

6.4.4 URBAN GREEN DEVELOPMENT

The present urbanization which is vigorously taking place in the Jakarta Metropolitan Area is having a big influence upon the natural environment. Sufficient planning policies should be examined and implemented from now on against the dangers of environmental deterioration by the progress of unlimited urban development toward the year 2005 and thereafter.

Among various merits which green creates, the ARSDS team attaches importance upon the natural environmental merits, recreational functions, and controlling power of urban configuration, and considers thereby that the urban green development in the Jakarta Metropolitan Area should be conducted according to the following guidelines:

- Provision of green preservation zones along rivers to prevent pollution of the water
- Provision of green open spaces as buffer zones around industrial areas, airports, along highways, etc.
- Provision of sufficient green open spaces, from neighborhood and district parks to the town fields and town parks with recreational purposes, in line with the local planning of RBWK (Rencana Bagian Wilayah Kota 2005)
- Provision of sufficient space on streets for sidewalks and street-side trees to protect the pedestrians from strong sunlight and to provide amenity
- Provision of a green preservation zone as a green belt outside the Jakarta Metropolitan Area of a 30 km radius

The ARSDS team proposes to provide a town field between Jakarta and Tangerang for the following purposes:

- Provision of recreational landuse
Green space with recreational facilities such as parks, sports grounds, etc., should be developed following the public purpose as much as possible
- Promotion of identical development of Tangerang on the other hand, the ARSDS team considers the provision of a big green open space between Bekasi and Jakarta as unrealistic, because the distance between the New East Center and Bekasi is relatively short and housing developments are already in progress in this area. The ARSDS team considers that dynamic interaction among the two should be promoted instead

The development form of this town field is thereby considered as follows:

- The existing farmland and forests should be preserved
- The existing village settlement should be accepted and preserved
- Except for previously accepted registrations for housing developments, new applications for developments should be restrained and the town field should be kept with the lowest possible density

CHAPTER

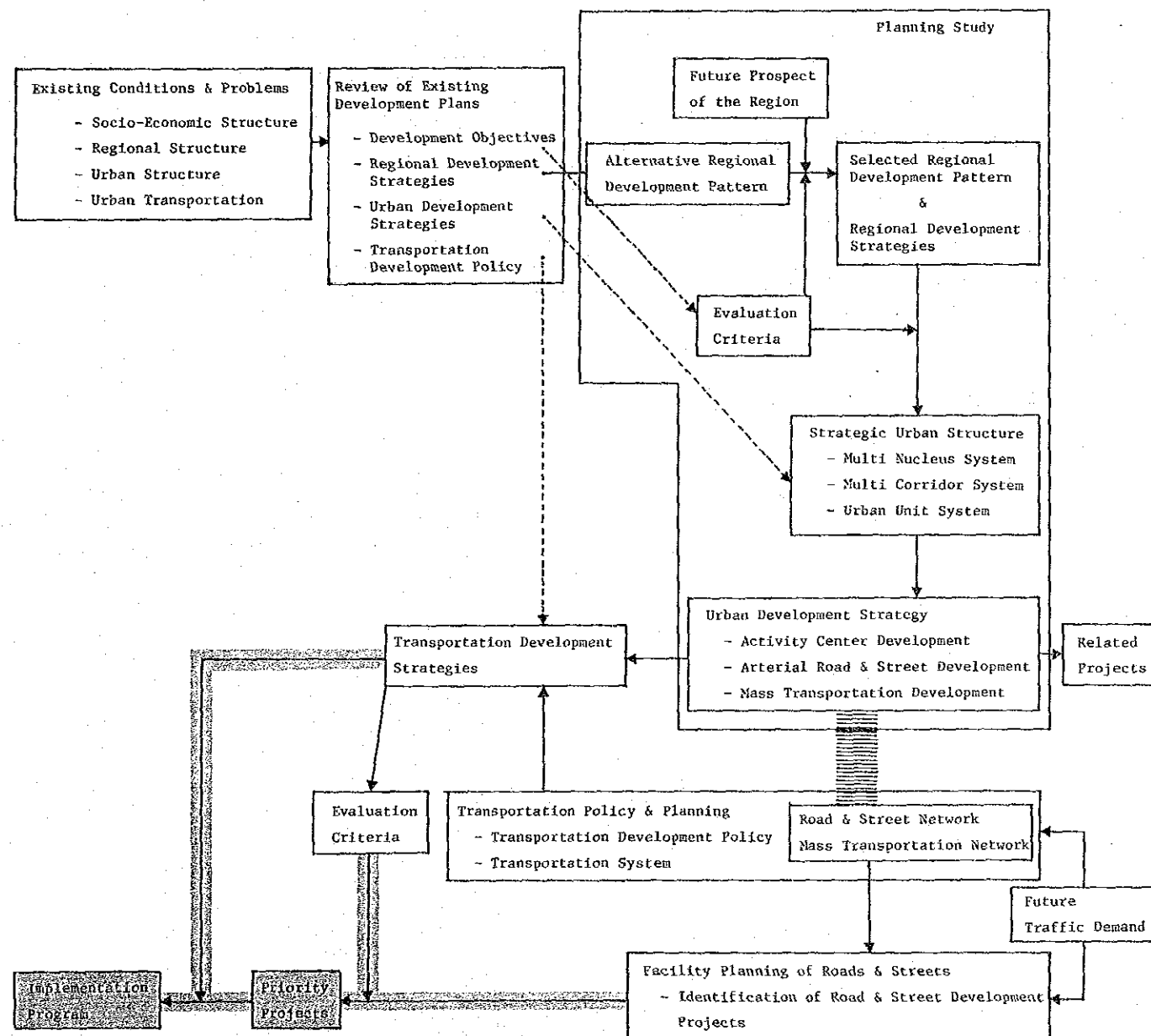
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PRIORITY PROJECTS AND IMPLEMENTATION PROGRAM



In this chapter priority projects of arterial road and street development will be selected among the potential projects identified through the road and street facility planning described in Chapter 6. Then the implementation program of those priority projects will be recommended, based on the transportation development strategies recommended in Chapter 4. Consequently, the important actions in the next five-year period will be clarified.

The minimum amount of required investment for the Medium/Mass Transportation Corridor (busway at the initial stage) and arterial roads/streets is the same as that for the freeway project for changing the existing urban structure to the targeted urban structure in order to solve the future crucial urban problems concerning transportation. Moreover, the immediate actions, such as review study of the existing plans and feasibility studies for fixing the location of transportation, need to be taken because later provision of major transportation infrastructure will impose high expenses to the government and more losses to the community along the location; therefore, it becomes more difficult to realize the required major facilities.



7.2 BUDGETARY CONSTRAINTS

7.2.1 BUDGETARY SYSTEM AND FUND FLOW FOR ROAD DEVELOPMENT

GENERAL

The Government of Indonesia has been taking a "Dynamic and Balanced Budget" policy. This policy has been attained by the Government's efforts, and foreign aid plays an important role accounting for about 20% of the total Government receipt. Fund sources of the road development are mainly the Central Government, including foreign project/program aids, Provincial Governments and Kabupaten Governments. A general fund flow for the road development is introduced in Fig. 7.2.1.

FUNDS FROM CENTRAL GOVERNMENT

The Government receipt is comprised of a domestic revenue and a development receipt. The domestic revenue consists of an oil/gas revenue and a non-oil/gas revenue, which are mostly tax revenues, and the development receipt consists of project aids and program aids. The Government expenditure is divided into a routine expenditure and a development expenditure which includes "Departments/Institutions", "Regional Development" and "Project Aids". The fund flow of the Central Government budget for road development is summarized in Fig. 7.2.2.

FUNDS FROM DKI JAKARTA GOVERNMENT

The Provincial Governments revenue consists of a routine revenue and a development revenue. The routine revenue is comprised of Central Government grants to Provincial Governments, and taxes/charges collected by the Provincial Government. The share of the central grant to this routine revenue was about 30-35% in the early 1980's in DKI Jakarta. The remaining 65-70% was covered with local taxes and charges at almost even proportions. Motor car transfer duties, motorized vehicle taxes, entertainment/recreation taxes, restaurant/hotel taxes are major components accounting for 42%, 30%, 10% and 14% of the total local taxes in 1983/84.

The development receipt consists of the subsidy from the Central Government (Central grants of Inpres program and Ipeda land use taxes payable mainly to second level authorities); and the local government revenue (the balance brought forward from the previous year and current local development funds).

In the fiscal year of 1983/84, the percentage shares of the subsidy, the previous year balance and the current development funds were 26%, 73% and 1% of the total development receipt. The unused balance of the previous years development funds has been increasing from 0% in 1977/78 to 73% in 1983/84. This is because shortages of administrative ability and manpower of the Provincial Government.

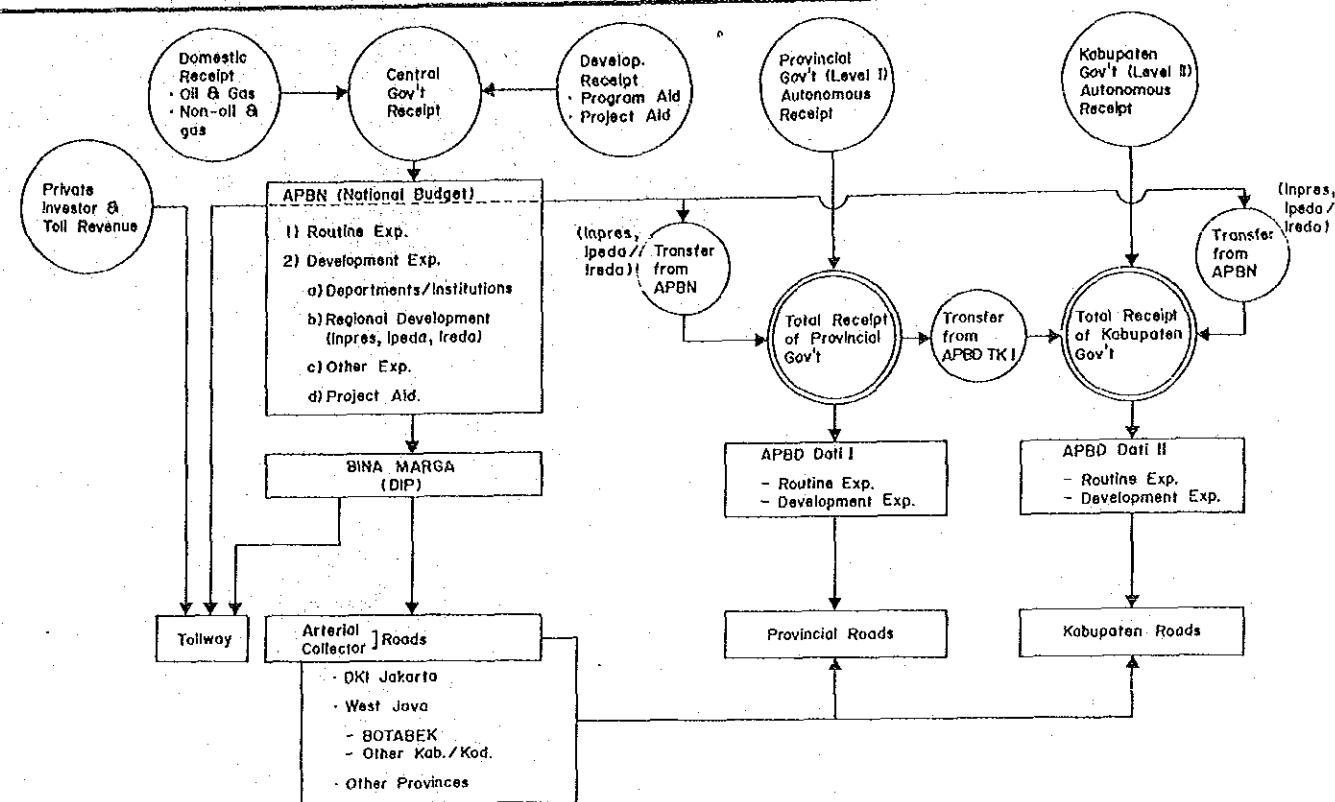
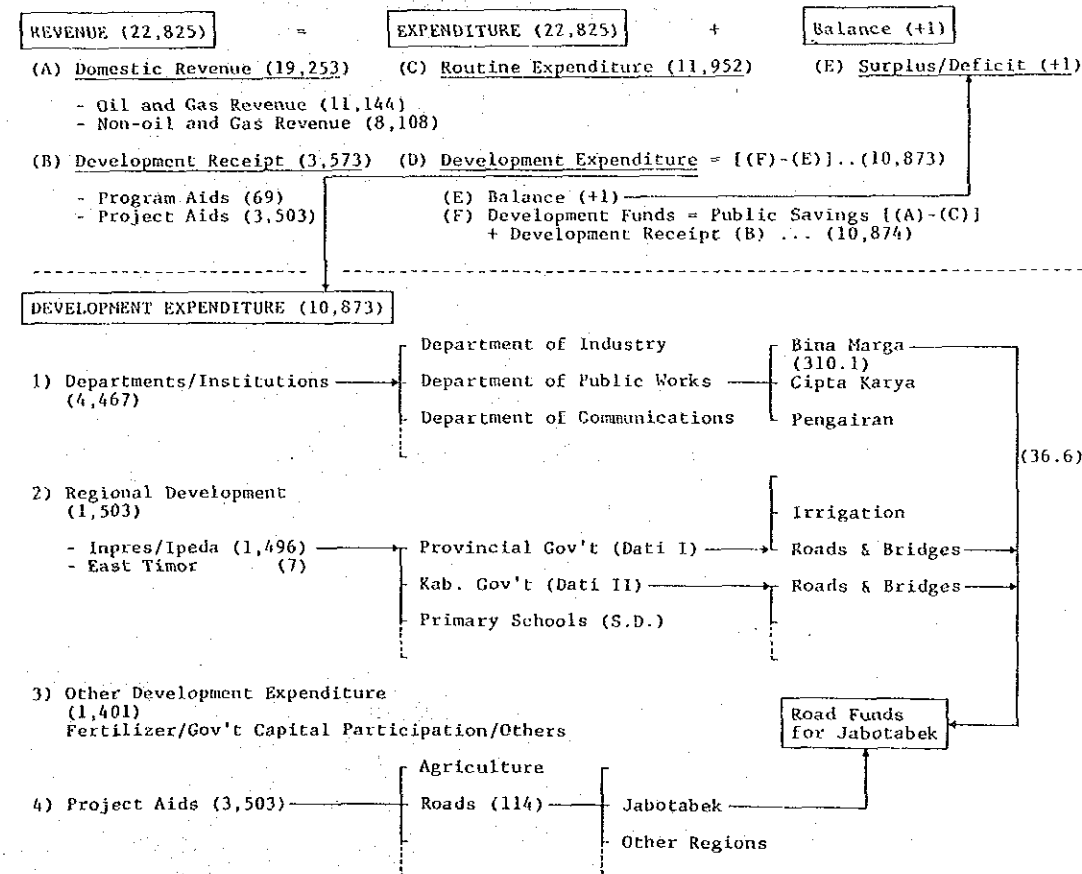


Fig. 7.2.1 GENERAL FUND FOR ROAD DEVELOPMENT IN INDONESIA



Note : Figure in () show actuals of 1985/86 in Billion Rupiah

Fig. 7.2.2 GENERAL FUND FOR ROAD DEVELOPMENT IN INDONESIA

7.2.2 FUTURE BUDGETARY CONSTRAINTS

ASSUMPTIONS

Mainly because of the drastic decline in oil and gas revenue, 10,430 billion Rupiah in 1984/85 at actual basis to 6,939 billion Rupiah in 1987/88 at budgetary basis, the development expenditure for both "Developments/Institutions" and "Regional Development (Inpres)" has been depressed from 6,543 billion Rupiah in 1984/85 at actual basis to 2,331 billion Rupiah in 1987/88 at budgetary basis.

Thus, the development expenditure is largely influenced by the oil and gas revenue which accounts for about 50% of the total revenue of the Central Government. Therefore, alternative scenarios on oil prices have been compared as follows:

- Basic Scenario:

OPEC can recover its function by a compromise between the radicals and the moderates. This scenario assumes, under this condition, that the oil price will fluctuate from about US\$ 15/barrel in early 1987 to US\$ 20/barrel in 1990. The demand for OPEC oil will increase from 17.7 million barrel/day in 1987 to 20 million barrel/day in 1990. In the long future the oil price will rise up to US\$ 25/barrel in 2000.

