES OF MEETING

Date: March 26, 1977 (10:00 ~ 12:00)
Subject: Discussion on Inception Report and Preparatory Works of the Survey Team
Attendants: BINA MARGA JICA SURVEY TEAM

Mr. Pandjaitan	Mr. T. Nakata
Mr. Wiharso	Mr. Y. Kajiura
Mr. Budi Santoso	Mr. H. Chiba
Mr. Bhudjono	Mr. M. Shibuya
<u>DKI JAKARTA</u>	Mr. N. Yamakawa
Mr. Kandar Tisnawinata	Mr. H. Sakai
Mr. Ediwan Sukiman	Mr. T. Matsumura
Mr. Prijono Maruto	Mr. E. Endo
	Mr. H. Yamaguchi
	Mr. S. Yomogido
	Mr. S. Ito
	Mr. T. Iitoyo
	Mr. T. Ogawa

The meeting was held between Bina Marga and JICA Survey Team at 10:00 on March 26, 1977 at Bina Marga's meeting Room.

In this meeting, three officials of DKI Jakarta attended for the coordination of the preparatory works required for the Survey Team.

Mr. Pandjaitan, the project officer of Bina Marga, opened the meeting by expressing his thanks to all attendants with appreciation.

Mr. H. Chiba introduced all the member of the Survey Team and especially expressed his gratitude to the attendance of officials of DKI Jakarta.

1. Explanation and Discussion of Inception Report

Mr. H. Chiba, the leader of the Survey Team explained the main contents of Inception Report submitted to Bina Marga on March 21, 1977. Bina Marga asked that the objective of the Ring Road Project would be better to be incorporated in the report. The Survey Team replied that these developments would be presented in the following study reports such as Interim and Final Reports. Moreover, Bina Marga suggested that the time sequence would be shown on the Flow Chart of Fig. 3. The Survey Team explained the time sequence originally put together in the Flow Chart was regrettably mishandled in the course of printing.

2. Survey Schedule

The Survey Team explained the traffic and soil surveys to be conducted in the following weeks and requested to DKI Jakarta to issue the permission for these surveys. DKI Jakarta asked the detailed schedule of these surveys for that and the Survey Team promised to submit it on March 28, 1977.

3. Data Collection

Mr. Pandjaitan, reported the present status of collecting data as follows:

A. Maps and Aereophotos

Following maps are provided to the Survey Team.

1. Maps of S = 1/1000 (section A to B) 1 set
2. Maps of S = 1/5000 (section A to C, E to F) 1 set
3. Maps of S = 1/20,000 1 set
4. Maps of S = 1/50,000 1 set

Other maps on the list and aereophoton of S = 1/5000 will be provided in early next week.

B. Data and Reports

Most of the data and reports will be provided to the Survey Team by March 30 except such data as quarry and recent construction costs of Jagorawi Highway, which requires direct inquiry by Bina Marga staff concerned. As for the data from PJKA, Bina Marga would prepare the requesting letter and send it to PJKA in Bandung on March 28, 1977, so that the Survey Team would be able to collect necessary data between April 4 and 6 when the Survey Team visits Bandung. Concerning other necessary Data, Tollway Study Reports and back-up data, it has been agreed that Survey Team and the counterpart will discuss time to time to obtain necessary data from those who concerned during the survey period.

As for Car ownership data, JMATS data will be used.

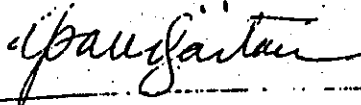
New International Airport F/S Report, Tg. Priok Development Report, Land use master plan Report and so on will be provided from DKI on March 28, 1977.

4. Execution Procedure of Land Use Study

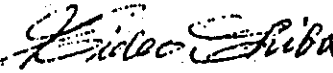
The Survey Team explained the basic procedure of the land use study in the feasibility study as follows:

- 1) The study will be done with certain limitation of the project area and its surrounding area;
- 2) Effects of construction of the ring road must be studied from the view point of land use;
- 3) Re-allocation of component will be one of the main items of the study, respecting DKI's Land Use Plan as a whole;
- 4) During the survey period of phase 1, the Study Team will discuss the development of land use plan with the Bina Marga staff and also with the DKI staff whenever deemed necessary.

The meeting was closed at 12:00.



A. Pandjaitan
Project Officer
for Bina Marga



H. Chiba
Team Leader
for JICA Survey Team

FEASIBILITY STUDY OF JAKARTA RING ROAD PROJECT

MINUTES OF MEETING

Date: April 1, 1977 (8:00 - 8:45)
Subject: Land Use Plan and Data Collection in Bandung

<u>Attendants:</u>	<u>BINA MARGA</u>	<u>JICA SURVEY TEAM</u>
	Mr. Pandjaitan	Mr. T. Nakata
	Mr. Budi Santoso	Mr. Y. Kajiura
	Mr. Wiharso	Mr. H. Chiba
	Mr. Bhudjono	Mr. M. Shibuya
		Mr. N. Yamakawa
		Mr. T. Ogawa

The meeting was held between Bina Marga and JICA Survey Team at 8:00 on April 1, 1977 at Bina Marga's meeting room.

1. Land Use Study

The Survey Team explained to Bina Marga the guide line and plan of the working items of land use study which were discussed and agreed with Mr. Maris on March 29. The working item of land use study from now on are summarized as follows:

- A. Review of the reports available
 - 1. Distribution of future population
 - 2. Distribution of industry
 - 3. Distribution of activity centres
- B. Study on the project area
 - 1. Quarification survey/study on the area for land use component.
 - 2. Residential area and green reservation area's allocation.
 - 3. Industrial area's allocation.
 - 4. On cargo terminal, possibility and location's study.
 - 5. Traffic generation study.

The survey Team added that these studies would be conducted under certain limitations and some revisions would be made during the course of land use study.

Moreover, the Survey Team explained that the coordination with DKI staff on the land use plan would be made according to the progress of land use study conducted by Bina Marga and the Survey Team.

2. Data Collection in Bandung

Mr. Pandjaitan mentioned that Mr. Budi Santoso, Mr. Wiharso, Mr. Bhudjono and Mr. Muharyonto would accompany to the Survey Team during their activities in Bandung.

Moreover, he explained that the letter to PJKA and Geology would be prepared in today and suggested that the detailed schedule on the activities in Bandung would be discussed on April 2nd.

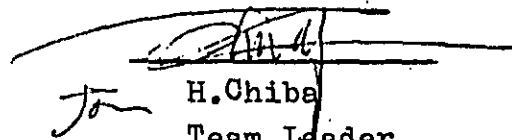
The Survey Team requested the provision of necessary topographic maps outside Jakarta area. Mr. Pandjaitan replied that Bina Marga would request these maps to Dinas Topographi Angkatan Daret in next week.

At the end of the meeting, Mr. Chiba expressed his deepest thanks to the kind cooperation given to the Survey Team and he promised to come back on May 5, 1977.

The meeting was closed at 8:45.



A. Pandjaitan
Project officer
for Bina Marga



H. Chiba
Team Leader
for JICA Survey Team

