

**THE REPUBLIC OF INDONESIA**  
**REPORT**  
**OF**  
**THE FEASIBILITY STUDY**  
**ON**  
**THE RAILWAY IMPROVEMENT**  
**IN**  
**KAMPUNG BANDAN STATION AREA**

**SUMMARY**

January 1986

**JAPAN INTERNATIONAL COOPERATION AGENCY**  
**(JICA)**

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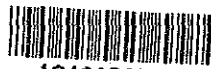
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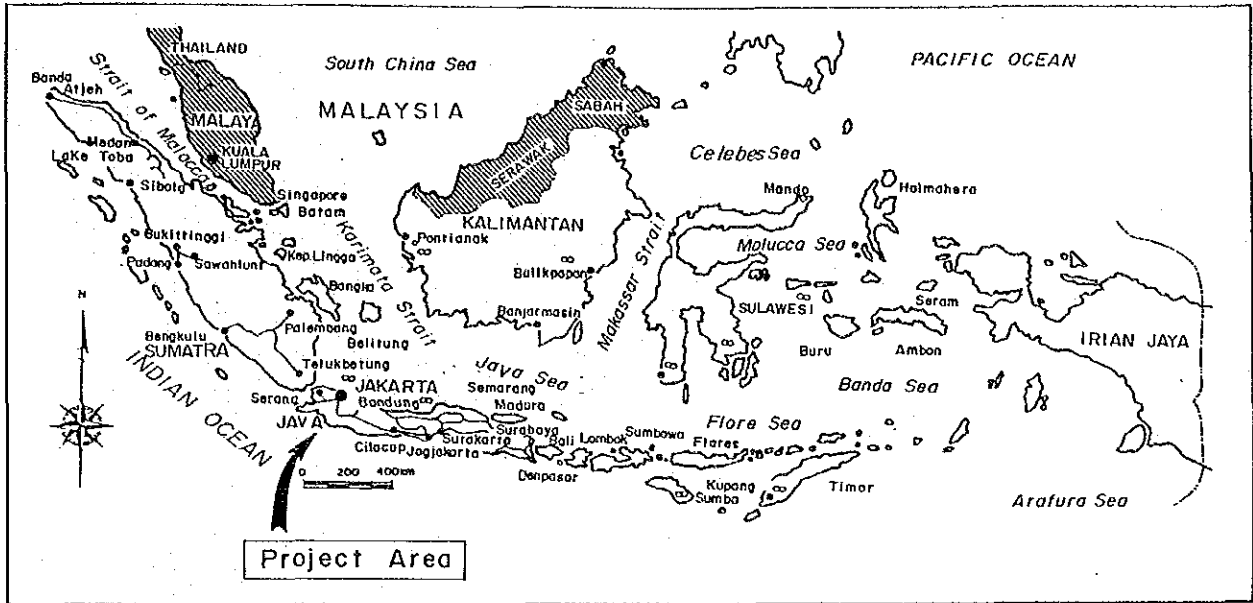


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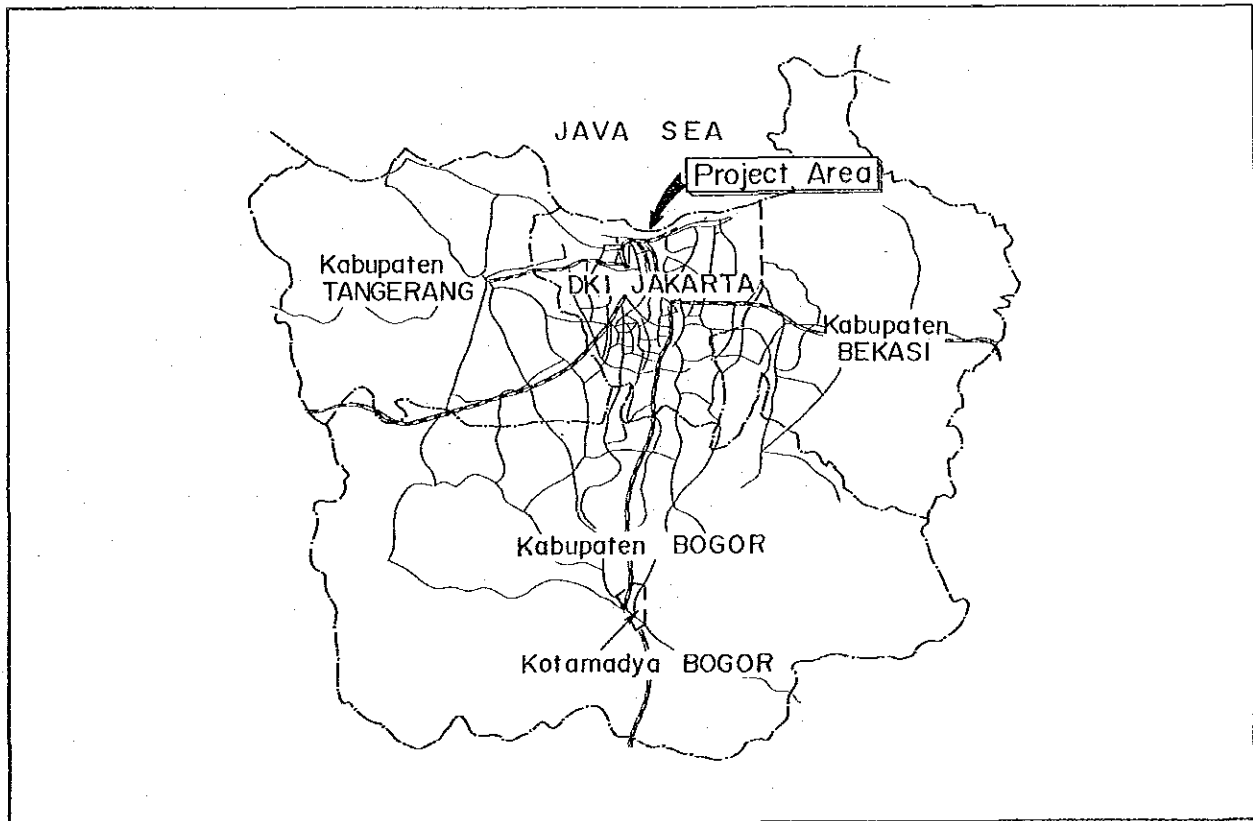
January 1986

**JAPAN INTERNATIONAL COOPERATION AGENCY**  
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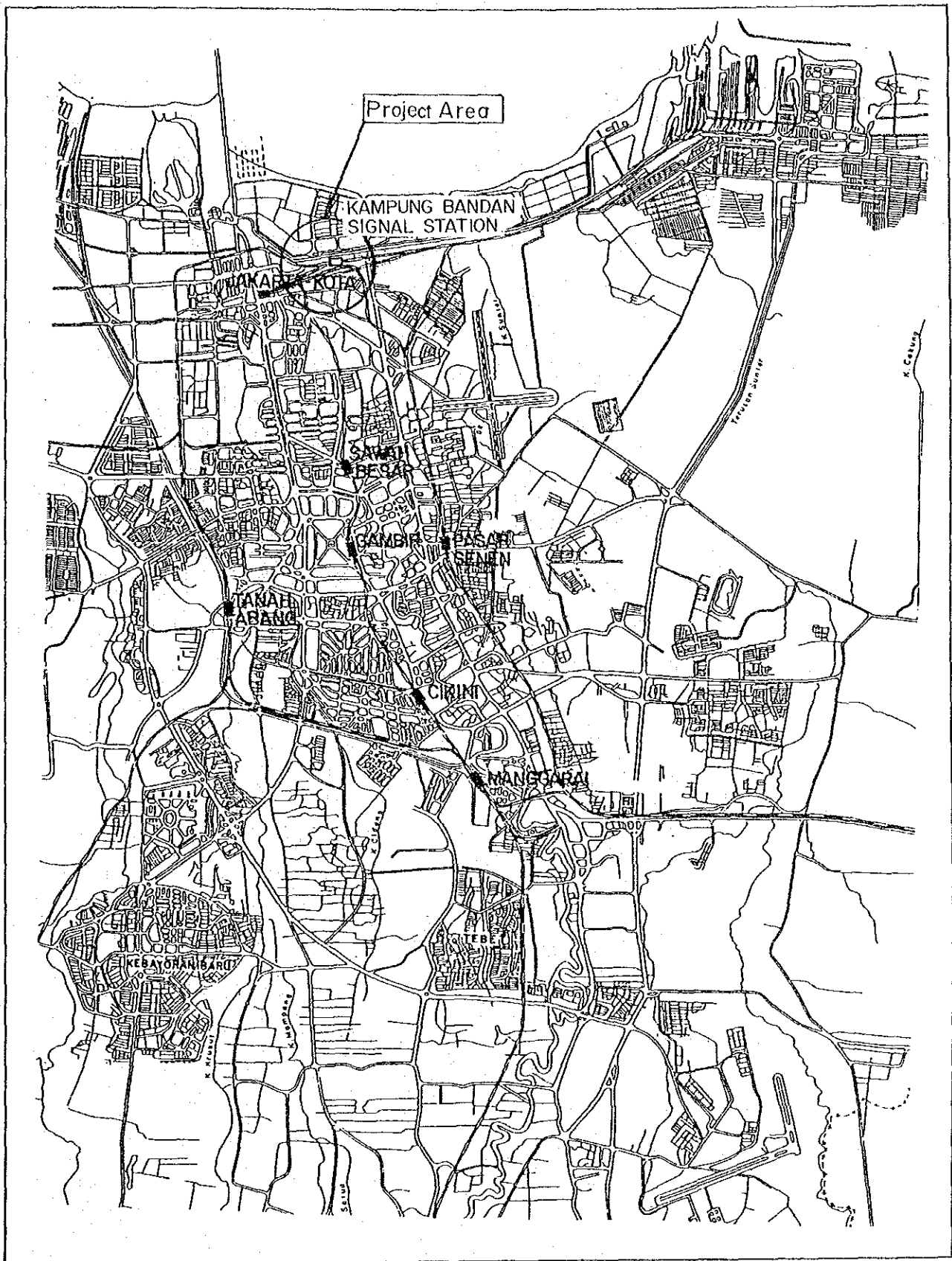


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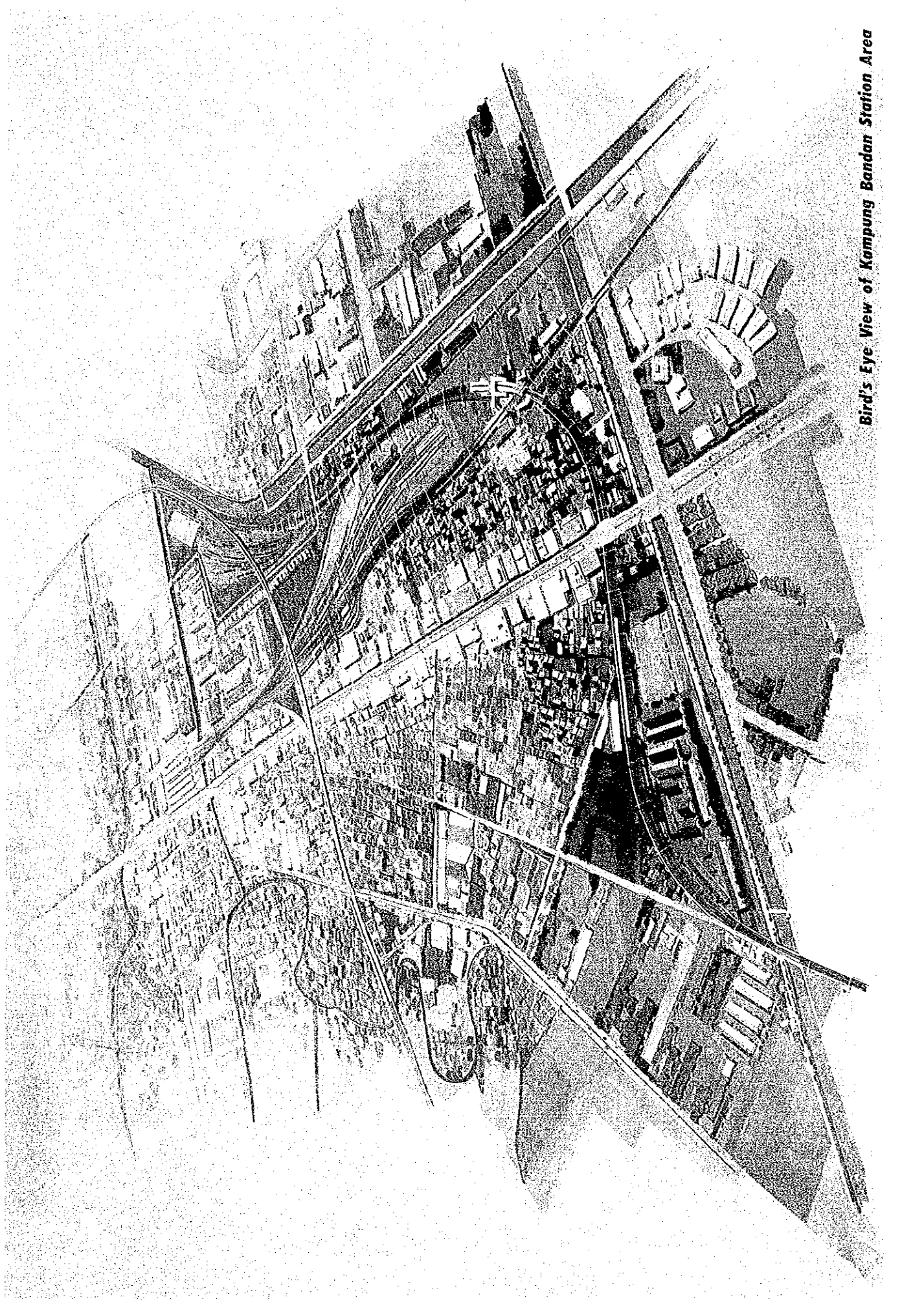