- High Price Scenario:

The radicals succeed in taking a leadership for reducing oil production and the oil price recovers from US\$ 18/barrel in 1987 to US\$ 25/barrel in 1990, and US\$ 30/barrel in 2000. The demand for OPEC oil in 1990 will stagnate at 18 million barrel/day. Therefore, difficulty will take place in allocating production shares to the member countries. This may again bring about a drastic drop in oil prices.

- Moderate Scenario:

This scenario goes between the previous two scenarios. Although the general assembly of OPEC agreed to fix the oil price at US\$ 18/barrel on December 18, 1986, it is assumed that the oil price will fluctuate between the Basic and High Price Scenarios.

Consequently, the Moderate Scenario was selected to estimate a future oil and gas revenue of the Central Government. Besides this, several assumptions were made for estimating future funds for road development in the Jabotabek Region as follows:

- 1) Balanced budget policy
- 2) GDP growth of Indonesia will be 4% p.a. during 1985-1990 and 5.5% p.a. during 1990-2005
- 3) The share of oil production allocated to Indonesia is the same as determined for January 1987
- 4) Dependency on oil/gas revenue is reduced and non-oil/gas revenue is encouraged
- 5) Share of foreign aids should be decreased in the total revenue
- 6) Regional allocation of road development budget and subsidies will not change so drastically as to go beyond the past trend
- 7) Unused balance of development funds will not emerge in the future

- 8) GRDP growth of DKI Jakarta will be 8.5% p.a. on the average up to the year 2005

The total project cost to complete the proposed arterial road network was estimated at about 2,300 billion Rupiah at 1986 prices. The total budget which will be prepared for arterial and collector roads in DKI Jakarta was estimated at about 1,220 billion Rupiah during the 20 years from Pelita V to Pelita VIII. In order to complete the planned network, another 20 years will be required.

ESTIMATED FUTURE BUDGET FOR ROAD DEVELOPMENT

Based on the assumptions described above, the future budget for arterial and collector road development in DKI Jakarta and its surrounding area was estimated as shown in Tables 7.2.1 and 7.2.2.

Table 7.2.1 ESTIMATED FUTURE BUDGET FOR ROAD DEVELOPMENT

(Unit: Million Rupiah)			
Fund Sources	1985/86**	1995/96	2005/06
1) Central Government (APBN) (Bina Marga DIP)	4,308	7,406	21,824
2) DKI Jakarta Government	9,862	34,512	55,223
- Inpres	8,292	20,293	30,812
- Autonomous (APBD)	1,570	14,219	24,411
Total: Domestic Budget	14,170	41,558	77,047
3) Foreign Aids	1,716	5,362	8,220
Grand Total	15,886	46,920	85,264

Note: * Including maintenance costs
** Actual

Table 7.2.2 BUDGET FOR FUTURE FIVE-YEAR PLANS FOR ARTERIAL AND COLLECTOR ROAD DEVELOPMENT

(Unit: Billion Rupiah)		
Five-Year Plan	Period	Budget
Pelita V	1989/1990 - 1993/1994	172.5
Pelita VI	1994/1995 - 1998/1999	254.5
Pelita VII	1999/2000 - 2003/2004	349.6
Pelita VIII	2004/2005 - 2008/2009	445.5
Total		1,222.1

Note: *Including maintenance costs

7.3 EVALUATION CRITERIA

7.3.1 GENERAL

Setting priorities for project selection was done to program project implementation. As described in the previous section, cost effectiveness or efficiency in a long perspective is basically important for project selection under a limited budget, even after some methods of solving budget constraints are found and introduced. In addition to project efficiency, two different sets of evaluation criteria were used for the selection of long and short term projects.

7.3.2 EVALUATION CRITERIA AND BASIC PRIORITIES FOR LONG TERM PROJECTS

EVALUATION CRITERIA

Evaluation criteria pursuing solutions for transportation problems alone are not suitable in the context that the Jakarta Metropolitan Area needs to be physically changed to a desirable urban structure in the future. In this situation, evaluation criteria to achieve the metropolitan development objectives should be used, and therefore, the following comprehensive evaluation fields were considered from the viewpoints of solving future urban problems, including transportation problems. The evaluation system adopted for long term project evaluation is based on the following principle: the projects that are evaluated as being the most efficient are those projects that combine the best possible results from as many fields as possible.

- a) Promote decentralization of job opportunities
- b) Encourage efficient urban land development
- c) Increase transportation efficiency

The actual evaluation was based on analysis techniques which rank projects using the detailed dimensions presented in Table 7.3.1.

Table 7.3.1 EVALUATION CRITERIA FOR LONG TERM PROJECT

Evaluation Criteria for Long Term Project and Detailed Dimension	Points
a) Decentralization of Job Opportunities	
1. Encouragement of New Sub Center Development	+ 4
2. Encouragement of Existing Sub Center Development	+ 3
3. Encouragement of New/Existing Secondary Center Development	+ 2
4. Encouragement of Metropolitan Activity Center Development	+ 2
b) Urban Land Supply	
1. Existing Development Direction in the Preferable Zones (Much Potential)	+ 4
2. Existing Development Direction in the Preferable Zones (Fair Potential)	+ 3
3. New Development Direction in the Preferable Zones	+ 2
4. Additional Development in the Existing Developed Areas	+ 1
c) Transportation Efficiency	
1. Direct Access to Central Area by Medium/Mass Transportation Mode (Much Demand)	+ 4
2. Direct Access to Central Area by Medium/Mass Transportation Mode (Fair Demand)	+ 3
3. Movement between TSZs (for Activity Centers)	+ 2
4. Access to main Activity Center in TSZ	+ 1

BASIC PRIORITIES FOR LONG TERM PROJECTS

Through the project evaluation procedures based on the criteria described above, the basic priorities for long term projects are recommended as follows:

- First Priority : Provision of street system within the east and west conurbation area
- Second Priority (1): Provision of direct access from the East and West Centers to the Central Area
- Second Priority (2): Provision of street system within the Tangerang Core City and the Bekasi Core City
- Third Priority (1): Provision of direct access from the Tangerang and Bekasi Core Cities to the Central Area
- Third Priority (2): Provision of street system within the southeast and southwest conurbation areas
- Fourth Priority (1): Provision of direct access from the southeast and southwest conurbation areas to the Central Area
- Fourth Priority (2): Provision of connection between activity centers except for the above

7.3.3 EVALUATION CRITERIA AND PRIORITY PROJECTS FOR SHORT TERM

EVALUATION CRITERIA

Short term projects are relatively small scale projects which aim to solve existing problems and which can be completed in a short term. The basic requirement for short term projects are to have been authorized by the current structure plan or local plan. To evaluate priorities of short term projects, the following evaluation criteria are recommended:

- a) Solve existing severe transportation problems
- b) Support east and west development in a long perspective

The projects which satisfy both of these criteria should be given priorities rather than those which meet only one criteria. The second criteria means that projects should be selected among the potential projects presented in Chapter 6.

PRIORITY PROJECTS FOR SHORT TERM

The projects which screened through the basic requirements for short term projects among the list of long term projects are evaluated using the criteria described above and the projects shown in Fig. 7.3.1 are recommended for the short term. The selected projects are existing problem-oriented, but are in line with the long perspective of east and west development.

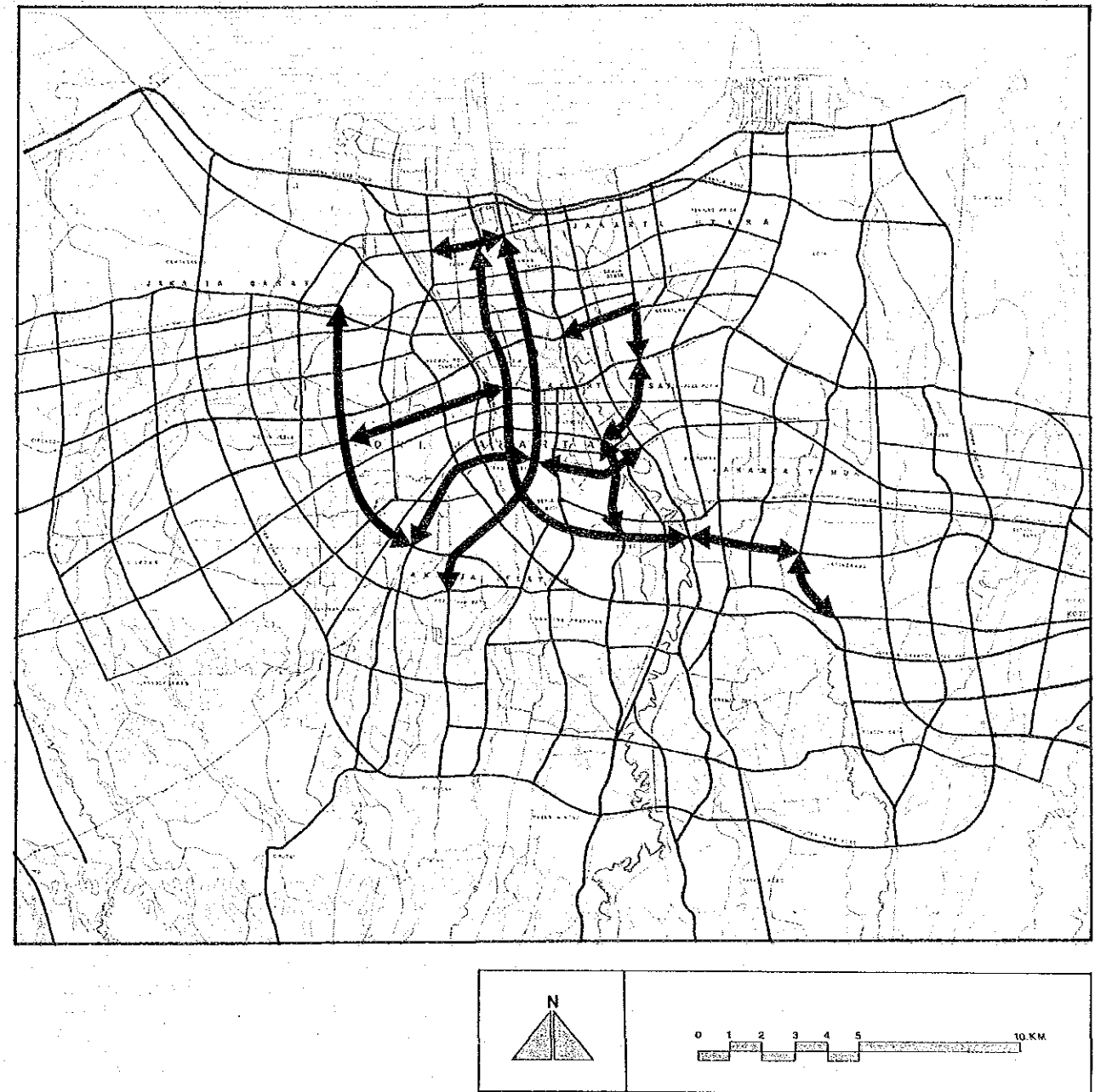


Fig. 7.3.1 PRIORITY PROJECTS FOR SHORT TERM

7.4 IMPLEMENTATION PROGRAMS

7.4.1 CLASSIFICATION OF PROGRAMS

The recommended implementation programs of the arterial road and street system development are classified by their objectives as follows:

- A) Medium/Mass Transportation Corridor Development Program is a long term program designed to connect activity centers to the Central Area by providing exclusive busways and arterial streets in a joint right-of-way.
- B) Major Arterial Street Development Program is a long term program designed to connect activity centers to the Central Area and/or to connect activity centers to each other.
- C) Arterial Street Development Program in the Newly Urbanizing Area is a long term program designed to support land supply for housing development around activity centers in the suburban areas.
- D) Present Traffic Problem Oriented Program is a short term program designed, from the viewpoint of the overall network, to solve the present traffic problems by providing proper road sections. This program includes the on-going projects and committed projects.
- E) East-West Connection Improvement Program in the Central Area is designed to increase the transportation capacity in the east-west direction by providing some street sections in addition to the existing streets.
- F) North-South Axis Strengthening Program in the Central Area is designed to support the activities in the Central Area by providing arterial streets in the north-south direction.
- G) Freeway Development Program is the on-going tollway projects consisting of the Jakarta Intra Urban Tollway, the Jakarta Harbor Road, the Outer Ring Road and the three regional tollways.

The first and second programs would play the important roles in establishing the major elements of the targeted urban structure. Therefore these should be emphasized the most among the above programs. The third program would play the supporting role of inducing the preferred urban development.

7.4.2 RECOMMENDED IMPLEMENTATION PROGRAMS

Using the evaluation criteria the priority projects were selected among the potential projects. Based on the transportation and urban development strategies, the recommended implementation programs were established from the selected priority projects and the implementation schedule was made in five-year periods. Tables 7.4.1 through 7.4.7 show the project lists by the implementation program. Fig. 1.4.1 shows the implementation schedule by project.

COST OF PROGRAMS

Table 7.4.8 summarizes the total project costs by program. This shows that the required amount of investment for the Mass Transportation Corridor (busway at the initial stage) and arterial roads/streets is almost the same as that for the on-going freeway projects. This is the minimum practical level of investment required for changing the existing urban structure to the targeted urban structure in order to solve the future crucial urban problems.

Table 7.4.8 COST OF PROGRAMS

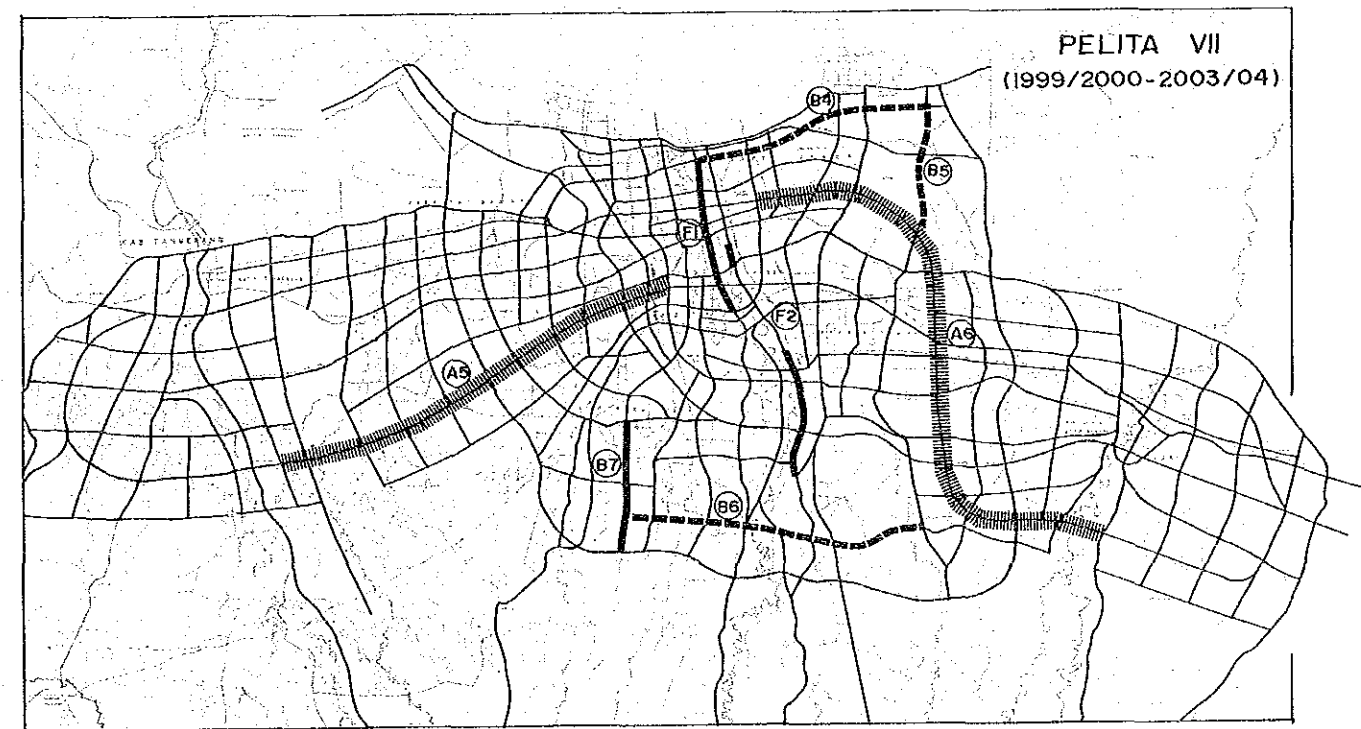
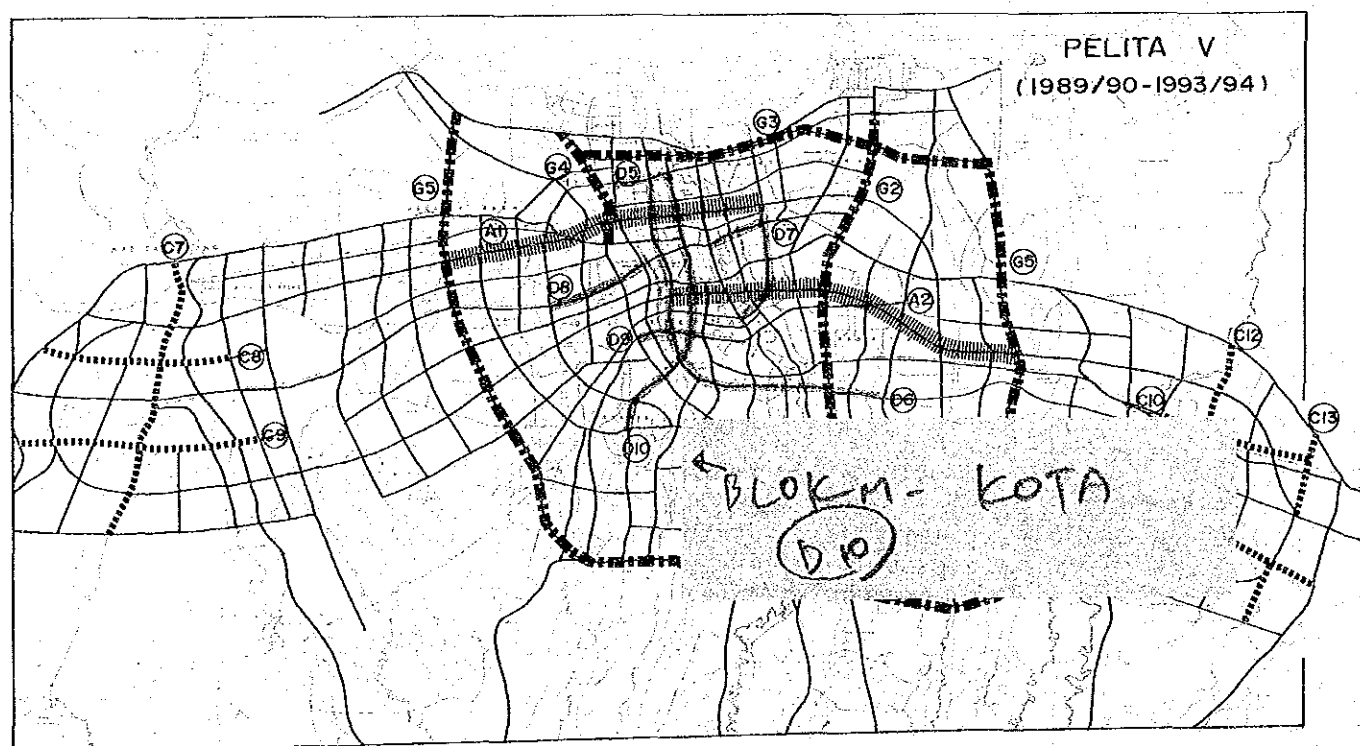
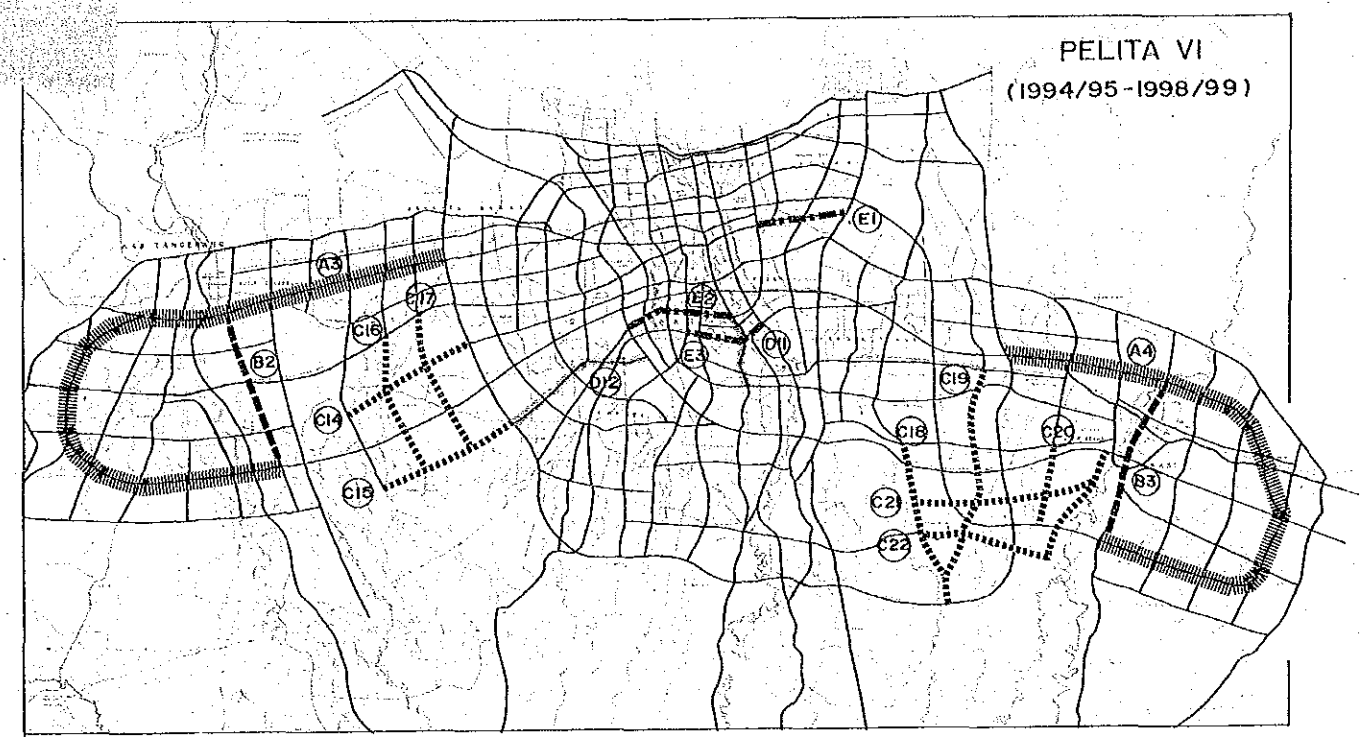
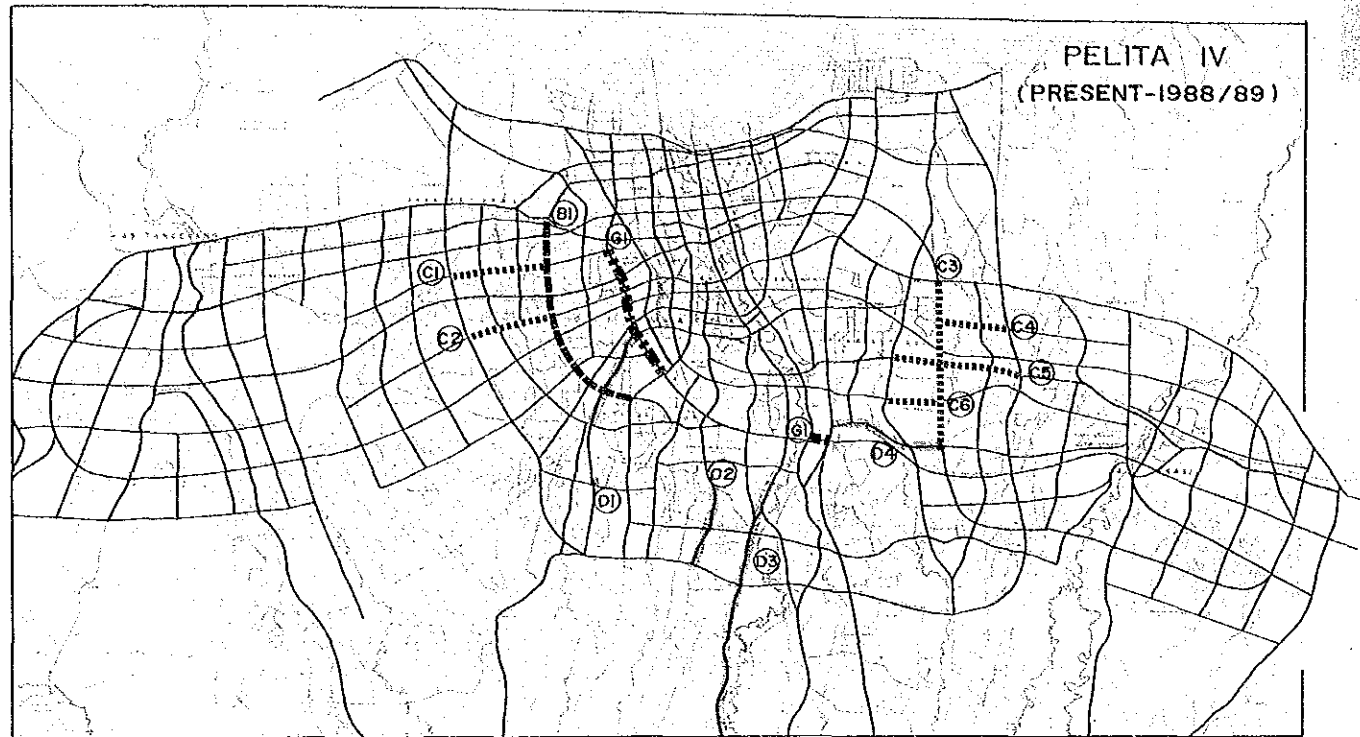
PROGRAM	ESTIMATED PROJECT (Million Rupiah)				
	PELITA IV	PELITA V	PELITA VI	PELITA VII	TOTAL
A) Mass Transportation Corridor Development Program	-	159,471	226,352	209,737	595,560
B) Major Arterial Street Development Program	63,342	-	44,827	132,788	240,957
C) Arterial Street Development Program in the Newly Urbanizing Area	113,855	94,486	110,073	-	318,414
D) Present Traffic Problem Oriented Program	37,959	274,307	42,188	-	354,454
E) East-West Connection Improvement Program	-	-	38,363	-	38,363
F) North-South Axis Strengthening Program	-	-	-	40,685	40,685
G) Freeway Development Program	164,500	1,500,589	-	-	1,665,089
Total	215,156 (379,656)	528,264 (2,028,853)	461,803 (461,803)	383,210 (383,210)	1,588,433 (3,253,522)

Note : Figures in () show total costs and those without () are exclusive of freeway costs





RECOMMENDED ACTIONS IN THE NEXT FIVE-YEAR PERIOD




Based on the recommended implementation programs, the following actions are required in the next five-year period:

- 1) Feasibility Study on the whole Medium/Mass Transportation Corridor development program in order to decide upon the alignment, and to start the development control to secure the right-of-way.
- 2) Feasibility Study on the provision of an exclusive busway or guideway system from Kota to Blok M in the north-south corridor of Jl. Thamrin, Jl. Sudirman, etc.
- 3) Central Area Development Planning Study including activity center development/redevelopment plan, parking plan, arterial roads/streets plan, etc., which are essential for the provision of direct access to the Central Area from activity centers in the suburban areas.
- 4) Feasibility Study on the present traffic problem oriented program.
- 5) Feasibility Study on the major arterial streets and primary roads.



LEGEND :

-  MASS TRANSPORTATION CORRIDOR DEVELOPMENT PROGRAM
-  MAJOR ARTERIAL STREET DEVELOPMENT PROGRAM
-  ARTERIAL STREET DEVELOPMENT PROGRAM IN THE NEWLY URBANIZING AREA
-  PRESENT TRAFFIC PROBLEM ORIENTED PROGRAM

-  EAST-WEST CONNECTION IMPROVEMENT PROGRAM IN THE CENTRAL AREA
-  NORTH-SOUTH AXIS STRENGTHENING PROGRAM IN THE CENTRAL AREA
-  FREEWAY DEVELOPMENT PROGRAM