Project Location Map

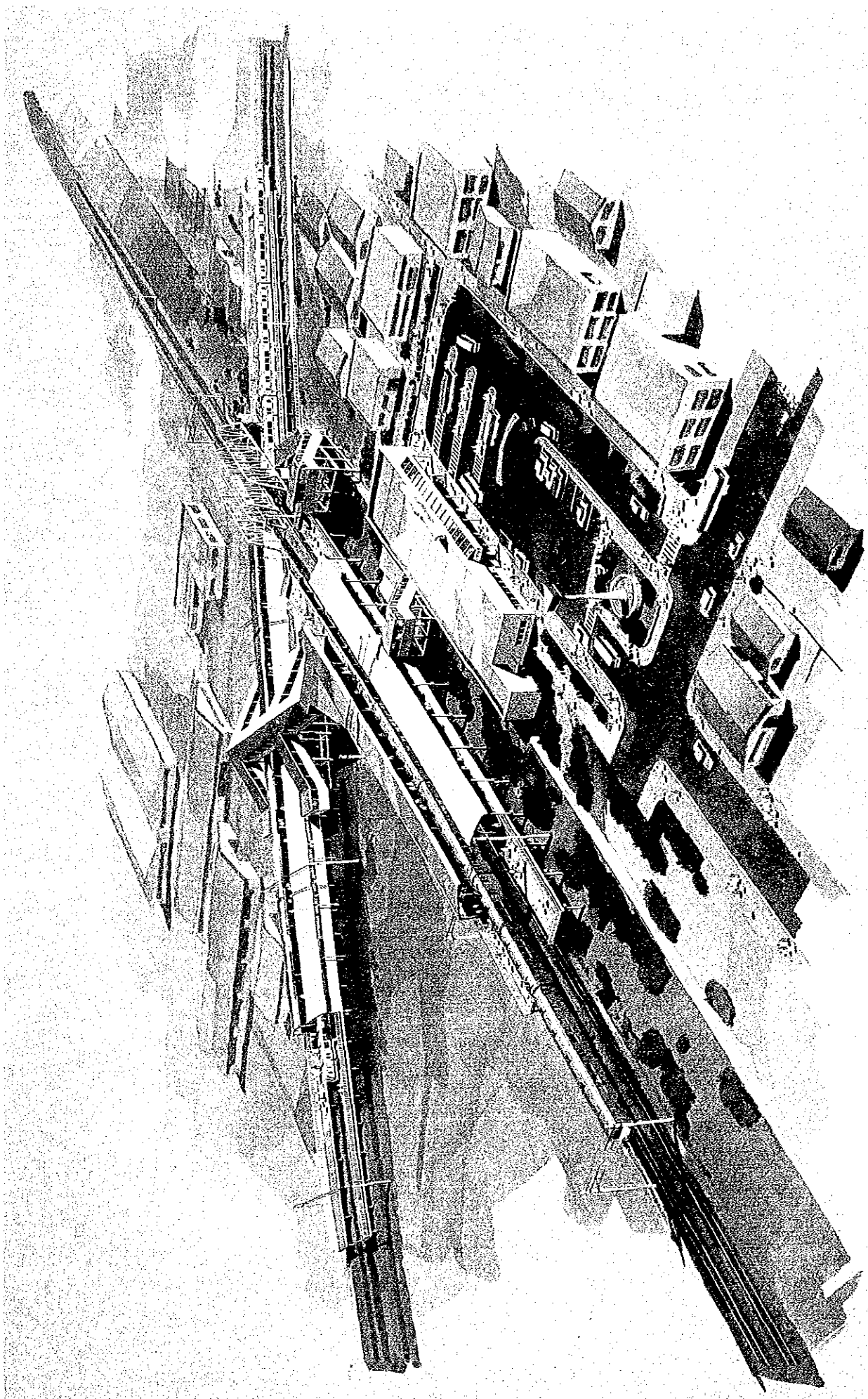






*Bird's Eye View of Kampung Bandan Station Area*





*New Kampung Bandan Station*



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### Terminology and Abbreviation in alphabetical order

Ae	-	Aneol
C (C-Line)	-	Central Line
CA (CA-Line)	-	Cengkareng Airport Line
E (E-Line)	-	Eastern Line
Jak	-	Jakarta Kota
Kpb	-	Kampung Bandan
the Master Plan	-	Master Plan on Railway Improvement in JABOTABEK (JICA report, March, 1981)
the Master Program	-	The implementation program of the reviewed Master Plan (JARTS report, June, 1985)
NJak	-	New Jakarta Kota
NKpb	-	New Kampung Bandan
the Project	-	The project for the Railway Improvement in Kampung Bandan Station Area
the Report	-	The Final Report for the Study
Rjw	-	Rajawali
the Study	-	The Study on the Railway Improvement in Kampung Bandan Station Area
T (T-Line)	-	Tanjung Priok Line
W (W-Line)	-	Western Line
"With"	-	With the Project (the case in which the Project is implemented)
"Without"	-	Without the Project (the case in which the Project is not implemented)

## 1. Introduction

Brisk industrial and economic activities in Indonesia of late years have brought about in the JABOTABEK Area a rapid increase in both population and road congestion. Surface transportation mostly depends on motor-vehicles.

In recognition of these circumstances, the Government of Japan complied with the request of the Government of Indonesia to improve the railway system of the Area. The Japan International Cooperation Agency (JICA) sent a study team to Jakarta in 1984, specifically with respect to railway improvement in Kampung Bandan Station Area.

This Report was prepared in accordance with the Scope of Work agreement concluded on 4 August 1984 between the Government of Indonesia and the Japanese Preliminary Study Team headed by Mr. H. KOBAYASHI.

The Study will outline the plans streamlining train operation, increasing passenger handling capacity and will serve to evaluate the economic and financial feasibility of the planned investments for the railway improvement in Kampung Bandan Station Area.

The basic policies of the Study are:

- 1) To defer to the Master Plan and subsequent studies, and the Master Program now being authorized by the Indonesian Side
- 2) To place priority on increasing railway capacity for urban commuter transportation, with due attention being paid to freight and long-distance passenger transport
- 3) To promote the efficiency of railway transportation by focusing on the following:

- a) Elimination of the switchback operation of W-Line commuter trains at the Kpb Signal Station
  - b) Achieving easier transfers between the relevant railway lines at a most convenient point available in the Kpb Station Area
  - c) Balancing of traffic volumes among the C-, W-, and E-Lines by introducing a loop train operation
- 4) To defer to investment efficiency by focusing on the following facility designs:
- a) Maximum of utilization of existing facilities
  - b) Minimization of structural alterations/modifications in order to keep remodelling/removal expenses down when the Kpb Station Area undergoes large scale improvements in the future

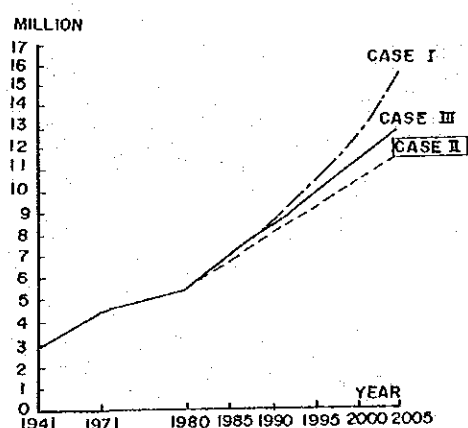


## 2. Socio-economic Framework

Two aspects of the DKI Jakarta plans are noteworthy:

### (1) Population Trend

The population growth projected by the DKI Jakarta Authority is shown in Fig. S.1. In this context, DKI Jakarta seeks to attract a part of the population to the "East" and "West" areas by using various policy measures (see Table S.1).



Source:  
Proyeksi Penduduk DKI  
Jakarta 1980-2005

Fig. S.1 Population Growth  
in DKI Jakarta

Table S.1 Projected Population by Area (CASE II)

Development Area	Area (ha)	Population (10 <sup>3</sup> persons)		
		1980	2005	1980-2005
Northwest	8,070	251	689	+438
North	8,470	2,020	2,411	+391
Northeast	7,710	187	664	+477
Tanjung Priok	3,340	543	897	+354
<u>West</u>	7,540	485	1,937	<u>+1,452</u>
Central	7,740	1,393	2,128	+735
<u>East</u>	8,630	1,060	2,187	<u>+1,127</u>
South	12,950	530	1,075	+545
<b>DKI Total</b>	<b>64,450</b>	<b>6,469</b>	<b>11,988</b>	<b>+5,519</b>

Note : "+" indicates the increase in population between 1980 and 2005.

Source : Master Plan DKI 2005

(2) Redevelopment Plan of Kota Area

DKI Jakarta is now promoting the redevelopment of the Kota Area. It has been decided that warehouses in the Area will be moved to Cakung and Pluit. The Jl. Mangga Dua Project is also under way. This requires the connection of the two roads Jl. Gunung Sahari and Jl. Jembatan Batu, as well as the removal of superannuated and illegally built/located houses. When this is accomplished, a modern business and commercial area will be realized in the Area. This project will also secure easy access roads for the NKpb Station.

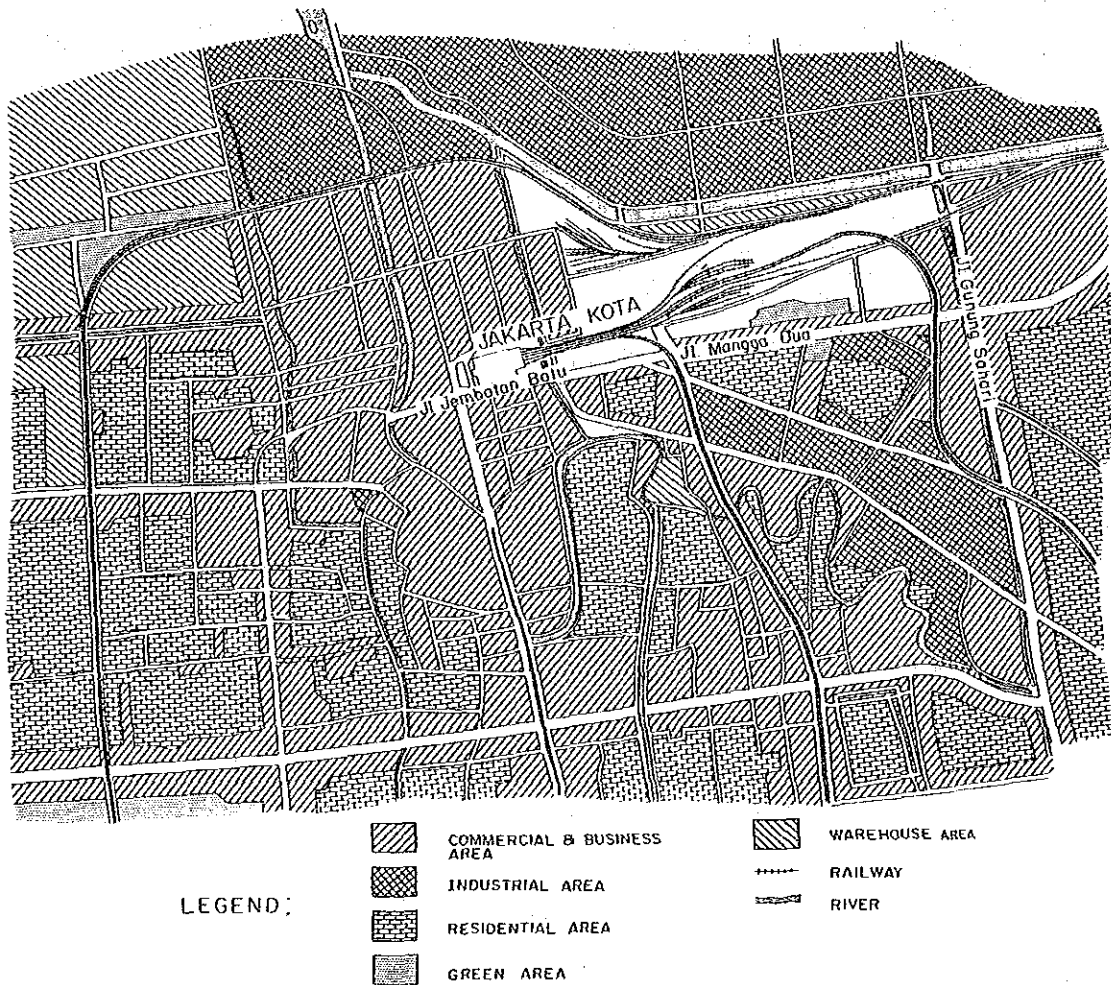


Fig. S.2 Future Land-Use Plan around Jakarta Kota Station

### 3. Traffic Demand Forecast

#### (1) Methodology

The process flow chart for the traffic demand forecast is shown in Fig. S.3.

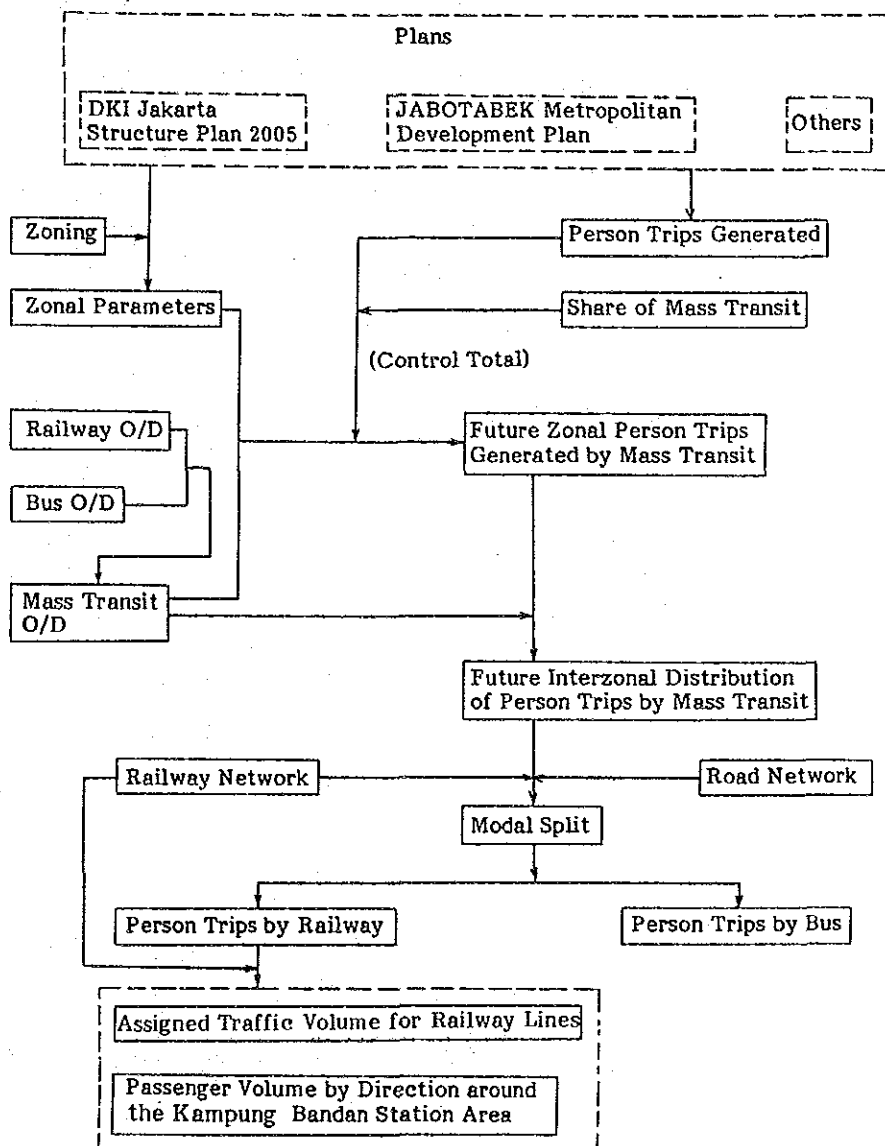


Fig. S.3 Process Flow Chart for Traffic Demand Forecast

(2) Result

(a) Cross-sectional Passenger Traffic Volume

The estimated interzonal volume of railway passengers is assigned to the railway network by route choice based on the minimum travel time. When this route choice is applied, two kinds of railway networks are considered: the future network with a connection between the W- and E-Lines ("With"), and the network without such a connection ("Without"). The resultant passenger volumes forecasted for the major railway links are shown in Fig. S.4.

(b) Passenger Flow around Kpb Station Area

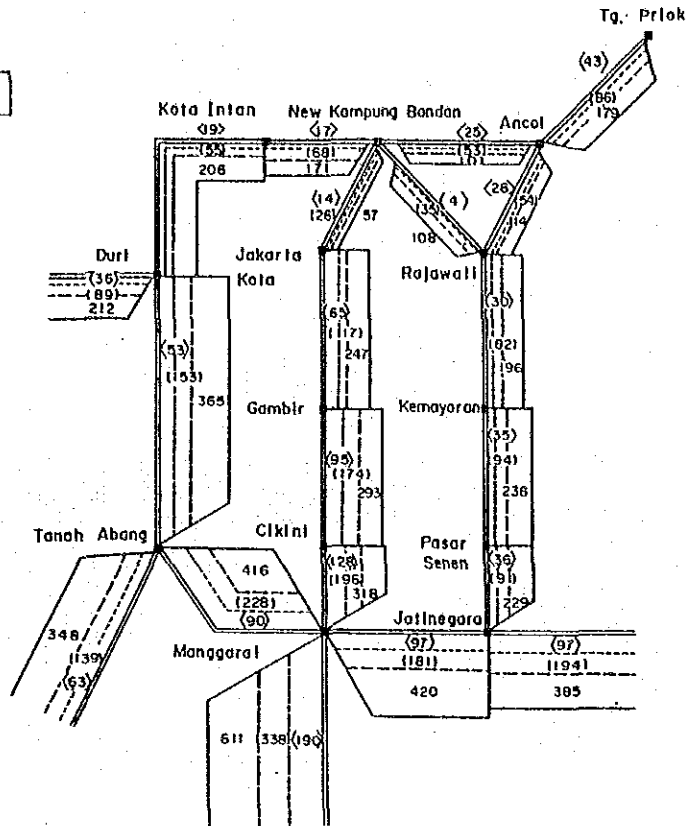
From the above-mentioned railway links the portion of passenger flow around the Kpb Station Area is extracted and magnified (see Fig. S.5).

(3) Comparison of "With" and "Without"

The railway traffic volume of "With" slightly surpasses that of "Without". It comes from the reduction in railway travel time, which results from the implementation of the Project. A part of the overall traffic would shift from bus to railway in the case of "With", and save on passenger-kms and passenger-hours as a whole.

The main objective of the Project, however, does not lie in the increase of traffic volume, but in the elimination of the switchback operation at the Kpb Signal Station, thereby, ensuring the safety and efficiency of commuter transportation.

With



Without

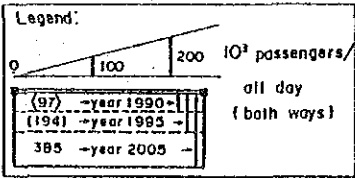
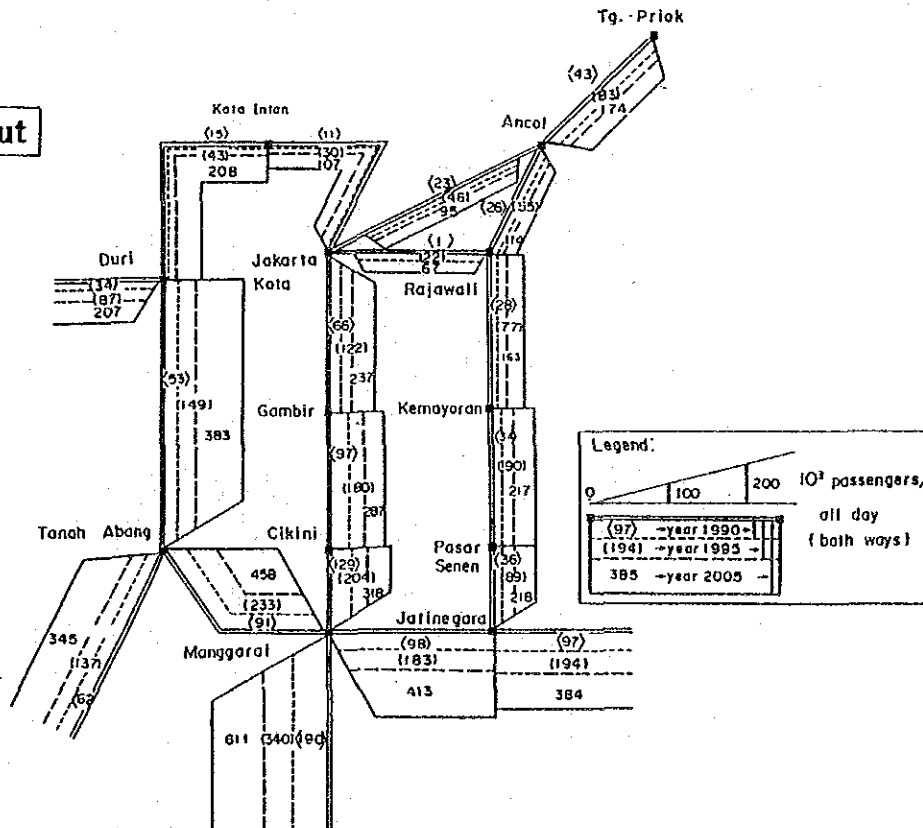
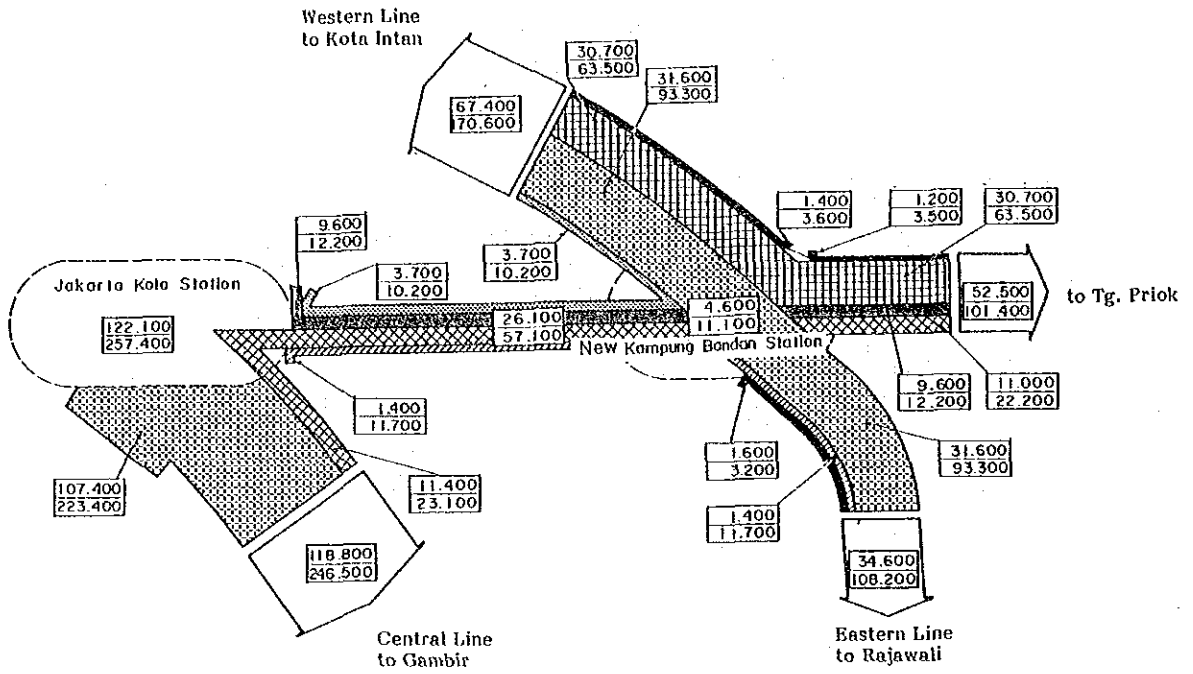