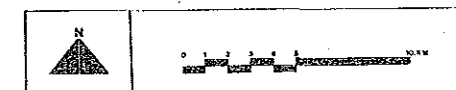
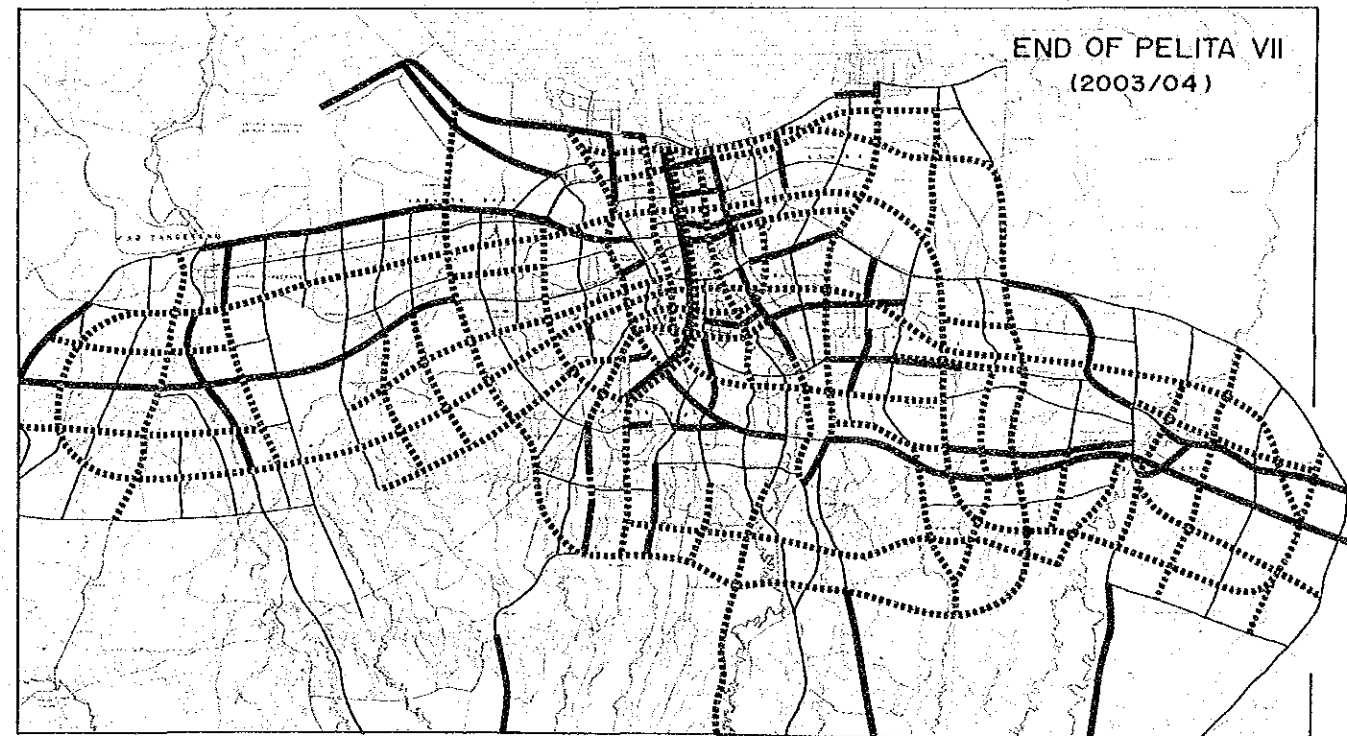
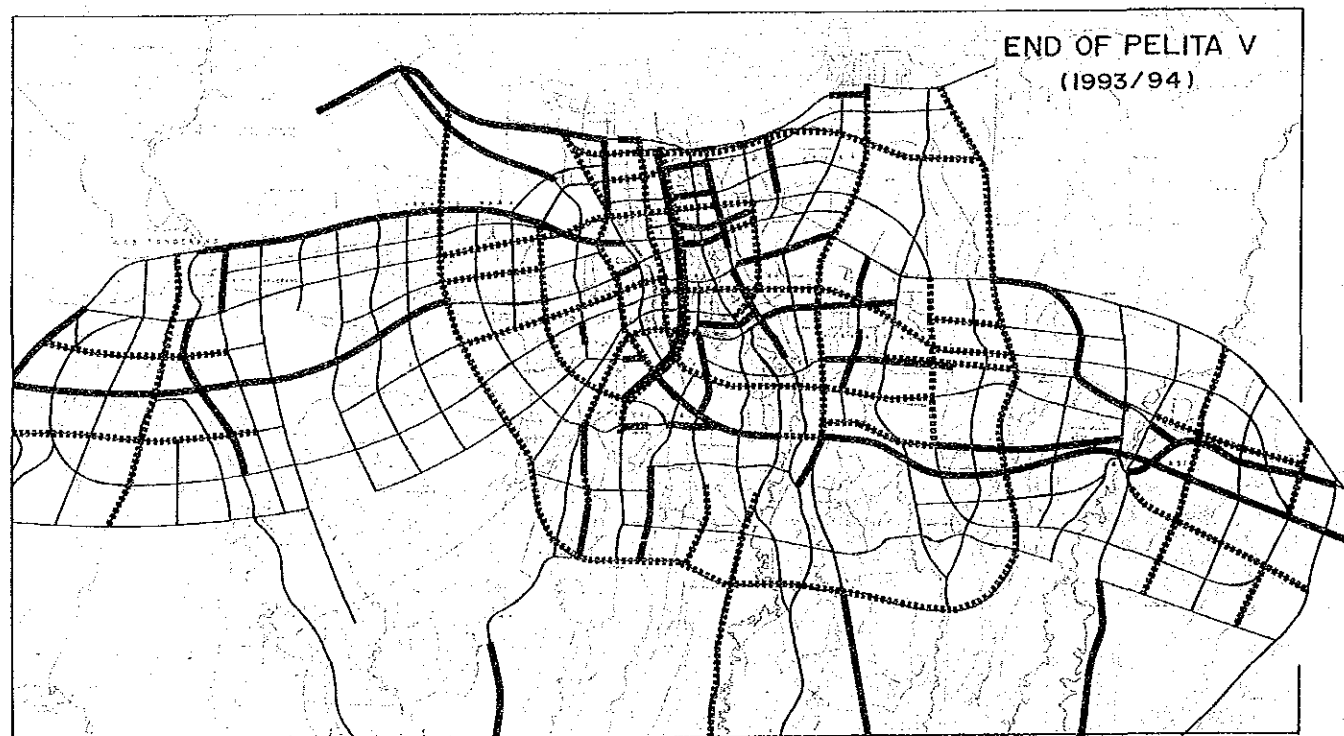
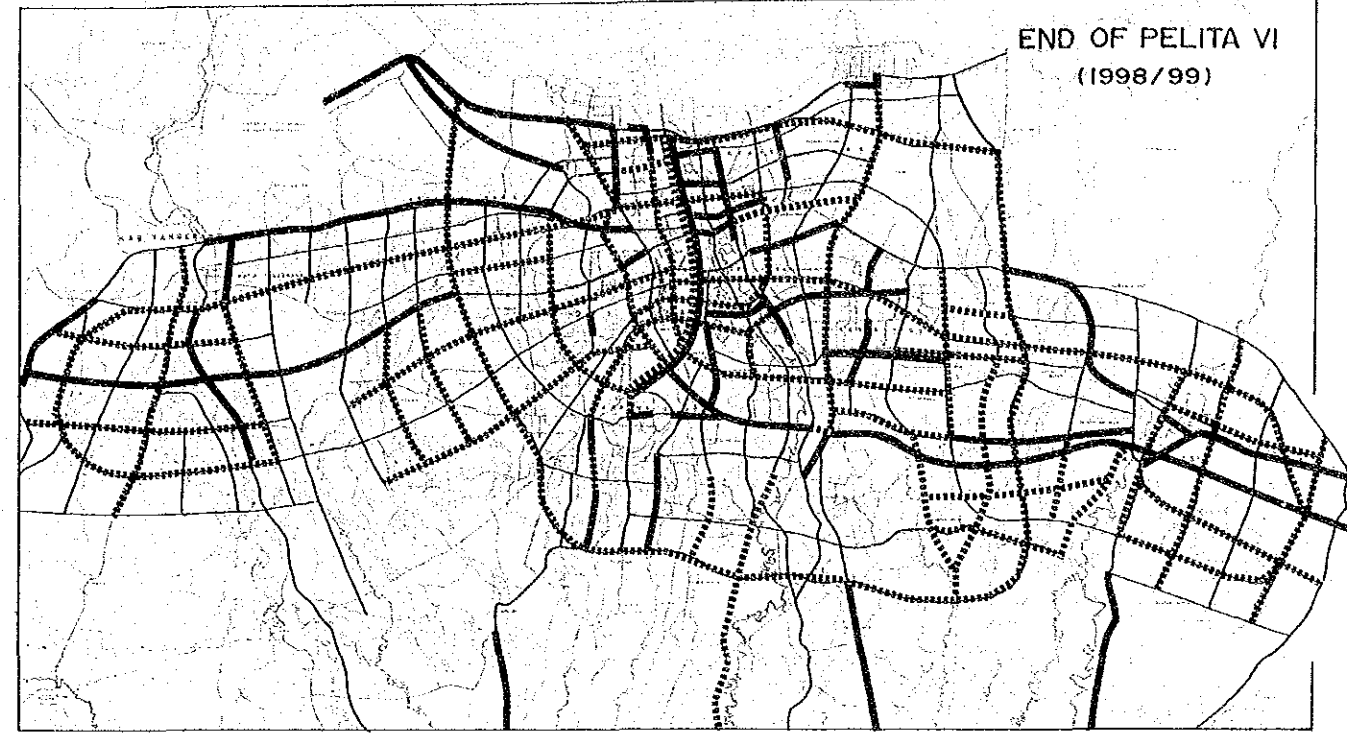
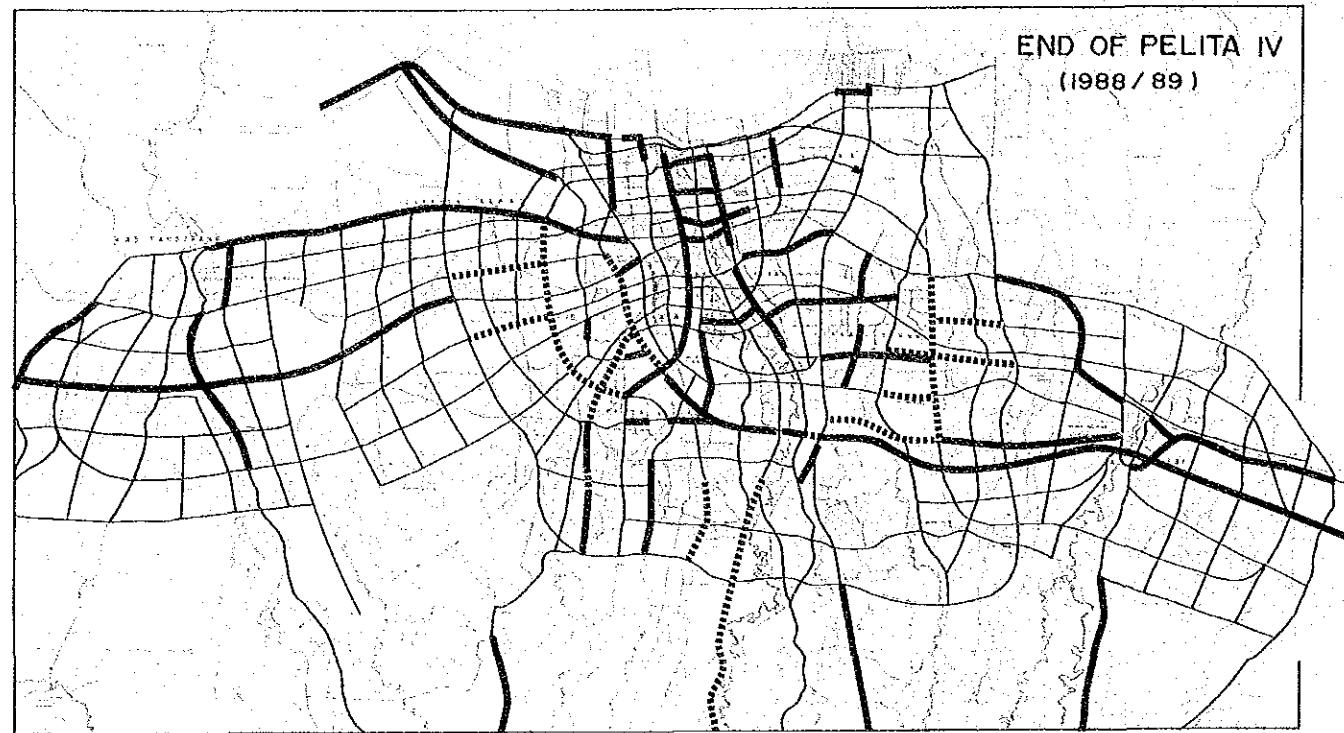


Fig. 7.4.1 RECOMMENDED IMPLEMENTATION PROGRAM



LEGEND

- EXISTING ROAD AND STREET AVAILABLE FOR 2005
- RECOMMENDED ROAD AND STREET BY DEVELOPMENT PROGRAM

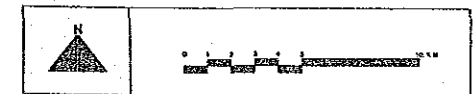


Fig. 7.4.2 IMPLEMENTATION PROGRESS OF RECOMMENDED PROGRAM

Table 7.4.1 PROJECT LIST OF MASS TRANSPORTATION CORRIDOR DEVELOPMENT PROGRAM

No	Name/Location	No. of Lane	Length (Km)	Implementation Period (Pelita)	Construction Cost (x 10 ⁶ Rp)
A1	Ex-Kemayoran – West Center	6	13.9	V	88,910
A2	Tn. Abang – West Center	6	16.0	V	70,561
A3	West Center – Tangerang Ring	6	30.3	VI	110,571
A4	East Center – Bekasi Ring	6	26.3	VI	115,781
A5	Tangerang South – Tanah Abang	6	19.3	VII	98,464
A6	Bekasi South – Ex-Kemayoran	6	27.0	VII	111,273
Total			192.8		595,560

Table 7.4.2 PROJECT LIST OF MAJOR ARTERIAL STREET DEVELOPMENT PROGRAM

No	Name/Location	No. of Lane	Length (Km)	Implementation Period (Pelita)	Construction Cost (x 10 ⁶ Rp)
B1	Pesing – Kebayoran Baru	6	9.6	IV	63,342
B2	Tangerang MTC Supplemental Link	4	9.4	VI	21,200
B3	Bekasi MTC Supplemental Link	4	7.1	VI	23,627
B4	Ancol – Cilincing	6	10.3	VII	53,097
B5	Cilincing – Pulo Gadung Lor	4	6.4	VII	23,707
B6	Pondok Gede – Fatmawati	4	15.9	VII	40,659
B7	Blok M – Cilandak	6	5.4	VII	15,325
Total					240,957

Table 7.4.3 PROJECT LIST OF ARTERIAL STREET DEVELOPMENT PROGRAM IN THE NEWLY URBANIZING AREA

No	Name/Location	No. of Lane	Length (Km)	Implementation Period (Pelita)	Construction Cost (x 10 ⁶ Rp)
C1	East Center Related Street (Kembangan – Kupuh 1)	4	6.7	IV	9,177
C2	East Center Related Street (Meruya Udik – Rawatiga Suku)	4	3.7	IV	9,867
C3	West Center Related Street (Pulo Gadung – Rawadomba)	4	7.2	IV	25,750
C4	West Center Related Street (Rawa Terate – Ujung Kranjang 1)	4	3.0	IV	33,555
C5	West Center Related Street (Klender – Bojong)	4	5.8	IV	23,289
C6	West Center Related Street (Gedung 2 – Cilungu 2)	4	2.3	IV	12,217
C7	Bugel 1 – Legok	4	6.5	V	12,207
C8	Jakarta – Kampung Kelapa 1	2	7.8	V	10,655
C9	Kontrakan – Donkel 2	2	9.7	V	11,811
C10	Bekasi – Tambun	2	7.0	V	11,151
C11	Rawapajang – Rawa Banteng	2	8.6	V	9,400
C12	Teluk Betung – Ps. Bondo	4	9.9	V	27,351
C13	Tambun – Tambun South	2	4.9	V	11,921
C14	Ciledug – Meruya Udik	2	5.9	VI	16,844
C15	Pondok Aren – Juraganan	2	6.3	VI	13,001
C16	Cipondoh – Cipadu	2	6.3	VI	8,595
C17	Kebaren – Bantenan	2	6.4	VI	8,529
C18	Kali Malang – Kp. Asem	4	7.3	VI	16,412
C19	Malaka 3 – Pondok Meloh	2	8.4	VI	12,695
C20	Kp. Gunung – Kebantenan 1	2	3.0	VI	12,073
C21	Rangkalanwsmgin – Pekayon 2	2	7.0	VI	13,941
C22	Pondok Gede – Pondok Bend	2	4.1	VI	7,983
Total					318,424

Table 7.4.4 PROJECT LIST FOR PRESENT TRAFFIC PROBLEM ORIENTED PROGRAM

No	Name/Location	No. of Lane	Length (Km)	Implementation Period (Pelita)	Construction Cost (x 10 ⁶ Rp)
	Tangeran – Pejompongan	4	5.2	IV	8,960
	Buncit Raya	6	4.6	IV	2,923
	– Depok	4-6	20.4	IV	23,291
	g	4	4.7	IV	2,785
	mbatan Dua	6	2.3	V	13,642
	oran – Cikini	4-6	14.6	V	14,988
	– Pondok Baru	6	1.6	V	77,446
D8	Rawatingasuku – Tanah Abang	4	5.1	V	34,352
D9	Pejompongan – Karet Kubur	4	1.7	V	5,489
D10	Blok M – Kota	8	13.5	V	128,390
D11	Cikini – Menteng Palbatu	6	3.4	VI	18,198
D12	Outer Ring Road – Senayan C.C	4	7.0	VI	23,990
Total					354,454

Table 7.4.5 PROJECT LIST OF EAST-WEST CONNECTION IMPROVEMENT PROGRAM

No	Name/Location	No. of Lane	Length (Km)	Implementation Period (Pelita)	Construction Cost (x 10 ⁶ Rp)
E1	Ex-Kemayoran – J.I.U.T. N-S Link	4	4.1	VI	14,636
E2	Cikini – Slipi	4-6	4.8	VI	23,727
Total					38,363

Table 7.4.6 PROJECT LIST OF NORTH-SOUTH AXIS STRENGTHENING PROGRAM

No	Name/Location	No. of Lane	Length (Km)	Implementation Period (Pelita)	Construction Cost (x 10 ⁶ Rp)
F1	Cikini – Kampung Bandan	4	4.6	VII	25,612
F2	Senen – Jatinegara – Cililitan	6-8	6.9	VII	15,073
Total					40,685

Table 7.4.7 PROJECT LIST OF FREEWAY DEVELOPMENT PROGRAM

No	Name/Location	No. of Lane	Length (Km)	Implementation Period (Pelita)	Construction Cost (x 10 ⁶ Rp)
G1	J.I.U.T. S-W Arc (Jakarta I.C. – Sec. 13)	6+6/8	7.0	IV	164,500
G2	J.I.U.T. N-S Link (Tg. Priok I.C. – Jakarta I.C.)	6+8	13.0	V	420,600
G3	Jakarta Harbour Road	4	19.0	V	539,900
G4	Northern Extention of S-W Arc	6	4.3	V	85,000
G5	Jakarta Outer Ring Road	4+4	59.4	V	455,089
Total					1,665,089

Table 7.4.1 PROJECT LIST OF MASS TRANSPORTATION CORRIDOR DEVELOPMENT PROGRAM

No	Name/Location	No. of Lane	Length (Km)	Implementation Period (Pelita)	Construction Cost (x 10 ⁶ Rp)
A1	Ex-Kemayoran – West Center	6	13.9	V	
A2	Tn. Abang – West Center	6	16.0	V	
A3	West Center – Tangerang Ring	6	30.3	VI	
A4	East Center – Bekasi Ring	6	26.3	VI	
A5	Tangerang South – Tanah Abang	6	19.3	VII	
A6	Bekasi South – Ex-Kemayoran	6	27.0	VII	
Total			172.8		595,560

Table 7.4.2 PROJECT LIST OF MAJOR ARTERIAL STREET DEVELOPMENT PROGRAM

No	Name/Location	No. of Lane	Length (Km)	Implementation Period (Pelita)	Construction Cost (x 10 ⁶ Rp)
B1	Pesing – Kebayoran Baru	6	9.6	IV	63,342
B2	Tangerang MTC Supplemental Link	4	9.4	VI	21,200
B3	Bekasi MTC Supplemental Link	4	7.1	VI	23,627
B4	Ancol – Cilincing	6	10.3	VII	53,097
B5	Cilincing – Pulo Gadung Lor	4	6.4	VII	23,707
B6	Pondok Gede – Fatmawati	4	15.9	VII	40,659
B7	Blok M – Cilandak	6	5.4	VII	15,325
Total					240,957