Fig. S.4 Estimated Railway Passenger Volume

**With**



**Without**

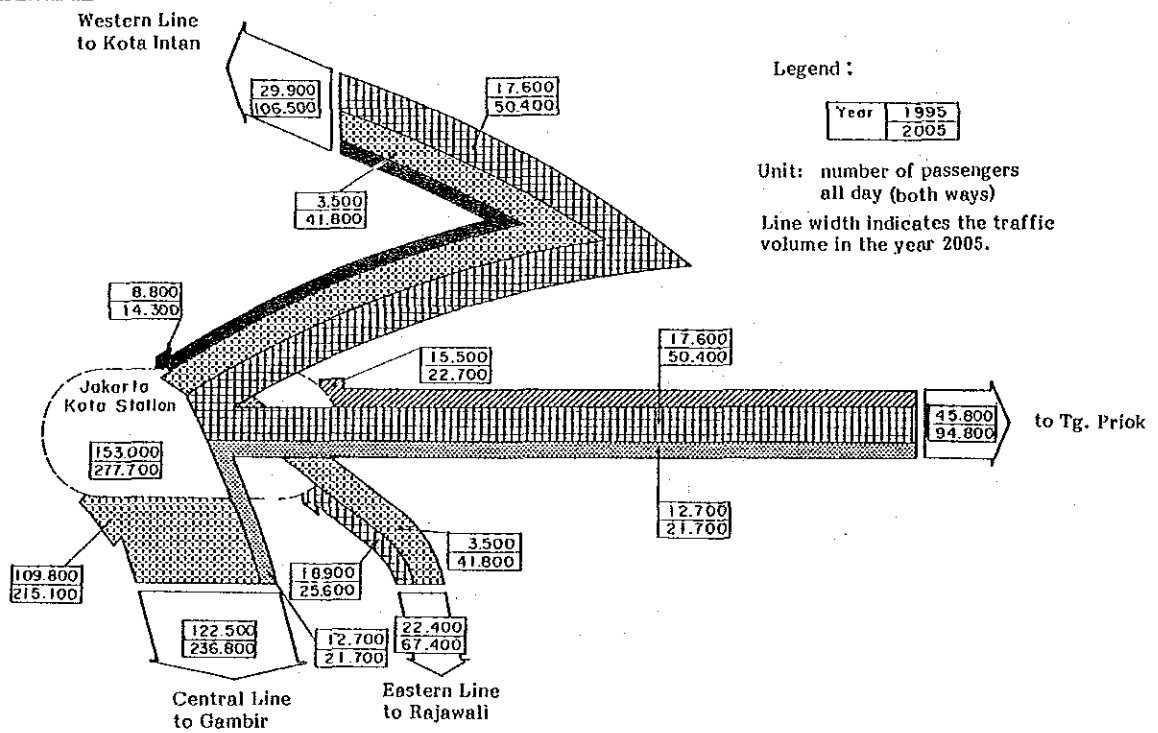


Fig. S.5 Passenger Flow around the Kampung Bandan Station Area

#### 4. Transportation Plan (W-E connection)

##### (1) Project Area

Due to the present track layout, W-Line trains proceeding to and departing from Jak Station must be switchbacked at the Kpb Signal Station. A switchback operation is a serious flaw in a commuter railway system, and may adversely affect required train operation performances. This defect should be eliminated so that train operation can be simplified in order to cope with the expected increases in service frequency.

##### (2) Elimination of Switchback Operation

The switchback operation can be eliminated by connecting the Western and other one lines now converging on Jak Station. Three connections are therefore possible: W-E, W-T, and W-C. In the case of W-E, another connection of C-T Lines is also possible.

##### (3) Preferable Connection: W-E

Among the three conceivable connections, the most preferable one is the W-E. The reasons for this are:

- 1) The passenger flow through the Kpb Station Area is the heaviest on the W-E Line
- 2) Easiness of train operation is ensured
- 3) Construction cost for this link track is the most economical

##### W-E Connection

Remarks

□ : New passenger station

⊙(N<sub>1</sub>): Link track to be built between the Kpb and Rjw Stations.

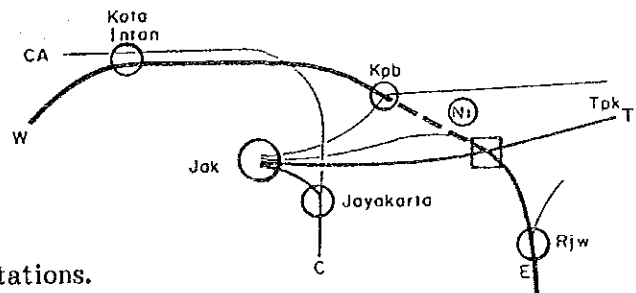


Fig. S.6 Connection of Lines

(4) Train Operation Plan to Implement W-E Connection

Three alternatives are considered, and are compared and evaluated in Table S.2.

Table S.2 Comparison and Evaluation of Train Route Alternatives 1, 2, and 3

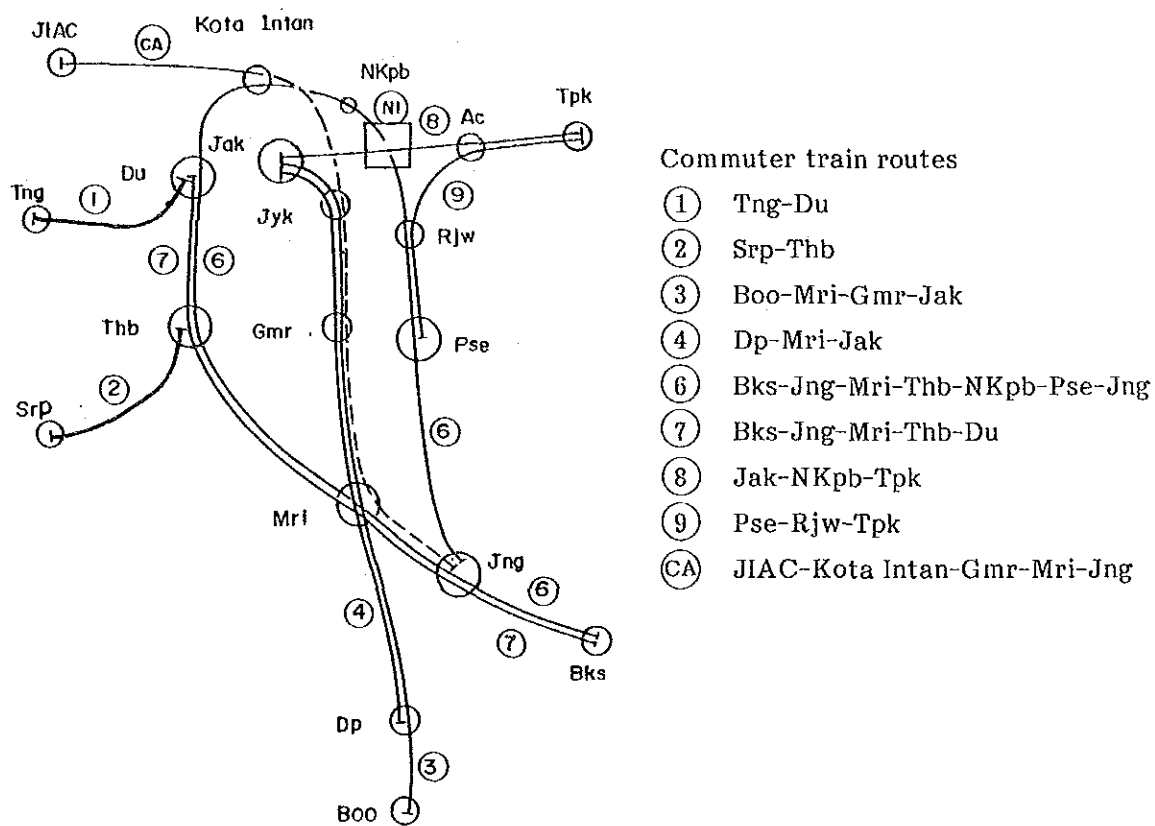
		Alternative 1	Alternative 2	Alternative 3	
Feature	Connection of Lines:	W-E	W-E	W-E	
	Facilities to be built: New Station(s)	NKpb at the intersection of T and E	NKpb at the intersection of T and E NS2 at approx 600m east of Jak	Existing Kpb (signal) upgraded to a passenger station	
	New Link(s)	N1 connecting W and E	N1 connecting W and E	N1 connecting W and E N4 connecting Kpb and Ac	
	Main Train Routes	Loop (W-E) C-Jak T-Jak	Loop (W-E) C-Kota Intan T-Jak	Loop (W-E) C-Jak T-Jak	
	Sectional Train Operation	Bks-Mri-Du	Bks-Mri-Du	Dp-Mri-Du	
Evaluation	Passenger Service	Passenger Convenience	⊙	Passenger Volume from C to Jak is estimated to be the heaviest for this area. Passengers are required to change trains at NS2	⊙
		Easy Access to the Railway Station	○ J1 M. Dua	○ J1 M. Dua	△ J1 Kampung Bandan
		Compatibility with DKI Project	○ Project J1. M. Dua	○ Project J1. M. Dua	△ Future Kota Area re-development
	Train Operation	Simplicity of Train Operations at Stations	○	○	△ Trains from C bifurcate at Mri in directions C and W
		Adaptability of Train Routes to Traffic Demand	○	○	△ Train flow (6), between Mri and Jng, does not satisfy the demand
	Investment & construction	Investment Cost	⊙	x Additional investment at NS2 and	△ Additional investment at N4
		Easiness of Construction	○	x NS2 is to be built on the CA elevated structure, and requires construction work while existing tracks, are being used immediately below	△ Kpb is to be improved and requires work while existing adjacent tracks are being used.
		Provision of space for future improvement of Jak	○ 2 commuter train routes terminate at Jak.	⊙ 1 commuter train route terminates at Jak.	○ 2 commuter train routes terminate at Jak.
	Final Evaluation		⊙	△	○

- Notes:
- ⊙ : Good
  - : No problems
  - △ : some problems
  - x : serious problems



(5) Optimum Commuter Train Operation Routes

Alternative 1, shown below, will be the best.



Note: As for long-distance passenger trains and freight trains, no significant modification of train routes is envisaged.

Fig. S.7 Commuter Train Operation Routes

(6) Commuter Train Headway and Formation

The commuter train operation headway and train formation at the two-hour peak are shown in Fig. S.8.

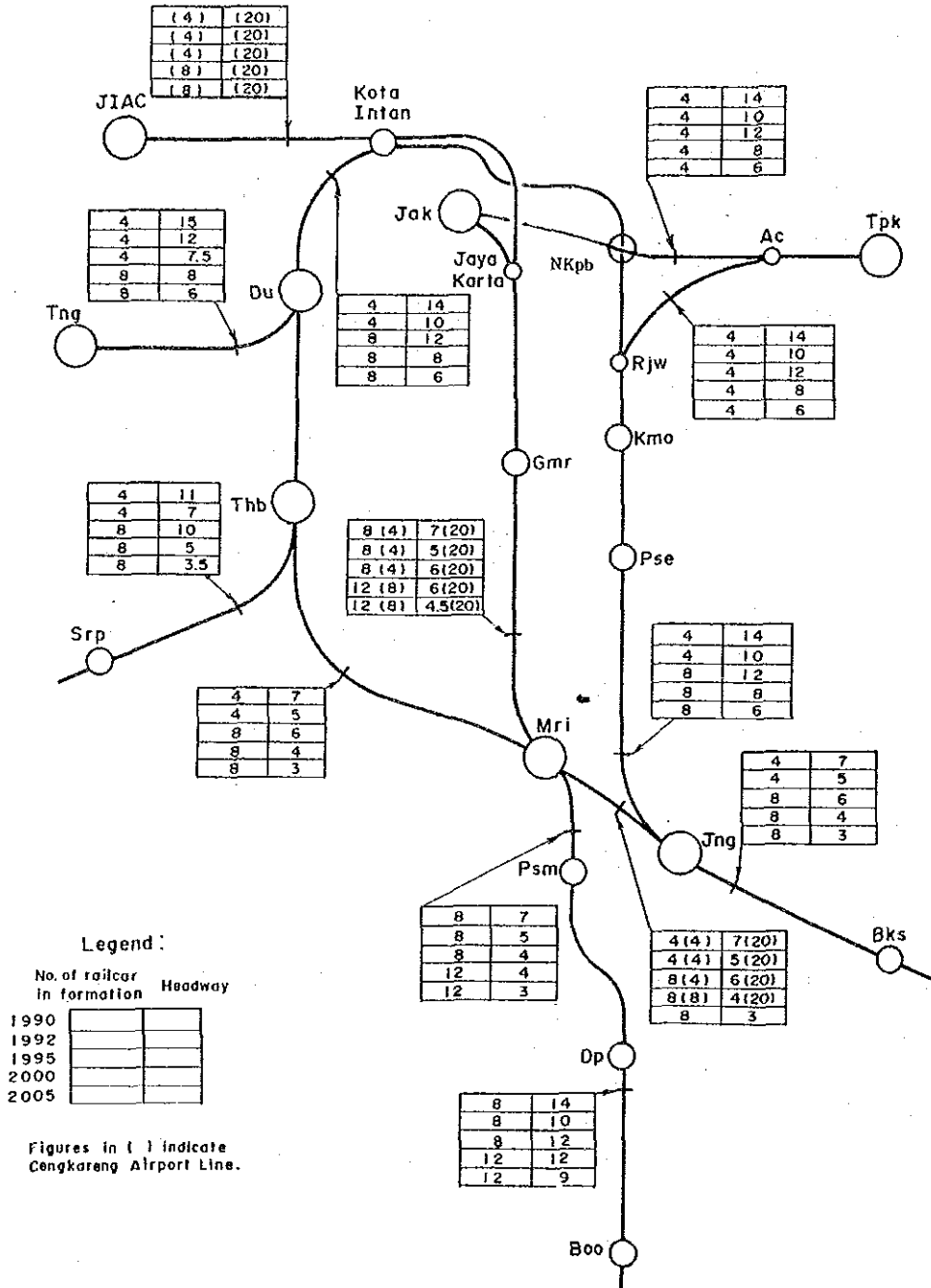


Fig. S.8 Train Headway and Number of Railcars for Each Train Set (2-Hr. Peak)

(7) Rolling Stock Required

The number of rolling stock required for "With" and "Without" are shown in Table S.3. The differences can be attributed to increased efficiency from the elimination of the switchback operation.

Table S.3 Number of Railcars Required for "With" & "Without"  
(for entire JABOTABEK Area)

Year	"With"	"Without"
1990	404	412
1992	544	552
1995	672	720
2005	1380	1448

(8) Control of Train Operation

(a) Dispatcher Control

The present train "Dispatcher Office" at Jak Station is designed mostly to trace long-distance train operations. When the Project is carried out it will cause drastic changes in the commuter train routes, including the loop operation. The result is that the new dispatcher office will have to control all train operations from there. Its functions should be renovated, its scope enlarged, and its facilities manned by well-trained dispatchers under a new system.

(b) Education and Training

Instilling the habit of punctuality in railway staff is the key to the smooth operation of a high-frequency urban commuter service, especially during peak hours. All related staff must be given the opportunity to inculcate this behavior into their daily work routine.

## 5. Railway Facility Improvement Plan (New Kampung Bandan Station)

### (1) Present Conditions

Present track layout at the Kpb Station Area is shown in Fig. S.9 below.

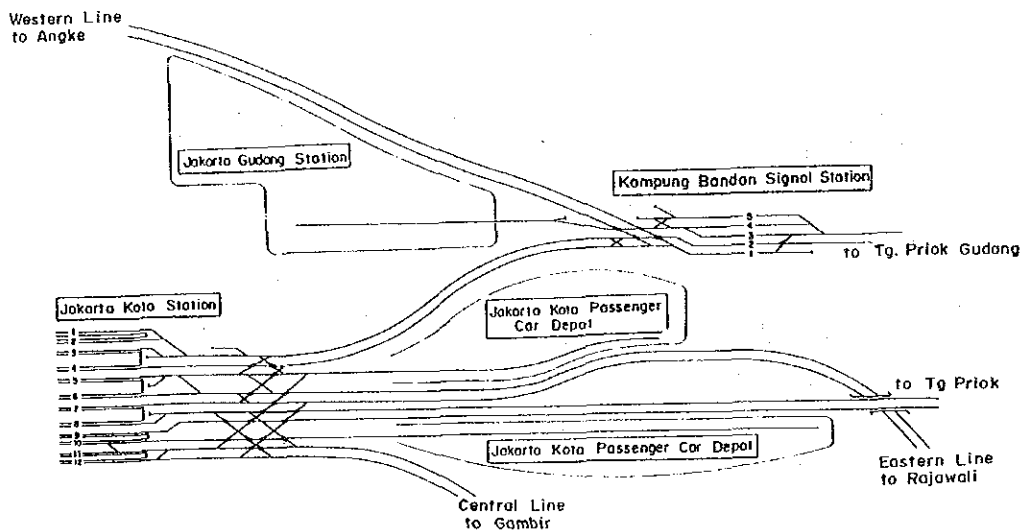


Fig. S.9 Present Track Layout of the Kampung Bandan Station Area

### (2) Basic Concepts for Improvement

The improvement plan gives due consideration to the following:

- 1) Construction work that is small in scale, low-cost, and requires a short period of time, since major construction could possibly pose obstacles to future large scale improvements.
- 2) No level-crossing of two lines that are double-tracked and used for commuter trains.
- 3) Connection of W- and E-Lines.
- 4) Remedial services on the T-Line for W- and E-Line passengers who lose direct arrival service to Jak Station due to 3) above. It will also serve as an easy method of transfer between commuter and long-distance passenger trains.

5) Construction of a new station (NKpb) at the intersection of the E- and T-Lines to simplify train transfer.

6) No drastic changes in long-distance and freight train handling.

(3) Improvement Plan

Seven alternatives are set up using the above concepts, and are compared and evaluated by the following criteria:

1) Passenger Service Criteria

a) Distance from business/commercial centers, access roads, etc.

b) Convenience of passenger transfer (i.e., distance between the platforms of the W-and T-Lines at NKpb).

c) The degree of curvature of new station platforms and passenger safety.

2) Cost Criteria

a) Land acquisition and warehouse removal compensation

b) Construction work

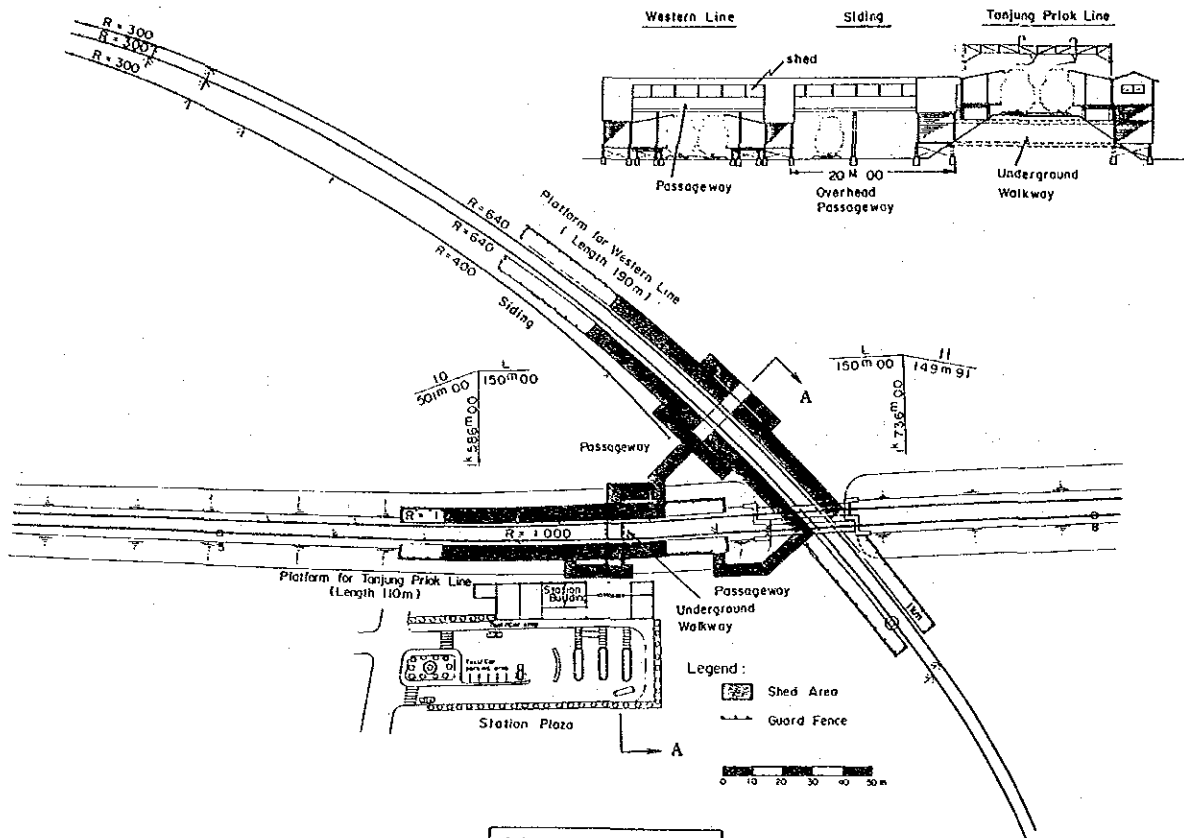
3) Impact Criterion

a) Impact on future plans in relation to the NJak Station improvement

Two alternatives are selected using the above criteria: P<sub>1-1</sub> and P<sub>1-2</sub> (see Fig. S.10).

A comparison of the two alternatives is given in Table S.4. No decisive merits or demerits can be pointed out in either of the alternatives, but since P<sub>1-1</sub> provides a slightly more convenient transfer for passengers and requires less construction cost, P<sub>1-1</sub> is recommended.