Table 7.4.3 PROJECT LIST OF ARTERIAL STREET DEVELOPMENT PROGRAM IN THE NEWLY URBANIZING AREA

No	Name/Location	No. of Lane	Length (Km)	Implementation Period (Pelita)	Construction Cost (x 10 ⁶ Rp)
C1	East Center Related Street (Kembangan – Kupuh 1)	4	6.7	IV	9,177
C2	East Center Related Street (Meruya Udik – Rawatiga Suku)	4	3.7	IV	9,867
C3	West Center Related Street (Pulo Gadung – Rawadomba)	4	7.2	IV	25,750
C4	West Center Related Street (Rawa Terate – Ujung Kranjang 1)	4	3.0	IV	33,555
C5	West Center Related Street (Klender – Bojong)	4	5.8	IV	23,289
C6	West Center Related Street (Gedung 2 – Cilungu 2)	4	2.3	IV	12,217
C7	Bugel 1 – Legok	4	6.5	V	12,207
C8	Jakarta – Kampung Kelapa 1	2	7.8	V	10,655
C9	Kontrakan – Donkel 2	2	9.7	V	11,811
C10	Bekasi – Tambun	2	7.0	V	11,151
C11	Rawapajang – Rawa Banteng	2	8.6	V	9,400
C12	Teluk Betung – Ps. Bondo	4	9.9	V	27,351
C13	Tambun – Tambun South	2	4.9	V	11,921
C14	Ciledug – Meruya Udik	2	5.9	VI	16,844
C15	Pondok Aren – Juraganan	2	6.3	VI	13,001
C16	Cipondoh – Cipadu	2	6.3	VI	8,595
C17	Kebaren – Bantenan	2	6.4	VI	8,529
C18	Kali Malang – Kp. Asem	4	7.3	VI	16,412
C19	Malaka 3 – Pondok Meloh	2	8.4	VI	12,695
C20	Kp. Gunung – Kebantenan 1	2	3.0	VI	12,073
C21	Rangkalanwsmgin – Pekayon 2	2	7.0	VI	13,941
C22	Pondok Gede – Pondok Bend	2	4.1	VI	7,983
Total					318,424

Table 7.4.4 PROJECT LIST FOR PRESENT TRAFFIC PROBLEM ORIENTED PROGRAM

No	Name/Location	No. of Lane	Length (Km)	Implementation Period (Pelita)	Construction Cost (x 10 ⁶ Rp)
D1	Pondok Pinang – Pejompongan	4	5.2	IV	8,960
D2	Ragunan – Buncit Raya	6	4.6	IV	2,923
D3	Ps. Minggu – Depok	4-6	20.4	IV	23,291
D4	Kali Malang	4	4.7	IV	2,785
D5	Kota – Jembatan Dua	6	2.3	V	13,642
D6	Ex-Kemayoran – Cikini	4-6	14.6	V	14,988
D7	Pejajaran – Pondok Baru	6	1.6	V	77,446
D8	Rawatingasuku – Tanah Abang	4	5.1	V	34,352
D9	Pejompongan – Karet Kubur	4	1.7	V	5,489
D10	Blok M – Kota	8	13.5	V	128,390
D11	Cikini – Menteng Palbatu	6	3.4	VI	18,198
D12	Outer Ring Road – Senayan C.C	4	7.0	VI	23,990
Total					354,454

Table 7.4.5 PROJECT LIST OF EAST-WEST CONNECTION IMPROVEMENT PROGRAM

No	Name/Location	No. of Lane	Length (Km)	Implementation Period (Pelita)	Construction Cost (x 10 ⁶ Rp)
E1	Ex-Kemayoran – J.I.U.T. N-S Link	4	4.1	VI	14,636
E2	Cikini – Slipi	4-6	4.8	VI	23,727
Total					38,363

Table 7.4.6 PROJECT LIST OF NORTH-SOUTH AXIS STRENGTHENING PROGRAM

No	Name/Location	No. of Lane	Length (Km)	Implementation Period (Pelita)	Construction Cost (x 10 ⁶ Rp)
F1	Cikini – Kampung Bandan	4	4.6	VII	25,612
F2	Senen – Jatinegara – Cililitan	6-8	6.9	VII	15,073
Total					40,685

Table 7.4.7 PROJECT LIST OF FREEWAY DEVELOPMENT PROGRAM

No	Name/Location	No. of Lane	Length (Km)	Implementation Period (Pelita)	Construction Cost (x 10 ⁶ Rp)
G1	J.I.U.T. S-W Arc (Jakarta I.C. – Sec. 13)	6+6/8	7.0	IV	164,500
G2	J.I.U.T. N-S Link (Tg. Priok I.C. – Jakarta I.C.)	6+8	13.0	V	420,600
G3	Jakarta Harbour Road	4	19.0	V	539,900
G4	Northern Extention of S-W Arc	6	4.3	V	85,000
G5	Jakarta Outer Ring Road	4+4	59.4	V	455,089
Total					1,665,089

APPENDIX










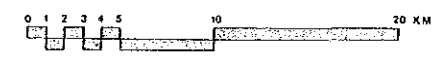
APPENDIX 1. REGIONAL DEVELOPMENT PATTERN IN DISTANT FUTURE



LADDER PATTERN DEVELOPMENT
IN JABOTABEK REGION AFTER 2005

LEGEND

-  INDUSTRIAL AREA
-  GREEN PRESERVATION/
RECREATION ZONE
-  COMMERCIAL AND BUSINESS AREA
-  MASS TRANSPORTATION CORRIDOR
-  FREEWAYS
-  PRIMARY ROADS
-  RAILWAY



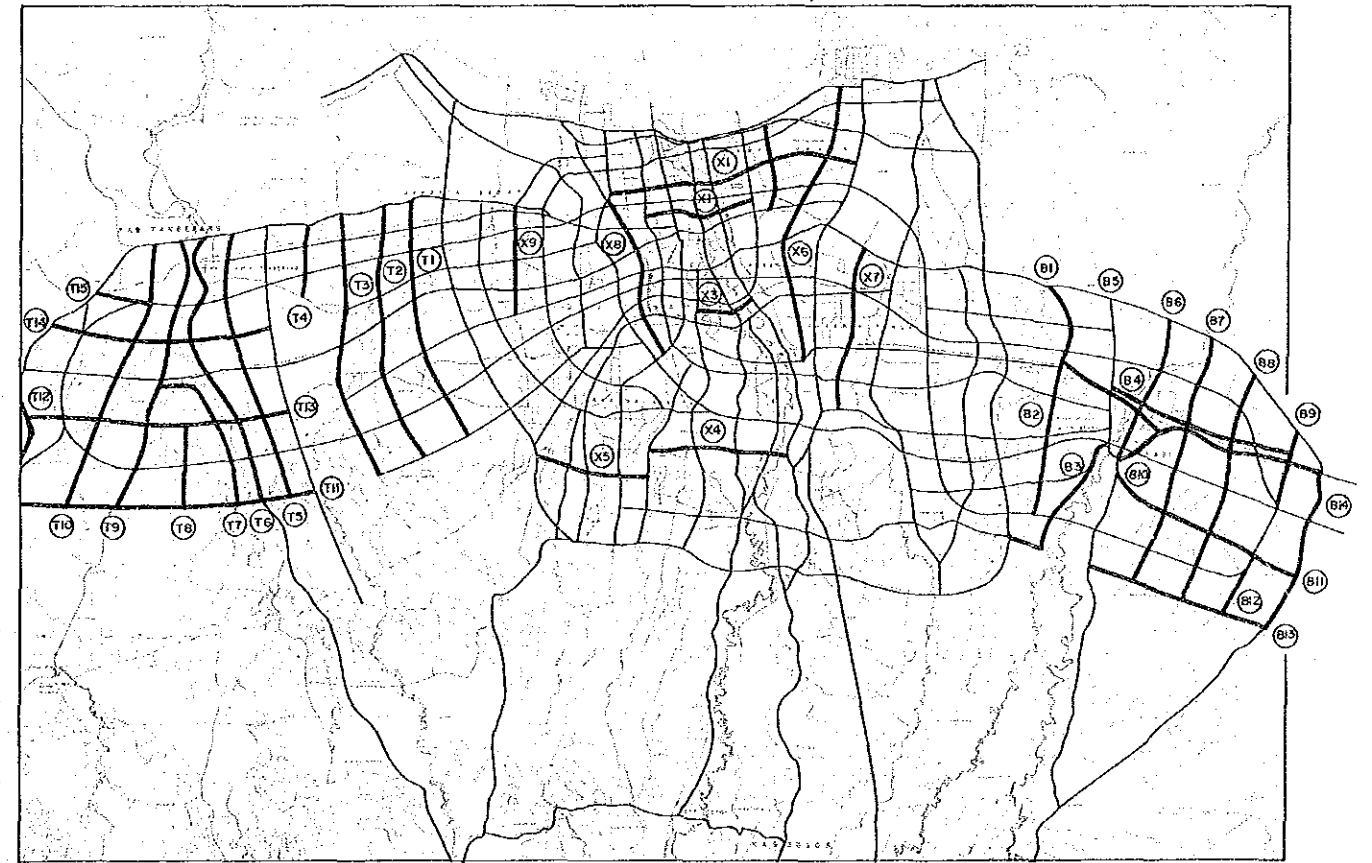
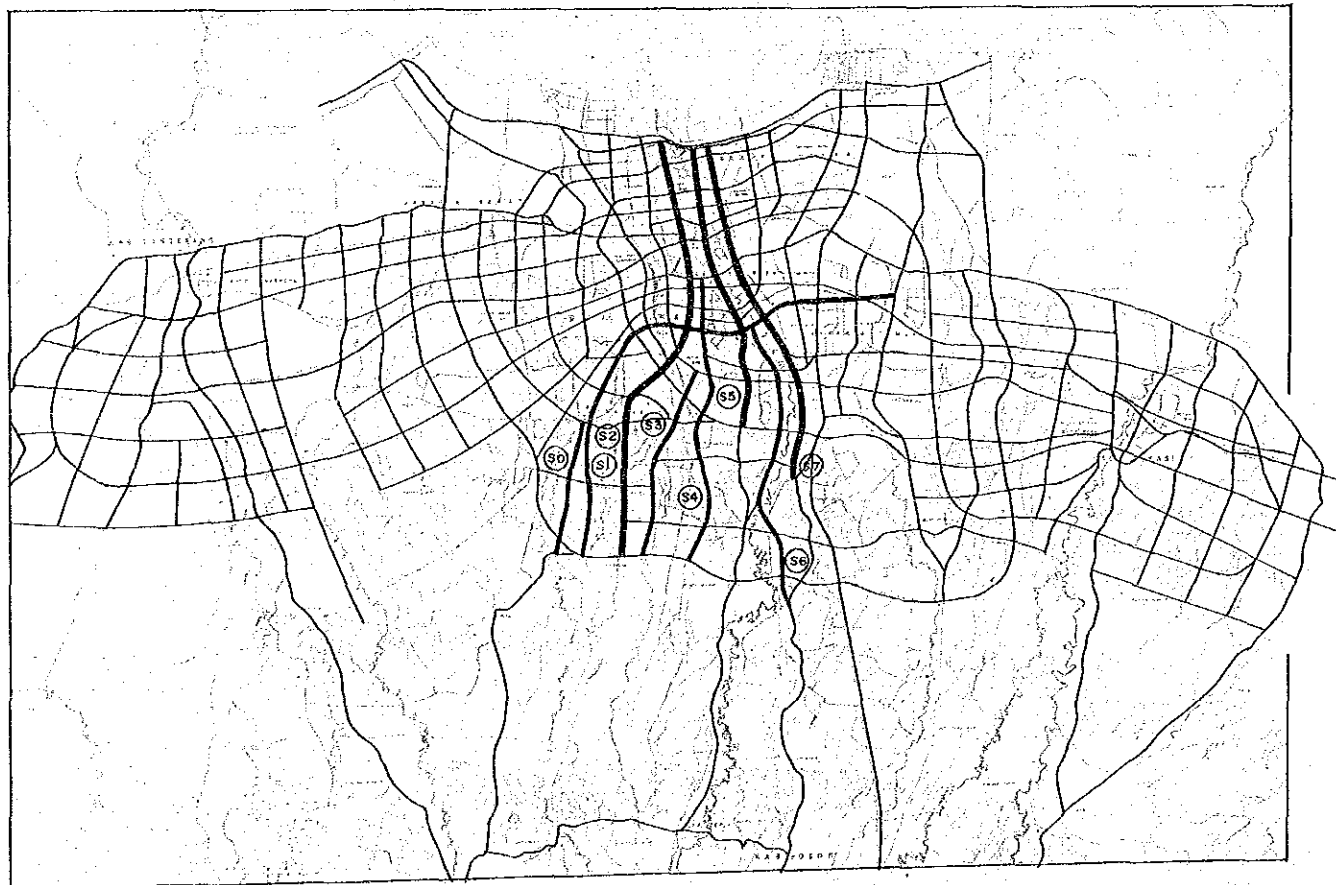
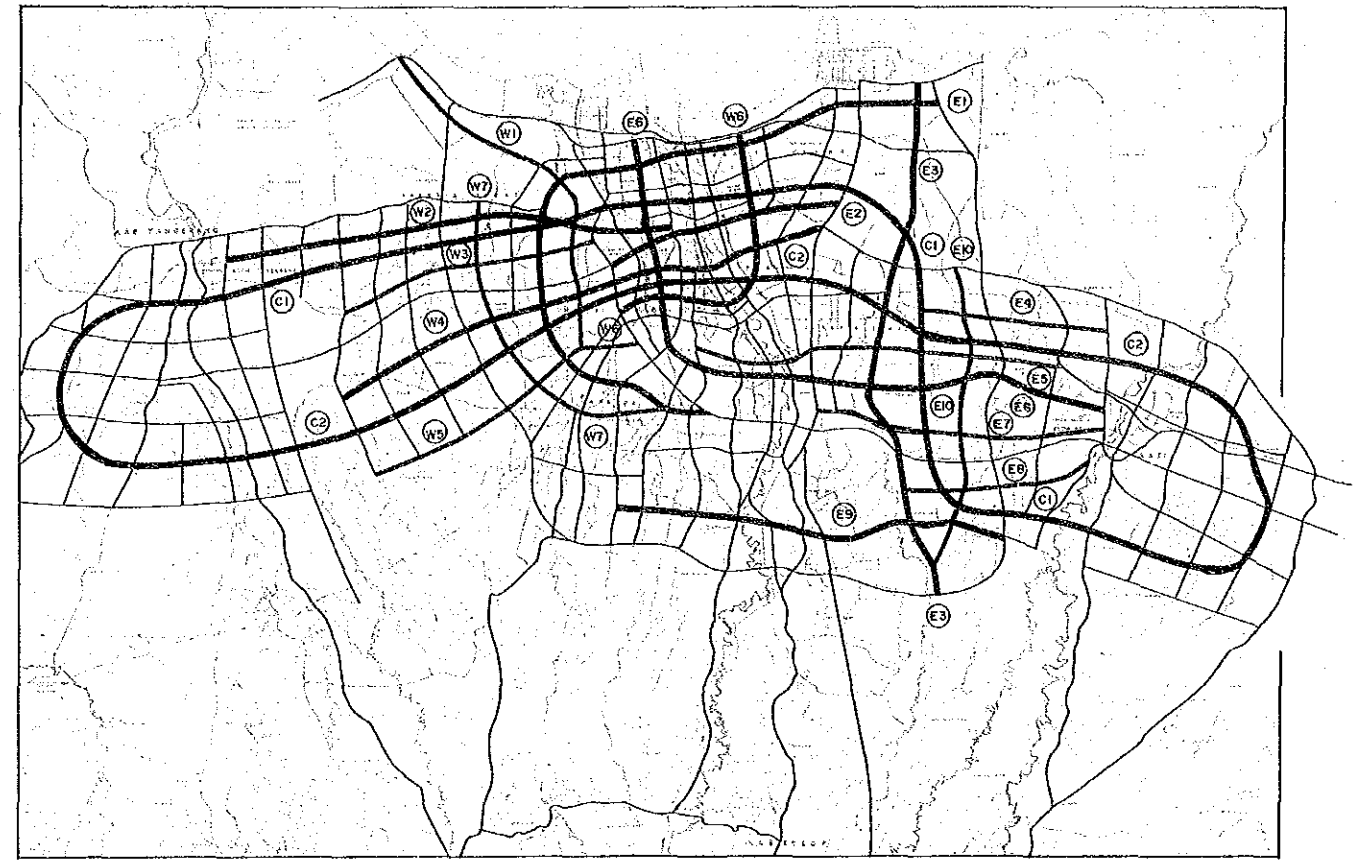
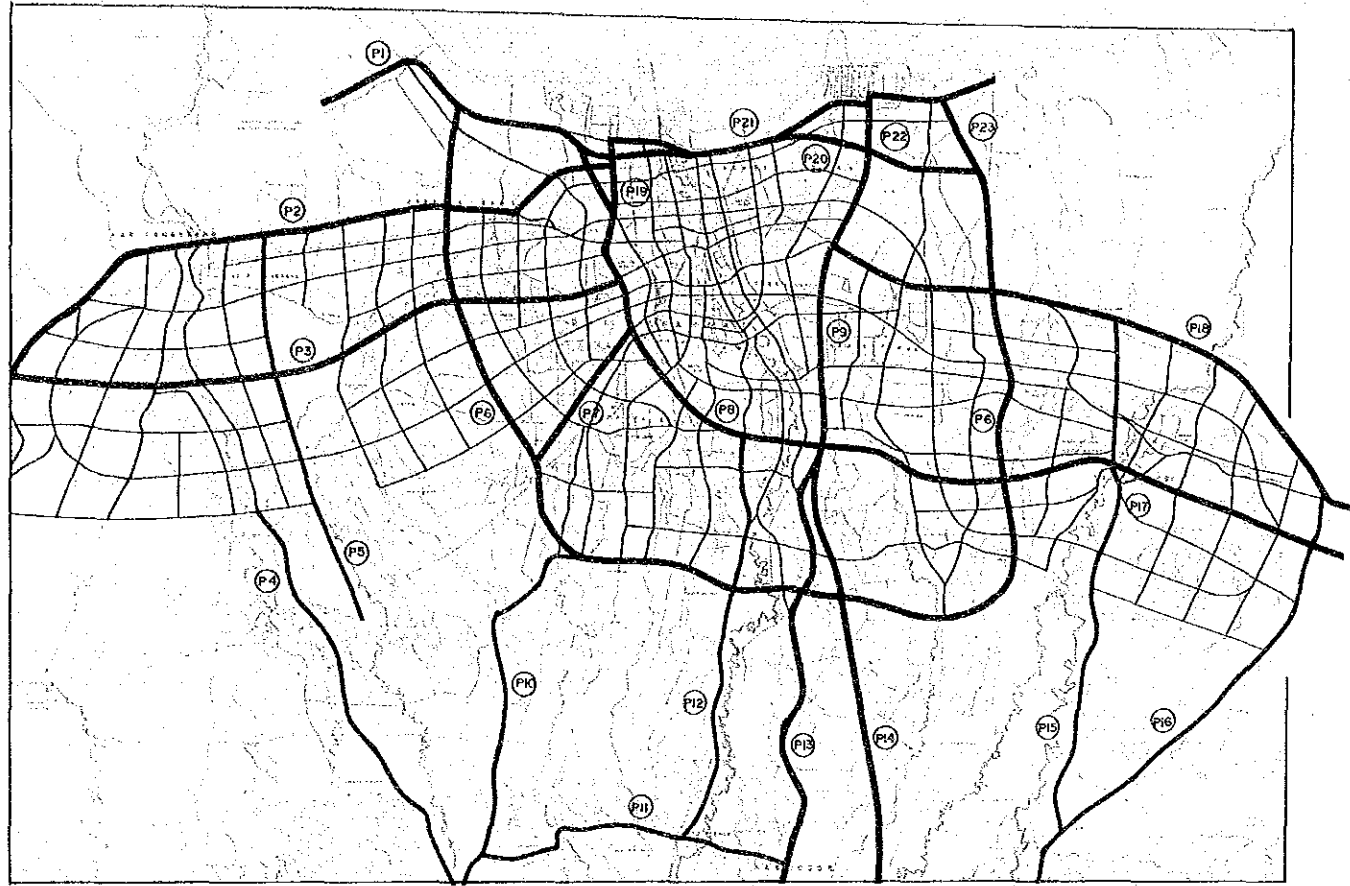
ARTERIAL ROAD SYSTEM
DEVELOPMENT STUDY
IN JAKARTA METROPOLITAN AREA