### Alternative P<sub>1-1</sub>



### Alternative P<sub>1-2</sub>

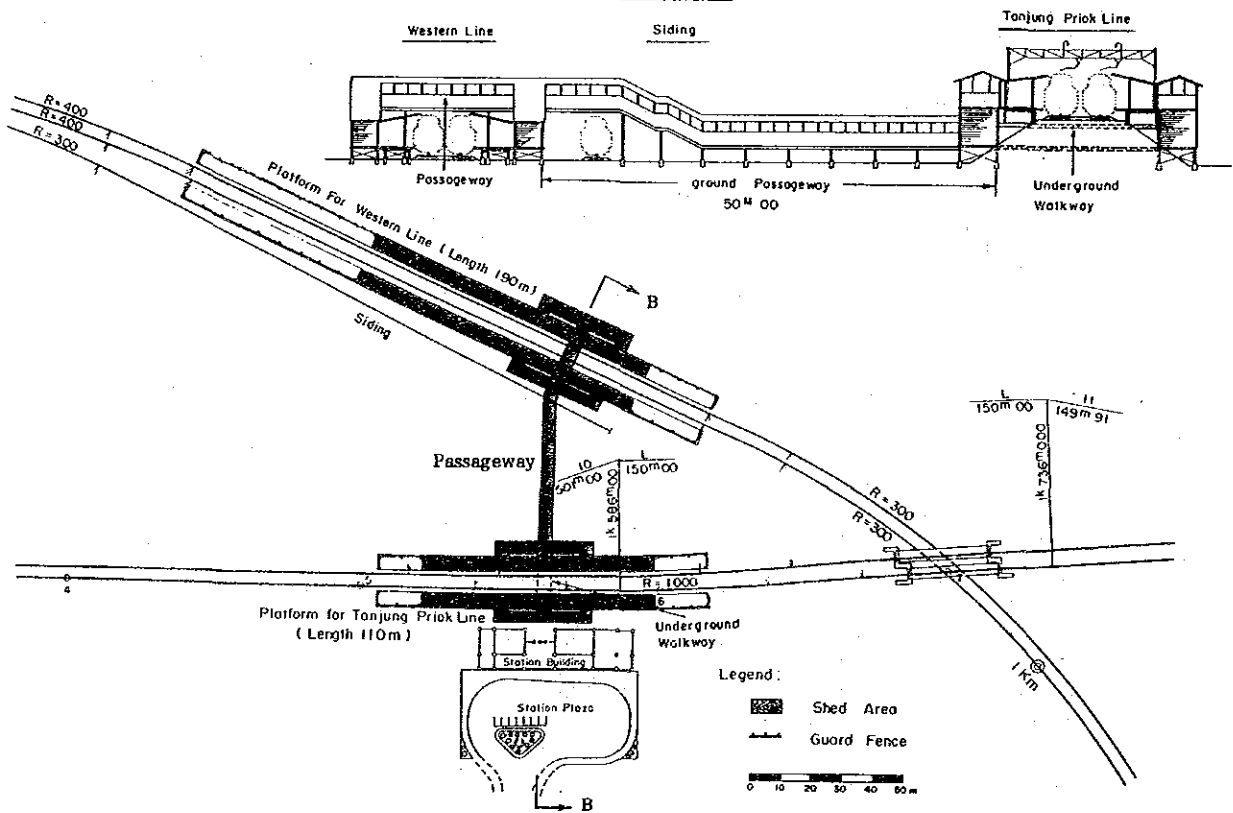


Fig. S.10 Station Facility Plan

Table S.4 Comparison of P<sub>1-1</sub> and P<sub>1-2</sub>

Items		Alternative	Alternative P <sub>1-1</sub>	Alternative P <sub>1-2</sub>
Features	1. Connection of main lines		W - E	W - E
	2. Location of station		Intersection of E and T	Intersection of E and T
	3. Corresponding operation route (refer to Chapter 4)		Alternative 1	Alternative 1
	4. Curve radius applied to large portion of platforms		640 m	Straight
Evaluation	5. Land acquisition		○ unnecessary	○ unnecessary
	6. Warehouse removal		○ 2,000 m <sup>2</sup>	△ 16,000 m <sup>2</sup>
	7. Transfer convenience		○ Transfer distance : 20 m	△ Transfer distance : 50 m
	8. Maximum clearance between platform and rolling stock		○ 18 cm	○ 10 cm
	9. Easiness of construction		○	○
	10. Construction cost		○ 7.1 billion Rp	○ 7.3 billion Rp

Notes:

○ : No problems

△ : Some problems

## 6. Investment Scale and Schedule

### (1) Investment Scale

Total cost of the Project is estimated at 7,144 million Rp: the local currency portion is 2,045 million Rp, while the foreign currency portion is 5,099 million Rp. (see Table S.5). If the passenger facilities of the NKpb Station are simplified, one plan (Alternative P<sub>1-1s</sub>) shows that the total estimates would be 6,425 million Rp.

Table S.5 Estimated Costs

Investment items	Investment Sum (Million Rp)		
	Foreign	Local	Total
1. Civil work	302	331	633
2. Station facilities	899	684	1,583
3. Track	1,715	253	1,968
4. Electrification	216	239	455
5. Signalling & Telecom.	913	107	1,020
6. Compensation	-	16	16
7. Engineering services Supervision for construction	510	170	680
8. Contingency	544	245	789
Grand total	5,099	2,045	7,144
(With simplified passenger facilities)	(4,681)	(1,744)	(6,425)

### (2) Investment Schedule

The construction period for the improvement is scheduled to take a year and several months (see Table S.6).

Further schedule examination is required for the actual implementation, since construction work will be done next to existing lines and require relocation of a number of existing tracks.



Table S.6 Investment Schedule

Work Items	Execution Year				Remarks
	1986	87	88	89	
Preparatory work	██████████				Detail design Tendering Financing
Roadbed raising			██████████		Includes bridge raising
Track			██████████		Includes rearrangement
Station & other facilities			██████████		
Electrification Signalling Telecommunication			██████████		

(3) Investment Timing

The Project should be started as soon as possible, since its merits lie in promoting passenger service using loop train operation.

## 7. Economic and Financial Analysis

### (1) Economic Analysis

The main objective of an economic analysis is to evaluate the economic feasibility of a project from the viewpoint of a national economy. The economic viability of a project is evaluated by the EIRR, which is calculated by using a cost-benefit analysis. Other factors representing indirect and unquantified benefits should be also taken into account.

#### (a) Cost-Benefit Analysis

Cost-benefit analysis is conducted on the incremental costs and benefits for the cases "With" and "Without". Costs are composed of investment layouts (for railway facilities, rolling stock, and buses) and operating/maintenance expenses (for railways and buses). Benefits are composed of the time-savings received by railway passengers, and the number of rolling stock economized on (see Fig. S 11).

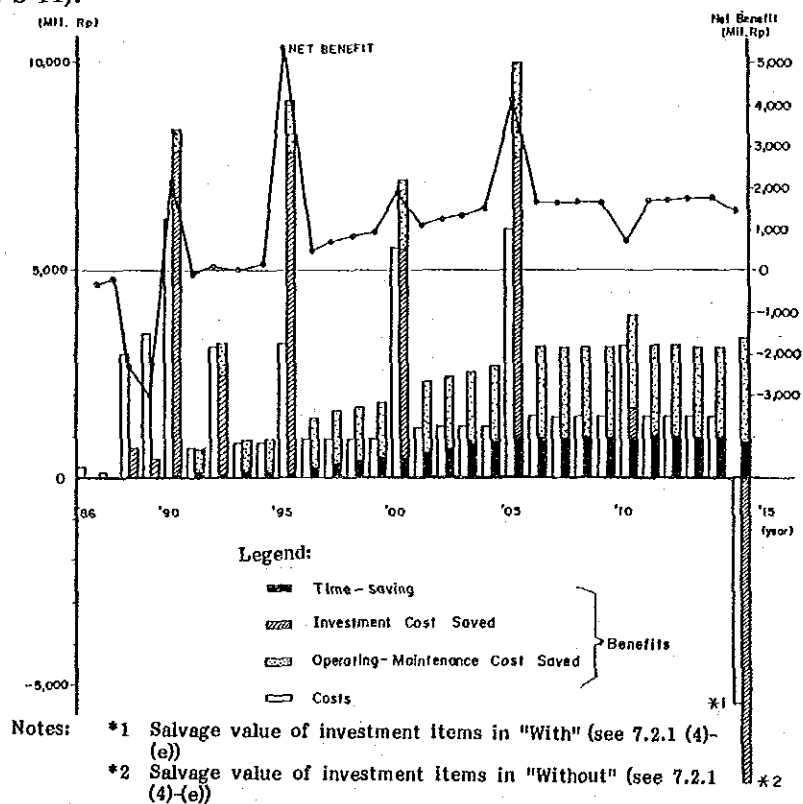


Fig. S.11 Costs and Benefits for Each Year

(b) Results EIRR : 17.8%

(c) Sensitivity Test

The sensitivity tests show that each case still remains sufficiently feasible.

Table S.7 Sensitivity Test Results

Cases		EIRR
Base Case		17.8%
Investment Cost	+10%	17.1%
Construction Cost	+10%	15.7%
Cost of Rolling Stock	-10%	16.6%
Traffic Demand	-10%	17.1%

(d) Evaluation

The Project is considered feasible, not only because of its sound EIRR, but also because of the following indirect/unquantified benefits that are its concomitants:

- 1) Job creation during the construction period
- 2) Decrease in accident risk because of the elimination of the switchback operation at the Kpb Signal Station
- 3) Contribution to land-use development of the Project Area in collaboration with the Jl. Mangga Dua Project
- 4) Decrease in road congestion around the Project Area

(2) Financial Analysis

The specific objectives of this financial analysis are:

- 1) To determine the required extent of Government subsidies based on the profit/loss projection of the Project
- 2) To study the outline of the debt, and the debt repayment ability of the Project based on the cash flow projection.

(a) Results

- 1) Operating profit of PJKA

Table S.8 Operating Profit

(Unit : Million Rp)

Items	1986-1995	1996-2005	2006-2015	Total
Operating Revenue	6,763	31,894	41,726	80,383
Operating Expense	5,198	11,892	15,536	32,626
Operating Profit before Depreciation	1,565	20,002	26,190	47,757
after Depreciation	-1,551	12,536	16,257	27,242
Net Profit	-3,865	8,538	12,641	17,314

- 2) Government subsidies required to cover the operating deficits

Government subsidies will be required only for a two to four year period after completion of the Project (see Table S.9 and Fig. S 12).

Table S.9 Government Subsidies

(Unit : Million Rp)

Subsidies \ Year	1990	1991	1992	1993	1994-2015	Total
Subsidies before depreciation	489	146	0	0	0	635
Subsidies after depreciation	932	590	469	127	0	2,118

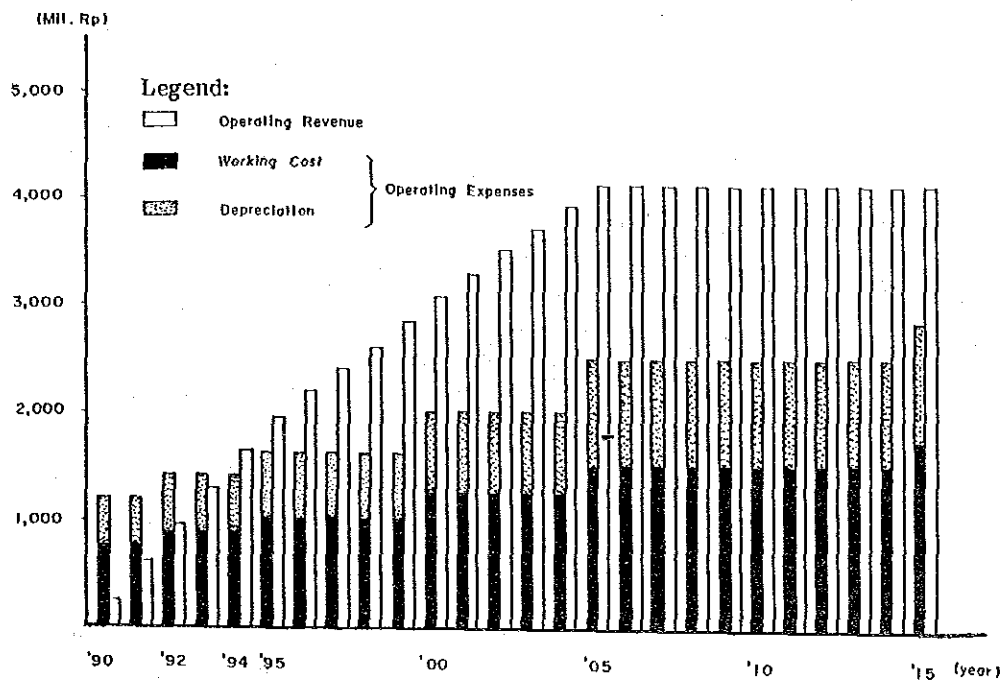


Fig. S.12 Operating Revenue and Expenses for Each Year

3) Net cash flow

Under any of the four fund-raising plans (see Table S.10), the Project will produce a sufficient cash flow to service the debt for the whole project life.