APPENDIX 2. ALL POTENTIAL PROJECTS OF ROAD AND STREET

Name of Road/Street	Number of Lanes	Length (km)	Construction Cost (Million Rupiah)		
			Road/Street	Flyover	Interchange
PRIMARY SYSTEM					
FREEWAY					
P14 Jagorawi Freeway (Jl. Sutoyo - Outer Ring Road)	6	6.0	4,218	3,050	-
P3 Jakarta - Tangerang Freeway (Outer Ring Road - Tomang)	6	7.2	19,900	-	-
P17 Jakarta - Cikampek Freeway (Jakarta I.C. - Cibitung I.C.)	4	-	-	-	-
P8 Jakarta Intra Urban Tollway South-West Arc	6+6/8	12.1	83,000	85,000	81,500
P9 Jakarta Intra Urban Tollway North-South Link	6+8	13.0	386,000	-	34,600
P20 Jakarta Harbor Road	4	19.0	451,000	-	88,900
P1 Jl. Tol. Prof. Dr. Sedyatmo	4	-	-	-	-
P6 Jakarta Outer Ring Road	4+4	59.4	230,069	52,800	172,220
Sub-Total		116.7	1,174,187	140,850	377,220
ARTERIAL ROAD					
P2 Jakarta - Tangerang - Bitung	4,2	10.9	24,218	-	-
P13 Jakarta I.C. - Sidamukti	4-6	18.0	32,465	6,380	-
P18 Cempaka Putih - Tambun	2-6	26.1	38,917	4,360	-
P19 Jl. Latumeten - Jl. Jembatan Tiga	8	-	-	-	-
P21 Pluit - Ancol - Cilincing	4-8	14.6	27,521	-	-
P22 Jl. Laks. Yos Sudarso	8-10	2.4	2,605	-	-
P23 Cilincing - Outer Ring Road	4	3.5	2,373	-	-
Sub-Total		75.5	141,059	10,740	-
COLLECTOR ROAD					
P4 Cilumpung - Serpong - Parung	4,2	19.4	26,208	-	-
P5 Pondok (Jl. Daan Mogot) - Marugak (Serpong)	2	17.7	19,346	-	5,660
P7 Slipi - Pondok Bitung	6,4	7.0	26,370	-	-
P10 Ps. Jumat - Ciputat	4	5.9	13,927	-	-
P11 Parung - Depok - Jl. Raya Bogor	2	-	-	-	-
P12 Tebet - Ps. Minggu - Depok	6,4	20.4	41,045	-	-
P15 Bekasi - Citeureup	2	-	-	-	-
P16 Tambun - Cileungsi	2	19.3	16,460	3,010	-
Sub-Total		89.7	143,356	3,010	5,660
SECONDARY SYSTEM					
MASS TRANSPORTATION CORRIDOR					
C1 Tangerang Noth - Bekasi	4+2	68.3	239,872	74,649	-
C2 Tangerang South - Bekasi North	4+2	64.5	242,598	64,200	-
S2 Outer Ring Road/Jl. Fatmawati - Kota Station	4/4+6/4	12.5	128,390	-	-
Sub-Total		145.3	610,860	138,840	-
MAJOR ARTERIAL STREET					
E1 Kp. Tendea - Kebon Jeruk - Kota - Cilincing	6	25.9	96,331	30,000	3,750
E2 Tomang I.C. - N-S Link	6,4	7.4	23,087	-	-
E3 Cilincing Raya - Klender - Outer Ring Road	2-6	23.5	58,287	-	-
E6 Kp. Luar Batang - Tanah Abang - Bekasi By-pass	2-6	28.8	79,531	26,550	-
E9 Jl. Fatmawati - Ps. Minggu - Pondok Gede - Pondok Benda	2,4	20.0	32,868	6,100	12,100
W2 Tangerang Bypass - Pesing - Jl. Gajah Mada	2,4	13.9	24,825	4,400	-
W4 Ciledug - Tanah Abang - Jl. Cempaka Putih	4-10	22.1	49,477	18,900	-
W6 Ancol - Slipi	4-8	13.0	39,415	12,600	-
S2 Ps. Jumat - Blok M	6	5.4	15,325	-	-
S5 Tebet - Manggarai - Jl. Lodan	4-6	12.0	36,710	7,100	-
S7 Cililitan - Ancol	6,8	6.9	15,073	-	-
Sub-Total		178.9	470,929	105,650	15,850

Name of Road/Street	Number of Lanes	Length (km)	Construction Cost (Million Rupiah)		
			Road/Street	Flyover	Interchange
MINOR ARTERIAL STREET					
S0 Jl. Ciputat Raya	4	5.8	15,887	-	-
S1 Pondok Pinang - Pejompongan	4,6	11.5	19,280	7,180	-
S3 Cilindak - Karet	4	3.8	10,459	6,200	-
S4 Ragunan - Kebon Sirih	4-6	6.1	5,908	-	-
S6 Susukan - Tambak	6-8	13.4	39,429	19,300	-
W1 Kamal - Jelambar - Grogol Hilir	2	16.5	28,936	-	-
W3 Cipondoh - S-W Arc	2,4	11.8	22,413	4,540	-
W5 Pondok Aren - Senayan	2,4	13.3	26,071	10,920	-
W7 Jl. Daan Mogot - Meruya Udik - Kebayoran Baru	4	15.2	30,291	12,400	-
E4 Rawaterate - Nangka	2,4	8.6	42,476	6,020	-
E5 Jl. Rasuna Said - Jatinegara - Kranji	2,4	15.3	35,503	6,200	9,800
E7 Jl. Kali Malang	2,4	4.7	2,785	-	-
E8 Pangkalanjati - Pekayon	2	7.0	9,401	4,540	-
E10 Petukangan - Pondok Murati	2,4	13.4	18,938	10,740	-
X1 Jl. Prof. Dr. Latumeten - Jl. Mangga Besar - N-S Link	4	9.4	21,728	5,300	-
X2 Jl. Moh. Mansyur - Kemayoran ex-airport	4	-	-	-	-
X3 Jl. Diponegoro	4	-	-	-	-
X4 Jl. Sejajar Fatmawati (Kemang) - Jl. Dewi Sartika	4	3.9	8,508	6,380	-
X5 Pondok Bitung - Jl. Sejajar Fatmawati	2-4	5.4	10,929	-	-
X6 Jl. Enggano - Cempaka Baru - Jatinegara	2	12.4	22,396	-	-
X7 Jl. Perintis Kemerdekaan - Jl. Kali Malang	2-4	3.9	8,628	6,380	-
X8 Jl. Prof. Dr. Latumeten - Jati Pulo - Jl. Sudirman	2-4	7.9	11,978	-	-
X9 Jl. Daan Mogot (Mk) - Kandangtempa	4	5.2	9,372	3,550	-
T1 Jl. Daan Mogot - Cipadu	2	10.9	15,217	-	2,920
T2 Jl. Daan Mogot - Bantenan	2	11.5	16,024	-	2,920
T3 Jl. Daan Mogot - Pondok Aren	2	11.9	15,980	-	8,800
T4 Jl. Daan Mogot - Rawa Cipondoh	2	3.1	5,310	-	-
T5 Jl. Daan Mogot - Cilupang	2-4	9.4	17,986	5,900	-
T6 Tangerang - Cilupang	4	3.1	6,572	-	-
T7 Kawungpugur - Karawaci I.C.	2	7.2	7,870	-	-
T8 Situ Kelapadua - Kp. Baru	2	4.1	4,481	-	-
T9 Tangerang - Caringin	4	6.5	9,287	-	2,920
T10 Bugel - Iaras	2	12.2	13,335	-	5,660
T11 Curug - Buaran	2	13.2	15,583	-	-
T12 Bitung - Curug	2	6.0	5,612	-	-
T13 Kontrakan - Dongkel 2	2	10.8	12,959	-	-
T14 Jataka - Kp. Kelapa	2	9.1	12,239	-	-
T15 Kroncong - Uwung 2	2	2.1	2,295	-	-
B1 Jl. Raya Bekasi & Bekasi - Tambun	2-4	2.1	1,663	6,560	-
B2 Kranji - Kebantenan 1	2	6.8	10,832	6,020	-
B3 Bekasi - Ps. Rebo	2	5.6	5,692	-	-
B4 Bekasi - Tambun	2	8.6	14,393	-	-
B5 Kali Abang Tengah - Bekasi Bypass	2-4	7.0	8,820	8,940	-
B6 Bekasi - Bantargebang	2-4	9.4	20,134	6,700	-
B7 Telukbetung - Ps. Bondo	4	9.9	18,051	6,200	3,100
B8 Siluman - Kelapadua	2	8.5	9,291	5,660	5,660
B9 Tambun North	2	2.9	3,895	5,840	-
B10 East Section of Bekasi Bypass	2	-	-	-	-
B11 Rawapajang - Rawa Banteng	2	8.6	9,400	-	-
B12 Tambun South	2	2.0	2,186	-	-
B13 Bantargebang - Telajung	2	2.0	10,629	-	-
Sub-Total		394.1	675,934	161,470	41,780
Grand Total		1,000.2	3,216,325	560,560	440,510

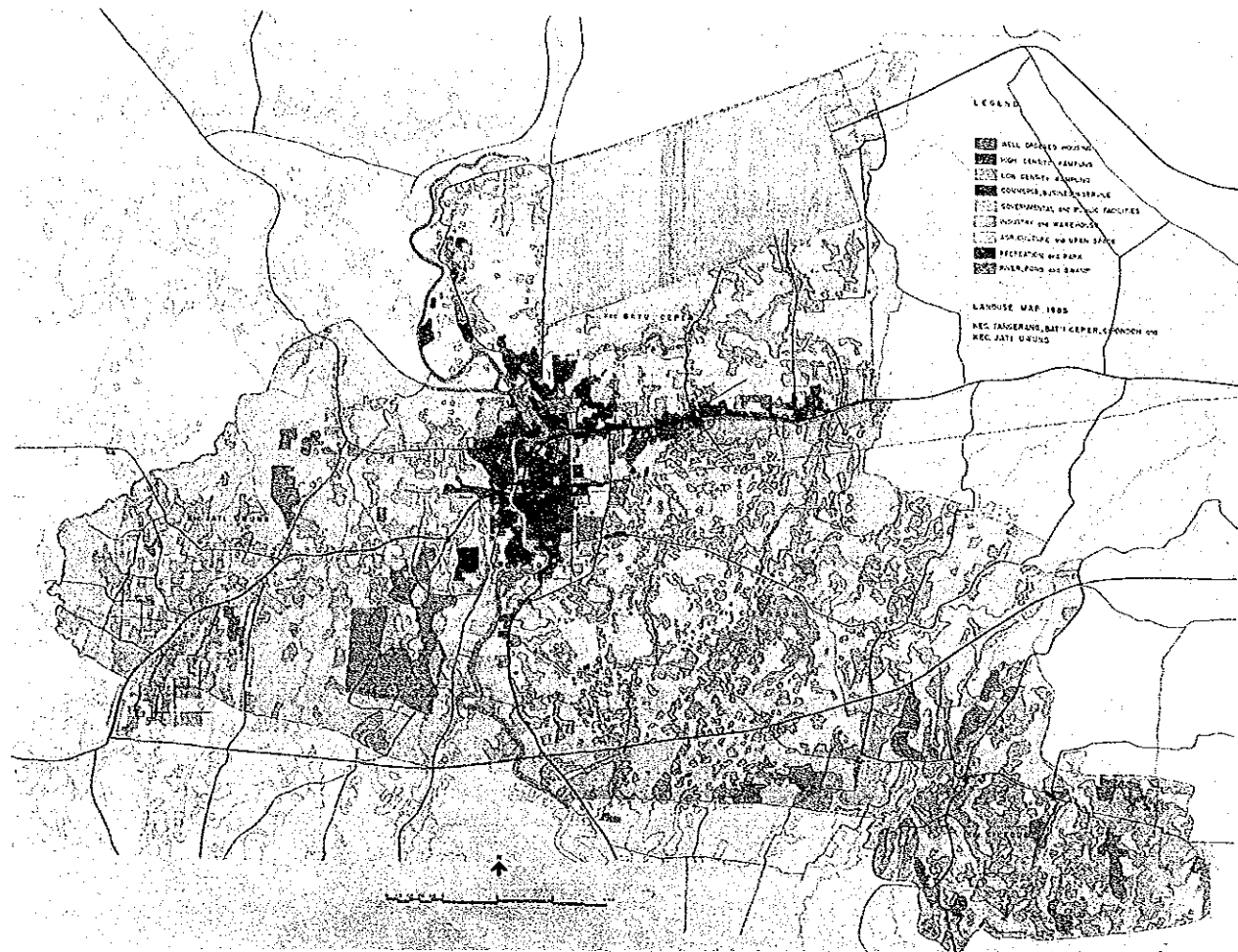
Notes: 1) Lengths in the table exclude existing sections with sufficient capacity in 2005