(b) Evaluation

The Project is financially viable and will make a considerable financial contribution to PJKA in the long run.

Table S.10 Fund-Raising Plan

	Foreign currency portion	Local currency portion	Reference
Base Case	Government-to-Gov't borrowing 3.5% p.a. 30 years, including a 10 year grace period	Government budget	Appendix 7.4
Case - 1	(50%) Government budget  Same as above	(50%) Domestic Rp borrowing 16.5% p.a. 10 years, including a 4 year grace period	Appendix 7.4
Case - 2	Official overseas borrowing (including IBRD, ADB) 9% p.a. 15 years, including a 4 year grace period	Government budget	Appendix 7.4
Case - 3	Same as above	(50%) Government budget  (50%) Domestic Rp borrowing 16.5% p.a. 10 years, including a 4 year grace period	Appendix 7.4

Note : The terms of repayment are assumed to be as follows:

- (1) Government budget, No need to repay
- (2) Borrowings, Annual equal installments

**8. Related Future Plan (New Jakarta Kota Station)**

**(1) Future Requirements**

The Project will ensure that the JABOTABEK Railway Network has a sufficient transport capacity for a considerable period of time. However, the expected increases in both commuter and long-distance passenger trains will eventually render the present capacity of the Jak Station and of the main lines converging on it insufficient.

Future development of DKI Jakarta, on the other hand, might result in the relocation or abolishment (partial or even total) of the railway facilities in the Kota Area.

**(2) Options**

An inquiry concerning the future design of the NJak Station from the railway's standpoint will be conducted. Before starting the inquiry, the following options are assumed:

**(a) W-E Commuter Train Routes**

As in the Project, commuter train routes will have a W- and E-Line connection.

**(b) The Role of the NJak Station**

**1) Dual Purpose . . . . . (Option A)**

It will contain a commuter terminal and a long-distance passenger terminal.

**2) Single Purpose . . . . . (Option B)**

It will contain a commuter terminal only

(c) The Site of the NJak Station

- 1) Present Jak Station ..... (Option K)
- 2) Present Jakarta Gudang Station ..... (Option G)
- 3) Present Jak Passenger Car Depot ..... (Option D)

(3) Five Conceptual Alternatives

By combining Options A and B with K, G, and D, six (2 × 3) conceptual alternatives are obtained. Among the six, however, the combination of B and K is incompatible. This is because a terminal that is exclusively for commuter service (Option B) should not be built at a site where a dead-end type of track layout is going to exist (Option K). This combination must therefore be eliminated (see Table S.11).

Table S.11 Combination of Options

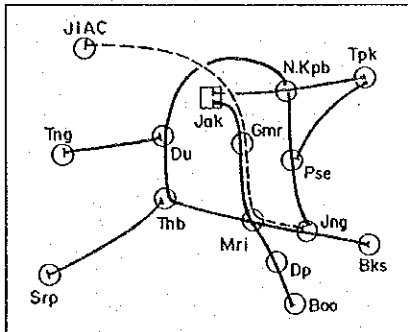
Site	Kota (K)		Gudang (G)		Depot (D)	
	Dual (A)	Single (B)	(A)	(B)	(A)	(B)
Conceptual Alternative Code	101	/	102	104	103	105

The remaining five conceptual alternatives (101 - 105) are illustrated in Fig. S.13 with their respective train routes. Concerning Conceptual Alternative 102, three track layouts are possible (102-1, 102-2, and 102-3), and are shown in the same Figure.

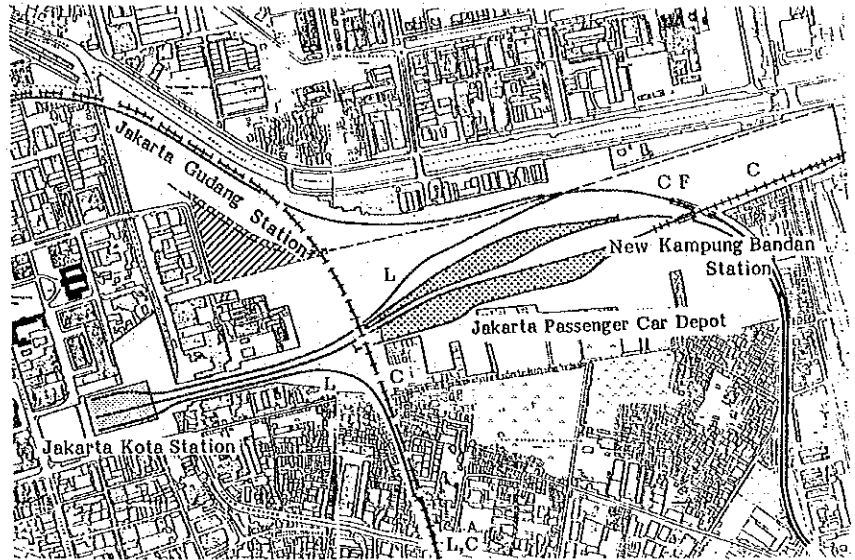
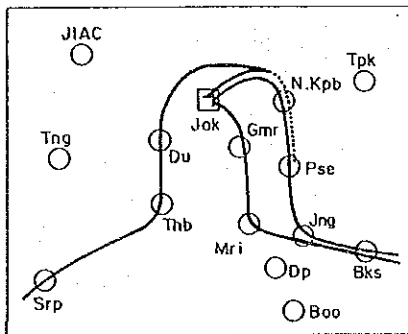


Conceptual Alternative 101

Commuter trains



Long-distance passenger trains



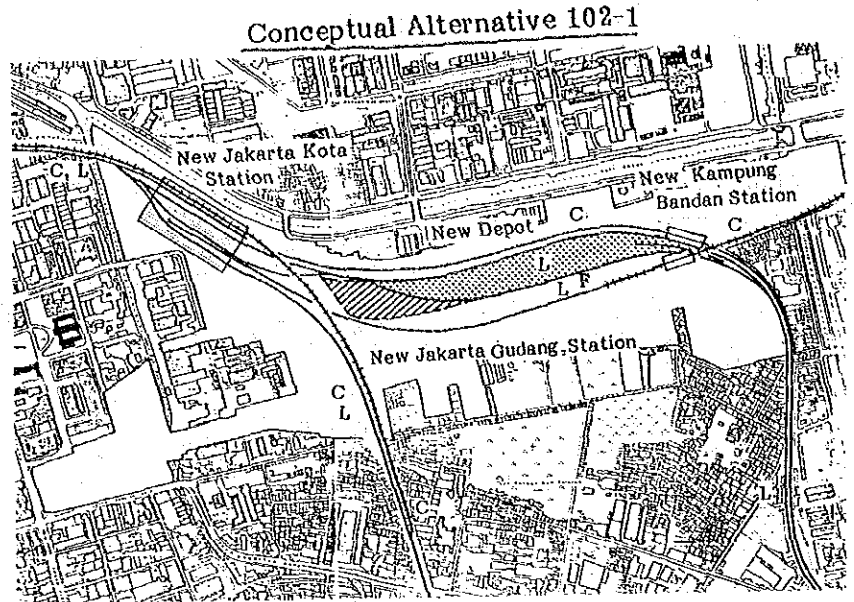
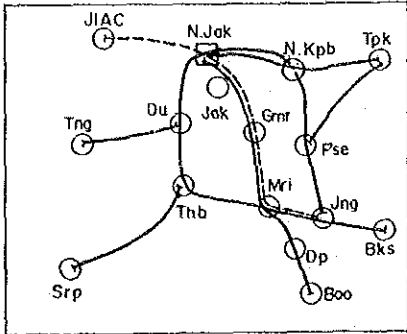
Legend :

- Commuter/Long-Distance Passenger Train Line
- - - - - Freight Train Line
- +++++++ Proposed Cengkareng Airport Line (Elevated)
- +++++++ Elevated Track
- ▬▬▬▬▬ Passenger Station
- ▨▨▨▨▨ Freight Station
- ▨▨▨▨▨ Passenger Car Depot
- C Tracks for Commuter Trains
- L Tracks for Long-distance Passenger Trains
- F Tracks for Freight Trains

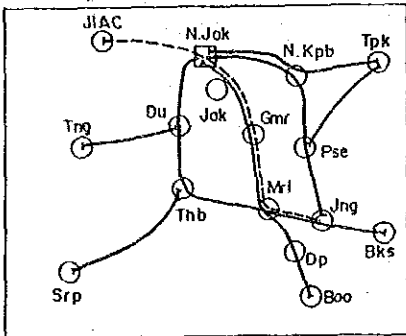
Fig. S.13 (1) Conceptual Alternative

Conceptual Alternative 102

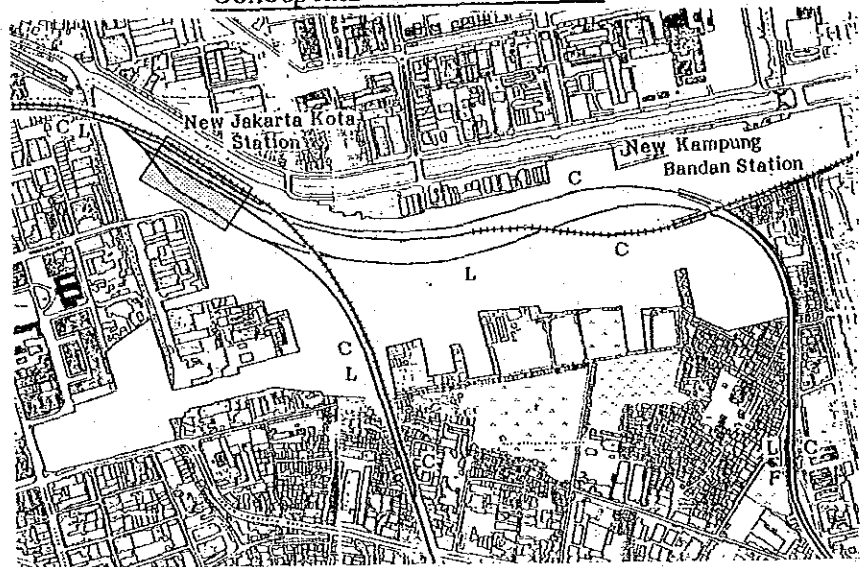
Commuter trains  
(Conceptual Alternative 102-1  
102-2)



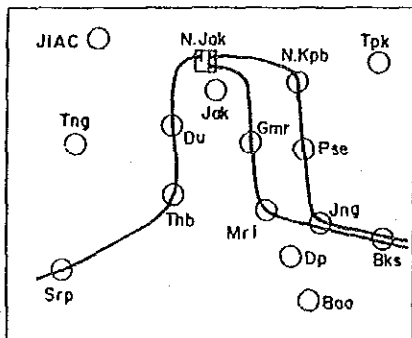
(Conceptual Alternative 102-3)



Conceptual Alternative 102-2



Long-distance passenger trains



Conceptual Alternative 102-3

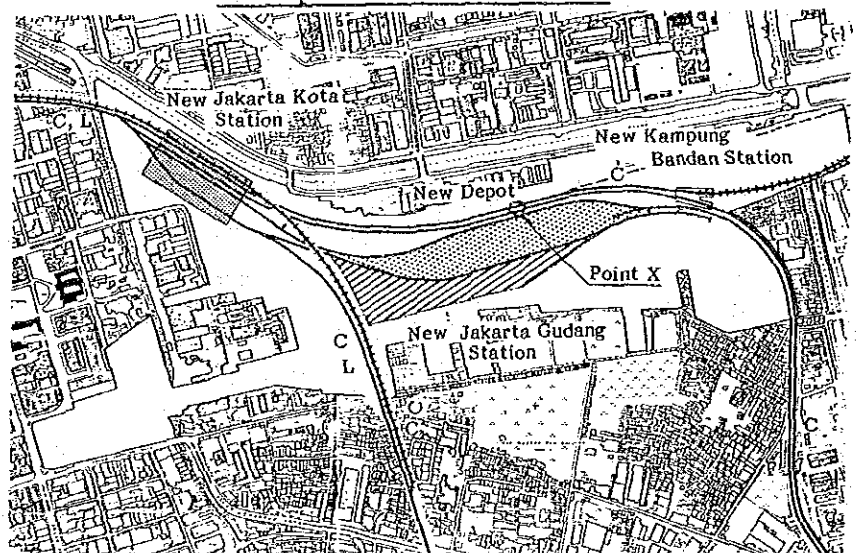
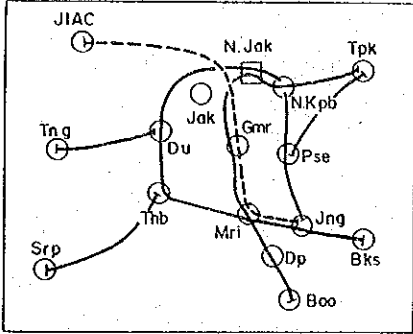


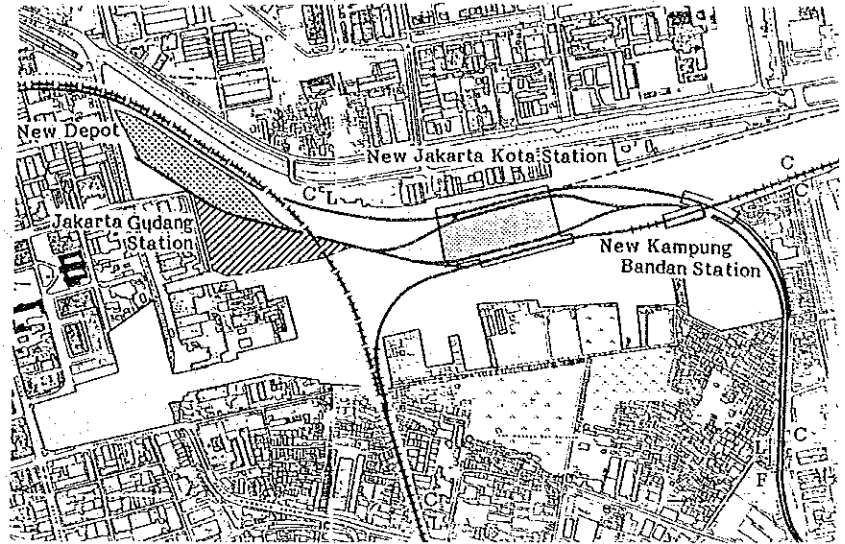
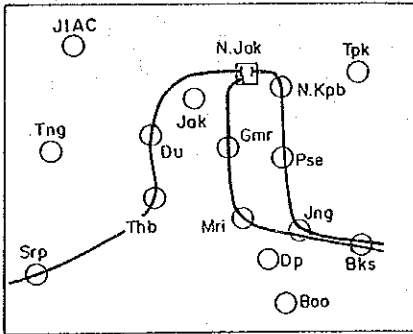
Fig. S.13 (2) Conceptual Alternative  
S - 28

Conceptual Alternative 103

Commuter trains

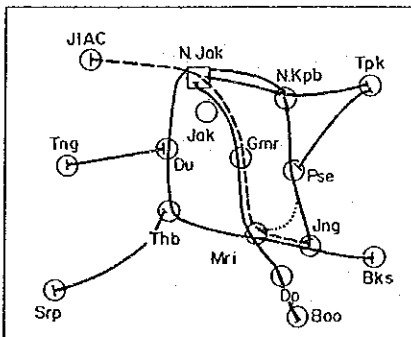


Long-distance passenger trains



Conceptual Alternative 104

Commuter trains



Long-distance passenger trains

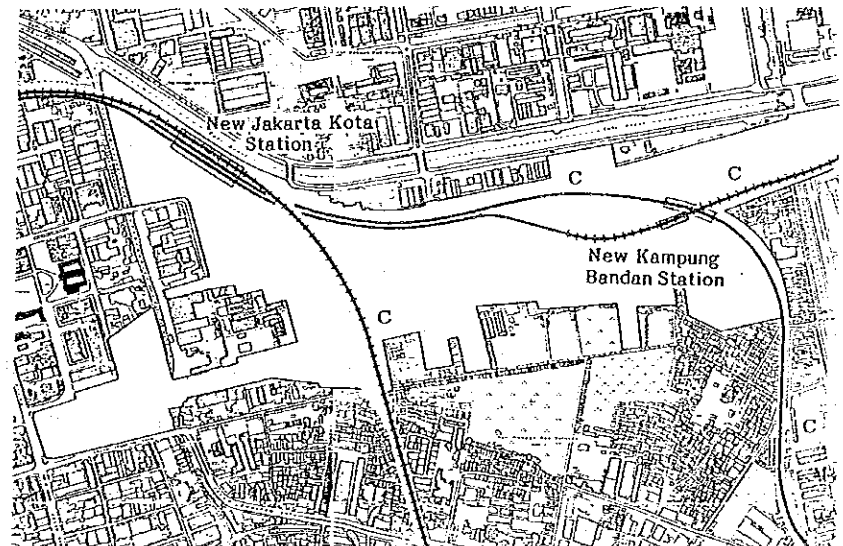
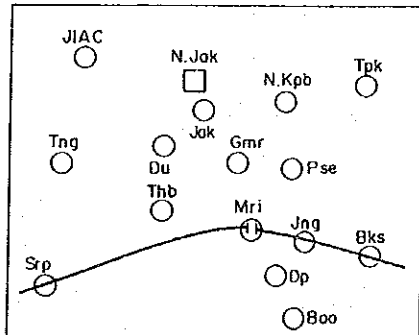


Fig. S.13 (3) Conceptual Alternative  
S - 29

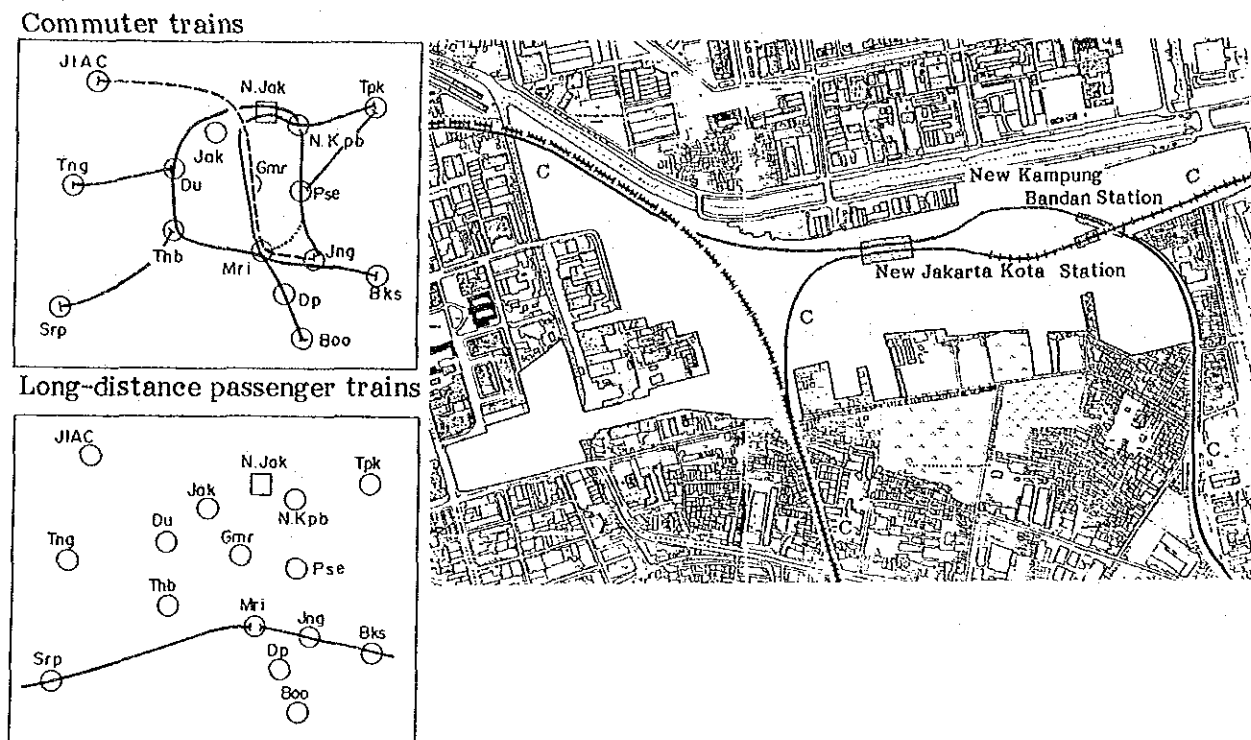


Fig. S. 13 (4) Conceptual Alternative

(4) Validity of the Conceptual Alternatives

In order to make use of the above-mentioned Conceptual Alternatives, the validity of each option must be verified.

To do this, another study that takes into consideration the national transportation and development policies must be conducted. Without this verification, the Conceptual Alternatives can not be used except for the following limited purposes:

- 1) Checking the validity of the Project (Railway Improvement in the Kampung Bandan Station Area) by focusing on the required alterations, if any, for the Project's construction program
- 2) Delineating the scope of work for further studies

(5) Compatibility between the Project and Conceptual Alternatives

The Project must be checked to see if it could withstand situations which may reasonably emanate from the implementation of the future design of the NJak Station. The result of this checking shows that each Conceptual Alternative would not cause major problems for the Project. Problems, if any, can be solved outside of and independently of the Project.

(6) Delineation of Issues in a Further Study

The viability of the options should be verified in a further study from the perspectives of the whole JABOTABEK Railway Network and DKI Jakarta development and/or redevelopment.

(a) Railway's Viewpoint

The role of the NJak Station in the JABOTABEK Railway Network should be clarified by addressing the following issues:

- 1) Policies dealing with long-distance passenger trains in the JABOTABEK Area
- 2) Policies dealing with freight trains in the JABOTABEK Area
- 3) Policies dealing with PJKA's participation in land-use planning of spaces where the current railway facilities existed

(b) City's Viewpoint

- 1) Elaboration of the redevelopment plan for the Kota area
- 2) Elaboration of road projects in the DKI Jakarta Area

## 9. Conclusion

### (1) Evaluation

#### (a) Significance of the Project

The Project promotes the JABOTABEK Railway network development by producing a more efficient commuter train operation through the elimination of the switchback operation at Kampung Bandan Signal Station. It will considerably reduce the number of rolling stock required, furthermore, it will distribute radial line passengers to their ultimate destinations (i.e. densely populated city centers, of which many are located along the Eastern and Western Lines).

The Project will also contribute to balanced city growth by encouraging development of the western and eastern parts of the JABOTABEK Area.

#### (b) Economic and Financial Evaluation

The Project will yield social benefits at the acceptable EIRR of 17.8%. Its implementation is even more justifiable when the various indirect and unquantified benefits are taken into account.

The Project is also expected to make a sizable financial contribution to PJKA, while only requiring a reasonable to government subsidy.

#### (c) Concurrent Measures

The Project could be more effectively accomplished if the factors that are naturally concurrent with it are implemented. The following would serve this end:

- 1) Education and training of related staff
- 2) Careful coordination of the Project with the city's plan so that the station plaza, access roads, and feeder transportation may function successfully and enjoy the support of the citizens

3) Urgent implementation of some concurrent items of the Functional Improvement of railway fundamentals in the Master Program

- The achievement of these items, with or without completion of other items of less concurrent nature, would enable the Project to materialize its core objective of the loop train operation.

(2) Conclusion

The Project is significant and feasible because of its technical and economic advantages. In addition, inquiry has shown that the Project will not cause major problems for the implementation of the New Jakarta Kota Station plan.

Therefore, it is recommended that the Project be started as soon as possible, with primary consideration given to Alternative P<sub>1-1</sub>.











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