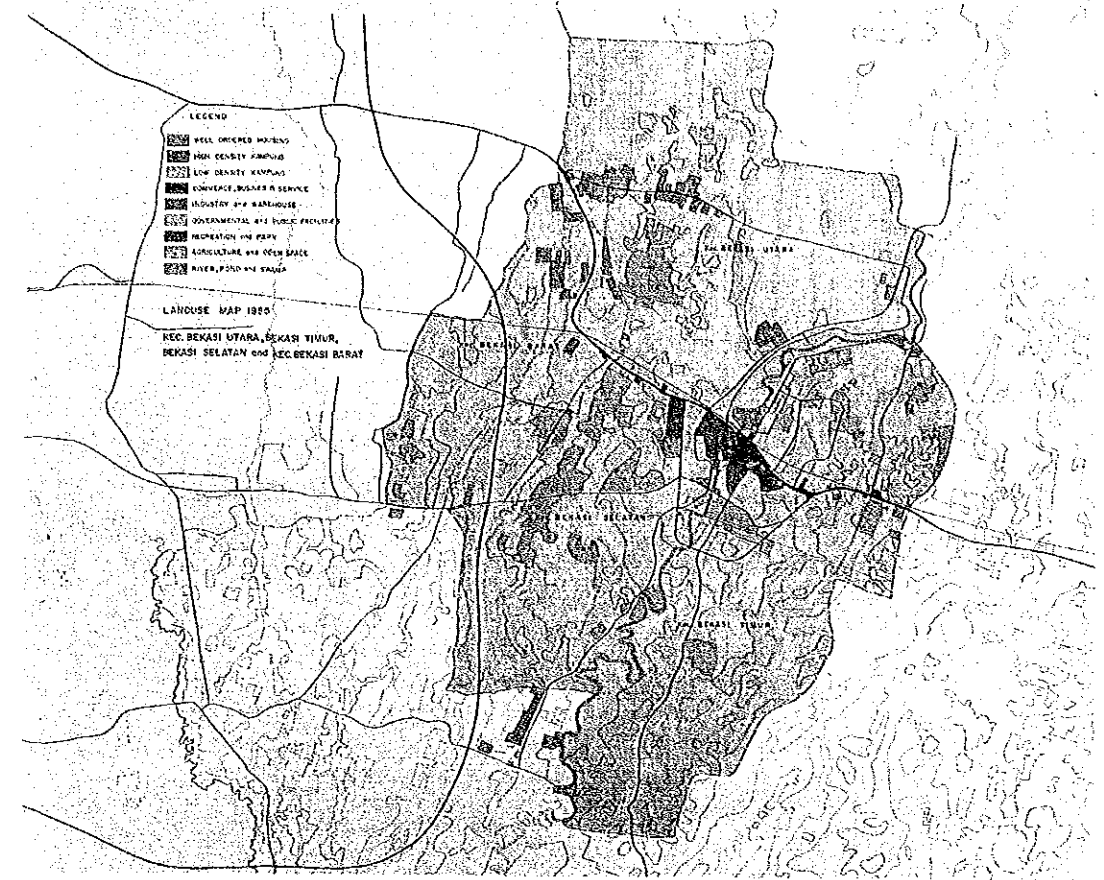
LOCATION OF ROAD AND STREET PROJECTS



APPENDIX 3 PRESENT LANDUSE MAP IN THE SURROUNDING AREAS OF DKI JAKARTA



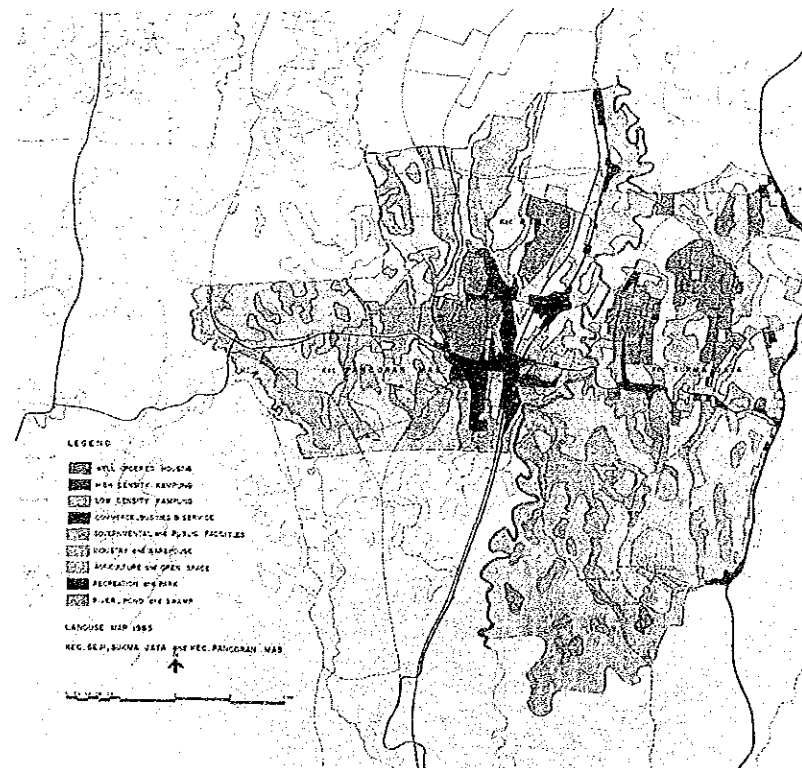
KOTIF. TANGERANG



KOTIF. BEKASI



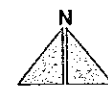
KEC. SERPONG



KOTIF. DEPOK

LEGEND

- WELL ORDERED HOUSING
- HIGH DENSITY KAMPUNG
- LOW DENSITY KAMPUNG
- COMMERCE, BUSINESS & SERVICE
- INDUSTRY and WAREHOUSE
- GOVERNMENTAL and PUBLIC FACILITIES
- RECREATION and PARK
- AGRICULTURE and OPENSPACE
- RIVER, POND and SWAMP



0 1 2 3 4 5 Km

TRAFFIC SURVEYS

Objective of Traffic Survey

The traffic surveys are categorized into two groups. One survey obtained the basic data for quantitative analysis of the existing traffic demand and the other describes the general urban activities in Jakarta for the urban structure analyses.

The former consists of a person trip survey and a truck survey, while the latter aims at obtaining comprehensive data from a few representative samples such as a pasar survey and a facility survey.

Survey Composition and Purpose

The purposes of the surveys and their relationships are as follows:

1) Person Trip Survey

Traffic demand is caused by the movement of people and goods. Road and rail transport are the only means for spatial movement. Analysis of the relationship between the spatial movements of people and goods and urban activities causing those spatial movements enables us to understand the basic mechanism of urban traffic. The person trip survey is comprised of the Home Visit Survey, the Cordon Line Survey and the Screen Line Survey.

2) Truck Survey

The Truck Survey was conducted instead of a commodity movement or distribution survey. The major reasons why the Truck Survey (indirect commodity) was carried out for the cargo analysis instead of a direct commodity survey are as follows:

- The list of companies in the commercial sector engaged in commodity distribution is inadequate.
- There is little supporting statistical data on the commercial sector in the field of cargo distribution.
- No suitable statistical measures are available to count the total volume of commodity movement under the present mixed economic market situation of the formal and informal sectors.

A truck interview survey and a parallel traffic volume count were carried out at the major cargo distribution facilities and the cordon and screen lines to analyze the pattern of truck movements.

3) Pasar Survey

The main purposes of the Pasar Survey were a) to obtain supplemental information of the cargo distribution system as a feeder system, b) to study shopping activities as a feeder movement, and c) to study the traffic demand, parking demand and general situation of the pasar.

4) Facility Survey

This survey was carried out in Phase II of the study to obtain information on the traffic and parking demand at major urban facilities. These facilities included hotels, shopping complexes, office buildings, recreation centers, government offices and hospitals.

PERSON TRIP SURVEY

Coverage of Person Trip Survey

The person trips related to Jakarta consist of the following:

- a) Trips made by Jakarta residents
- b) One day trips made by non residents of Jakarta
- c) Trips made by persons staying at hotels or who are guests in private homes

The survey of trips made by residents is regarded as the major survey in the Person Trip Survey and was carried out by the Home Visit Survey. The trips made by non residents were covered by the Cordon Survey. The following three types of surveys were conducted to sample the persons who travel into and out of DKI Jakarta using various means of transportation.

- i) Private Car and Motorcycle users : Roadside interview survey of car and motorcycle passengers at the DKI Jakarta boundary
- ii) Bus Passengers : On-board/terminal interview survey of passengers on bus routes crossing the DKI Jakarta boundary
- iii) Railway Passengers : On-board/terminal interview survey of passengers on trains crossing the DKI Jakarta boundary

Trips made by persons staying at hotels or who are guests in private homes were not directly surveyed for obvious practical reasons. However, their numbers are considered to be adjusted for through the control characteristics of the Screen Line Survey.

The Screen Line Survey is a traffic counting survey at the screen lines of the survey area for checking the results of other surveys.

Home Visit Survey

a) Objective

This survey aims to obtain the one-day person trip data made by Jakarta residents.

b) Period

The Home Visit Survey began field activities on 24 July 1985 and finished in early October 1985. During the 12 weeks of the field survey the total manpower requirement was 2,138 man-weeks.

c) Survey Area

The Home Visit Survey covered the total area of DKI Jakarta, excluding Putri Islands. DKI Jakarta is divided into 5 Wilayahs and into 30 Kecamatan. Each Kecamatan is composed of about 6-10 Kelurahan, each of which has a population of 20,000-30,000 people.

d) Method and Survey Items

The main method of conducting the survey was by visiting homes, leaving survey forms and collecting the survey forms by a re-visit from the surveyors. According to this method, the persons surveyed recorded the trips taken on the day specified by the surveyors and then this data was collected on the re-visit by the surveyors. Only household characteristics were obtained by directly interviewing persons at the first visit to the households.

e) Survey Form Collection Results

The Home Visit Survey sampled 64,010 households, which came to a total of 274,261 persons not less than 5 years old. Of this total, 180,947 persons responded to the questionnaire. That is an effective collection rate of 66.0%, and the effective sampling rate was 3.36%.

The breakdown of the sampled population is shown below. Refusal to respond to the survey was quite small at 2.5%. However, the predominant reasons of "not found" and "moved away" accounted for 83% of the total number of persons which were not possible to survey. Of these reasons, those who had moved away from the registered address without cancellation accounted for 72.7% and those for whom information was not available in and around the address of the sampled household was 10.3%.

STATISTICS OF THE HOME VISIT SURVEY

Registered Population not less than 5 years old (A) as of Aug. 1, 1985	:	5,379,728 persons
Number of Households selected for the Survey (B)	:	64,010 households
Number of Persons to be Surveyed (C)	:	274,261 persons
Number of Persons Surveyed (D)	:	180,947 persons
Number of Persons whose data is effective (E)	:	180,578 persons
Gross Sampling Rate (C/A %)	:	5.10%
Effective Collection Rate (D/C %)	:	66.0%
Effective Sampling Rate (E/A %)	:	3.36%

BREAKDOWN OF INDIVIDUAL RESPONSE TO THE SURVEY

Total Persons Sampled	274,261	100.0%	-
- Persons Possible to Survey	180,947	66.0%	-
- Persons Not Possible to Survey	93,314	34.0%	100.0%
Reasons: 1) Refusal	2,377	0.9%	2.5%
2) Absent for short term	1,913	0.7%	2.1%
3) Absent for long term	8,063	2.9%	8.6%
4) Not found	9,587	3.5%	10.3%
5) Moved away	67,866	24.7%	72.7%
6) 4 years of Age and below	1,275	0.5%	1.4%
7) Dead	1,876	0.7%	1.9%
8) Others	381	0.1%	0.4%

- 1) Percentage of total persons sampled
- 2) Percentage of total number of persons not possible to survey

Cordon Line Survey

1) Car and Motorcycle Cordon Line Survey

a) Objective

This survey aims to obtain the data of external trips made by cars and motorcycles.

b) Survey Period

This survey was carried out for 16 continuous hours (6:00-22:00) for 4 days from 22 October to 24 October 1985 and also on 7 November 1985.

c) Survey Location

Survey locations were selected on two regional freeways, on one freeway from the airport access and on twelve arterial roads crossing the DKI Jakarta boundary. Survey stations were selected separately by direction at toll gates for the three freeways and at the roadside on the DKI Jakarta boundary for the twelve arterial roads.

d) Method and Survey Items

The area for the Home Visit Survey was DKI Jakarta, excluding Kec. Pulau Putri, and the external cordon of the survey area was the DKI Jakarta boundary. Passenger cars and motorcycles crossing the DKI Jakarta boundary were stopped, with the cooperation of traffic policemen, and the passengers were interviewed at the roadside. The four following types of motor vehicles were separately sampled on each side of the road.

- Motorcycle
- Sedan, jeep and station wagon, excluding taxi
- Small bus for private use
- Pick-up, except those for public transport

It was desirable that all the passengers in the vehicles sampled at the roadside were surveyed, but a maximum of 5 persons per vehicle were interviewed so as to smoothly conduct the roadside survey and minimize traffic congestion. The survey form adopted was designed so that one sheet was used for each vehicle.

- Survey items for vehicles
 - . Survey time
 - . Vehicle type
 - . Location of vehicle registration
 - . Number of passengers
- Survey items for passengers
 - . Trip purpose
 - . Address of residence
 - . Address of place of departure and arrival

A roadside traffic counting survey by direction and by vehicle type was conducted at the same location and on the same day as the interview survey.

2) Bus Cordon Line Survey

a) Objective

This survey aims to obtain the data of external trips made by buses.

b) Period

The bus counting survey was conducted on 4 September and 5 September 1985 and the bus passenger survey followed.

c) Location of Bus Counting Survey

The first step of the bus counting survey was conducted in 15 bus terminals and at 3 roadside locations in DKI Jakarta and in 4 bus terminals in the Botabek area. The number of bus routes generated and attracted at each bus terminal and the number of bus routes serving outside Jakarta at each bus terminal were summarized on the basis of the bus counting survey data. According to the survey result, 34 city bus routes depart to towns outside DKI Jakarta.

d) Method and Survey Items

The following two steps were taken with the purpose of obtaining data on the inflow and outflow trips by public buses.

1st Step : Bus Counting Survey

A bus counting survey was conducted at all the bus terminals in DKI Jakarta to obtain substantial data on bus routes and the number of bus trips which operate between DKI Jakarta and outside of DKI Jakarta.

2nd Step : Passenger Interview Survey

Based on the data derived from the first step, a passenger interview and counting survey was conducted using the bus routes which operate between DKI Jakarta and outside DKI Jakarta.

The survey form for the bus passenger survey includes the following surveys items:

- Bus route number
- Survey time
- Direction of bus (to Jakarta or to outside Jakarta)
- Trip Purpose
- Address of residence
- Place and address of departure and arrival for that trip

Different passenger interview and counting survey methods for city bus routes and intercity bus routes were adopted as follows:

City Bus : One interviewer and one passenger counting surveyor boarded the bus to conduct the survey which continued during their assigned time on board. The sampling of bus vehicles for the survey was conducted separately by bus route.

Intercity: Buses which were about to depart from terminals in DKI Jakarta were sampled separately by bus route by one interviewer and one bus counting surveyor. Only the passenger counting survey was conducted on buses which entered the terminals.

3) Railway Cordon Line Survey

a) Objective

This survey aims to obtain the data of external trips made by railway.

b) Period

The railway passenger interview survey and passenger counts were conducted according to the following schedule:

- Interview at station
 - . Tangerang Line 4 February 1986
 - . Merak Line 5 February 1986
 - . Bekasi Line 6 February 1986
 - . Bogor Line 7-8 February 1986
- Interview on board 9 February 1986

c) Survey Location

There are four urban railway (Jabotabek Train) routes and seven medium and long distance routes.

Jabotabek Trains

- i) Jakarta - Bogor
- ii) Jakarta - Krawang - Cikampek - Purwakarta
- iii) Jakarta - Angke - Tangerang
- iv) Jakarta - Rangkasbitung - Merak

The extent of the survey area covered about 1.5 hours of travel time from Jakarta Kota station.

Medium and Long Distance Trains

There are about 50 medium and long distance trains operating 7 routes to and from Jakarta. The routes are :

- i) Tg. Priok - Pasar Senen - Jatinegara - Cirebon
- ii) Pasar Senen - Jatinegara - Cirebon
- iii) Kota - Pasar Senen - Jatinegara - Cirebon
- iv) Kota - Gambir - Manggarai - Jatinegara - Cirebon
- v) Kota - Gambir - Jatinegara - Bandung
- vi) Gambir - Manggarai - Jatinegara - Cirebon
- vii) Kota - Tanah Abang - Merak

d) Method

The survey method was divided into two types. One was the railway passenger interview at railway stations and the other was the on-board train interview.

i) Survey at station

This method was employed for the short distance trains, or the so called Jabotabek trains, which have peak hour commuter traffic that makes it difficult to interview passengers on board. The interviews were made only with boarding passengers because those disembarking were in a hurry to reach their destinations and were generally not willing to respond to the interview.

Passenger counts were made at the same time as the interview. It is difficult to count the number of passenger because most of stations are open to the surrounding area making it difficult to distinguish between passengers and others.

ii) Survey on-board

This method was applied particularly for the medium and long distance trains. The section of railway line for this survey was selected so as to provide enough time on-board to interview a satisfactory number of samples and to count the long distance passengers.

Screen Line Survey

a) Objective

This survey aims at checking the vehicle trip OD-Tables obtained from the results of Home Visit Survey and Cordon Line Survey.

b) Survey Period

The traffic counting survey for the inner screen line was conducted for 16 continuous hours (6:00-22:00) at 16 survey locations and for 24 continuous hours (6:00-6:00) at 7 survey locations on 10 September 1985.

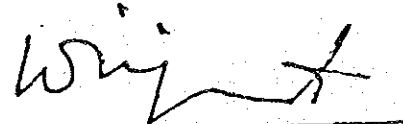
The traffic counting survey for the outer screen line was conducted for 16 continuous hours (6:00-22:00) for 2 weeks (Tuesday through Thursday) from 28 October to 6 November 1985. This was coordinated with the truck interview survey.

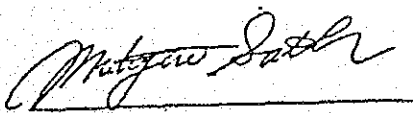
c) Survey Location

Two screen lines were selected based on the zone division for the study. The inner screen line corresponds to the traffic restriction zone boundary proposed in DKI Master Plan 2005 and this boundary is made up of the eastern railway line, western railway line, Tangerang railway line and Tg. Priok railway line. The outer screen line was composed of 4 parts because it was arranged to be used for both the Person Trip Survey check and the truck interview survey. The inner screen line was covered by 23 survey locations and the outer screen line by 18 survey locations.

SCOPE OF WORK
FOR
THE ARTERIAL ROAD SYSTEM DEVELOPMENT STUDY
IN
JAKARTA METROPOLITAN AREA
IN
THE REPUBLIC OF INDONESIA

BETWEEN
DIRECTORATE GENERAL OF HIGHWAYS
MINISTRY OF PUBLIC WORKS
AND
JAPAN INTERNATIONAL COOPERATION AGENCY


Mr. Wiyoto Wiyono
Secretary of the Directorate of
Urban Road Planning
Directorate General of Highways
Ministry of Public Works.


Mr. Motojiro SATO
Team Leader,
The Preliminary Study Team,
JICA

I. INTRODUCTION

In response to the request of the Government of the Republic of Indonesia, the Government of Japan has decided to conduct an Arterial Road System Development Study in Jakarta Metropolitan Area in the Republic of Indonesia (hereinafter referred to as "the Study") in accordance with the relevant laws and regulations in force in Japan. Accordingly, the Japan International Cooperation Agency (hereinafter referred to as "JICA"), the official agency responsible for the implementation of technical cooperation programs of the Government of Japan, will undertake the Study in close cooperation with the authorities concerned of the Government of the Republic of Indonesia.

II. OBJECTIVE OF THE STUDY

The objective of the study, among others is to prepare the master plan of the arterial road system in DKI Jakarta in consideration of the future traffic demand, effects of the tollway construction program and the development program of public transport especially railway by producing an up-to date OD matrix which can be used in the evaluation of future projects in the transport sector.

III. SCOPE OF THE STUDY

1. Study Area

The planning area covers D.K.I. JAKARTA and its surroundings

2. Target Year

The year 2005 will be defined as the target year of the Study and intermediately the years 1995 and 2000 be defined as supplementary target year.

3. Study Items

The Study will cover the following items:

- 3.1 Existing data collection and analysis
a) Review of existing reports

- b) Socio-economic aspects of the study area
 - (1) Population
 - (2) Commerce and industries
 - (3) Others, including income distribution
 - c) Land use and Urban developments
 - d) Inventory survey of present transport facilities
 - e) Urban Transport
 - f) On-going and proposed road projects
- 3.2 Traffic Survey and its analysis
- a) Home Interview survey
 - b) Road-side interview survey
 - c) Traffic count survey
 - d) Others, including public transport and truck survey
 - e) Data-processing and Analysis of O-D survey
- 3.3 Forecast of Future Traffic Demand
- a) Socio-economic Framework
 - b) Traffic generation
 - c) Modal Split
 - d) Traffic distribution
- 3.4 Identifiation of Problems
- 3.5 Planning of Arterial Road System (including tollway) and Recommendation
- a) Preparation of the package of policies and project as alternatives
 - b) Traffic Assignment
 - c) Evaluation
 - d) Recommendation of arterial road system, priority, cost and implementation program.

IV. STUDY SCHEDULE

The whole work will be conducted in accordance with the attached schedule.

V. REPORTS

JICA will prepare and present the following reports in English to the Government of the Republic of Indonesia.

1. Inception Report
Fifty (50) copies at the beginning of the Study
2. Progress Report I, II and III
Fifty (50) copies in the course of the Study in Indonesia
3. Interim Report
Fifty (50) copies within 14 months after the commencement of the field survey
4. Draft Final Report
Fifty (50) copies within 30 months after the commencement of the field survey
5. Final Report
Hundred (100) copies within two months after the receipt of the comments on the Draft Final Report from the Government of the Republic of Indonesia.

VI. UNDERTAKING OF THE GOVERNMENT OF THE REPUBLIC OF INDONESIA

1. To facilitate smooth conduct of the Study, the Government of the Republic of Indonesia will take necessary measures:
 - (1) to secure the safety of the Japanese study team
 - (2) to permit the members of the Japanese study team to enter, leave and sojourn in Indonesia for the duration of their assignment therein, and exempt them from alien registration requirements and consular fees
 - (3) to exempt the members of the Japanese study team from taxes, duties, fees and other charges on equipment, machinery and other materials brought into Indonesia for the conduct of the Study.

- (4) to exempt the members of the Japanese study team from income tax and charges of any kind imposed on or in connection with any emoluments or allowances paid to the members of the Japanese study team for their services in connection with the implementation of the Study.
- (5) to provide the necessary facilities to the Japanese study team for the remittances as well as utilization of funds introduced into Indonesia from Japan in connection with the implementation of the Study
- (6) to secure permission for entry into private properties and restricted area in connection with field survey, according to prevailing regulations of the Government of the Republic of Indonesia
- (7) To make arrangements for the study team to use the data, maps and materials for analysis in Japan subject to the approval of the Government of the Republic of Indonesia.

2. The Government of the Republic of Indonesia shall bear claims, if any arises, against the members of the Japanese study team resulting from, occurring in the course of, or otherwise connected with the discharge of their duties in the implementation of the Study, except when such claims arise from gross negligence or wilful misconduct on the part of the members of the Japanese study team.
3. Bina Marga shall act as counterpart agency to the Japanese study team and also as coordinating body in relation with other governmental and non-governmental organization concerned for the smooth implementation of the Study
4. Bina Marga shall provide the Japanese study team with the following, in cooperation with other agencies concerned, if necessary.
 - (1) available data and information related to the Study
 - (2) counterpart personnel
 - (3) suitable office with necessary equipment in Jakarta

- (4) credentials of identification cards
- (5) assistance for quick access to medical service.

VII. UNDERTAKING OF THE GOVERNMENT OF JAPAN

For the implementation of the Study, the Government of Japan will, in accordance with the relevant laws and regulations in force in Japan, through JICA, take necessary measures:

1. To dispatch, at its own expense, a study team to Indonesia
2. to pursue technology transfer to the Indonesian counterpart personnel in the course of the Study.

AS.

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TENTATIVE STUDY SCHEDULE

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	MONTH	
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Interim Report													█																						
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Progress Report III																																			
Draft Final Report																																			
Comments on Draft Final Report																																			
Final Report																																			

MINUTES OF THE MEETING
FOR
THE ARTERIAL ROAD SYSTEM DEVELOPMENT STUDY
IN
JAKARTA METROPOLITAN AREA

The Japan International Cooperation Agency (hereinafter called "JICA") dispatched the Preliminary Study Team, headed by Mr. Motojiro SATO, to the Republic of Indonesia for the above project from June 2, 1984 to June 9, 1984 for the purpose to exchange views and to get agreement on the scope of work of the Study.

The major points discussed by the Japanese mission and the Indonesian Government were the following :

1. Directorate General of Highways and the Team agreed on the Study area as follows :
DKI JAKARTA and its surroundings consisting of JAKARTA Metropolitan area within JABOTABEK.
2. The Indonesian Government mentioned that as the fundamental data and information, "the masterplan of DKI Jakarta year 2005" (Rencana Umum Tata Ruang Daerah DKI Jakarta 2005) should be referred and the recommendation of the Study should be in line with this Master Plan.
3. Both sides agreed on the study period to be thirty three (33) months.
4. (i) The Indonesian Government proposed that the basic concept of planning should be contained in Progress Report II and discussed by the both sides.
(ii) The Japanese mission agreed with the above proposal.
5. Both sides agreed that all materials, data and results of the study should belong to the Indonesian Government.

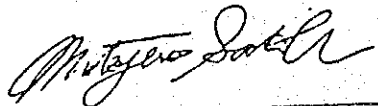
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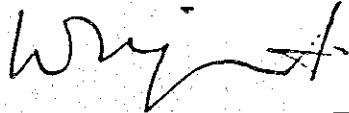
6. (i) The Indonesian Government requested strongly that soft ware and equipments such as traffic counter and personal computer used in the Study would belong to the Indonesian Government in order to secure smooth transfer of technology when the study is completed.
(ii) The Japanese mission expressed that they will transfer the above request of the Indonesian Government to the Japanese Government.
7. Both sides agreed that the place where the actual study team carries out the study should be Jakarta as much as possible to maximise the technical transfer.
8. As some items not concluded by the previous JICA team on the undertakings by JICA, it was agreed that costs of surveyors, copy machine, blueprint machine and survey office for surveyors should be covered by JICA expenses.
9. Counterpart training in Japan.
(i) The Indonesian Government requested that the counterpart training shall also be conducted in Japan.
(ii) The Japanese mission expressed that they will transfer the above request of the Indonesian Government to the Japanese Government.

Jakarta, June 7, 1984

ON BEHALF OF JAPAN
INTERNATIONAL COOPERATION AGENCY


Mr. Motojiro SATO
Team Leader
JICA Preliminary Study Team

ON BEHALF OF DIRECTORATE
GENERAL OF HIGHWAYS,
MINISTRY OF PUBLIC WORKS


Mr. Wiyoro Wiyono
Secretary of the Directorate of
Urban Road Planning
Directorate General of Highways
Ministry of Public Works

APPENDIX 6. MAIN PARTICIPANTS OF THE STUDY

The Republic of Indonesia

- 1) Directorate General of Bina Marga, Ministry of Public Works
 1. Mr. Suryatin Sastromijoyo : Director General of Highways
 2. Mr. Muhammad Solechan : Director of Urban Road Planning, Directorate General of Highways
 3. Mr. F.A. Rubiyanto : Ex-Director of Urban Road Planning
 4. Mr. Wiyoto Wiyono MSc : Secretary of Urban Road Planning
 5. Mr. H. Soedjarwoko : Head of DKI Jakarta Regional Office, Ministry of Public Works
 6. Mr. Soekasdi : Sub-Director of Central Region, Directorate of Urban Road Planning
 7. Mr. Muksin : Staff of the Directorate of Urban Road Planning
 8. Mr. Triharjo : Staff of the Directorate of Urban Road Planning
 9. Mr. Moh. Anas Aly : Head of Sub-Directorate of Technical Development, Urban Road, Dit. of Urban Road Planning
- 2) Directorate of Urban and Resional Planning, Directorate General of Cipta Karya, Ministry of Public Works
 1. Mr. Mustaram : Sub-Director of City Planning
 2. Mr. Bambang : Staff of Sub-Dit. of City Planning
- 3) Directorate General of Land Transport and Inland Waterways, Ministry of Communications
 1. Mr. Iman Sudrajat : Director of Urban Transport
 2. Mr. Hatmaji : Chief of Urban Transport Planning
 3. Mr. Udji Atmono : Staff of Urban Transport Planning

4) Government of West Java

1. Dr. Ateng Syafrudin SH : Head of Regional Development Planning Bureau (BAPPEDA)
2. Mr. Sukanda M : Head of Provincial Cipta Karya (DPUP)
3. Mr. Kusudinan Sudjana : Secretary of Regional Development Planning Bureau (BAPPEDA)
4. Mr. Makhmuddin Makdurah : Head of Provincial Public Works (DPUP)
5. Mr. Suwardi W.S. : Head of Provincial Bina Marga (DPUP)

5) DKI Jakarta

1. Mr. Herbowo : Head of Regional Development Planning Bureau (BAPPEDA)
2. Mr. Ery Chayaridipura : Head of Regional Development Bureau
3. Mr. Tb. M. Rais : Deputy Head of BAPPEDA
4. Mr. Budiharjo S. : Head of Road Traffic and Transportation Bureau
5. Mr. Kandar : Head of City Planning Bureau
6. Mr. J. Supranto M.A : Head of Statistics Bureau
7. Mr. Irzal Djamal : Section Chief of BAPPEDA
8. Mr. H. Syamsu Romli : Head of Public Works
9. Mr. Djatnika : Staff of City Planning Bureau
10. Mr. Ika Effendy S. : Section Chief of City Planning Bureau
11. Mr. Dimmy Kirbandiman : Section Chief of Road Traffic and Transportation Bureau
12. Mr. Banbang Burhana : Section Chief of Road Traffic and Transportation Bureau
13. Mrs. Handayani : Section Chief of BAPPEDA

6) BKSP Jabotabek

1. Mr. A. Sudrajat : Head of the Office
2. Mr. Ojok Sunarja : Deputy of the Office

7) Counterparts

1. Mr. Rachmat Effendi A. : Project Officer, Dit. of Urban Road Planning, Bina Marga
2. Mr. Indra Tarigan : Dit. of Urban Road Planning, Bina Marga
3. Mr. Achiad D.G. : Dit. of Urban Road Planning, Bina Marga
4. Mr. Avi Prapancha S. : Dit. of Urban Road Planning, Bina Marga
5. Mr. Sinaga D. : Bureau of Public Works, DKI Jakarta
6. Mr. T. Emir Mirza M. : Bureau of Public Works, DKI Jakarta
7. Mr. Abdul Azis Harahap : Bureau of Road Transportation and Traffic, DKI Jakarta
8. Mrs. Azizah : Bureau of Road Transportation and Traffic, DKI Jakarta
9. Mr. Johnny : Bureau of Statistics, DKI Jakarta
10. Mr. Sarjono : Bureau of City Planning, DKI Jakarta

Government of Japan

1) JICA Supervisory Committee

1. Dr. Yoshiro Watanabe : Chairman
2. Mr. Motojiro Sato : Member
3. Mr. Ryuzaburo Inoue : Member
4. Mr. Yasuyuki Tanaka : Member
5. Mr. Shoichi Kubota : Member
6. Mr. Akira Honda : Member
7. Mr. Shozou Takagi : Member

2) JICA Office

1. Mr. Masayoshi Enomoto : Deputy Representative of JICA, Jakarta
2. Mr. Hisamitsu Nishio : JICA, Tokyo
3. Mr. Toshio Morooka : JICA, Tokyo
4. Mr. Norio Matsuda : JICA, Jakarta

3) Embassy of Japan

1. Mr. Koichi Uzuka : First Secretary, Public Works

4) Study Team

1. Mr. Nobuwaka Yamakawa : Team Leader
2. Mr. Yoshinobu Nomura : Transportation/Urban Planning
3. Mr. Isamu Gunji : Transportation Planning/
Traffic Survey
4. Mr. Toshiaki Watanabe : Traffic Survey
5. Mr. Katsuhide Nagayama : Urban Planning
6. Mr. Yoshihiro Asano : Regional Planning
7. Mr. Maki Imai : Urban Planning
8. Mr. Hidemoto Nojima : Highway/Transportation
Facility Planning
9. Mr. Hideo Arikawa : System Engineering
10. Mr. Hideyuki Sasaki : Transportation Planning/
Traffic Survey
11. Mr. Tomokazu Wachi : Traffic Survey

JICA