

資料 3 . Terms of Reference (TOR)



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Kepada Yth.
Kepala Biro Perhubungan dan Transportasi Bappenas
Di
Jakarta

Perihal : Penyampaian TOR for An Integrated Transportation Masterplan for Jabotabek

Sehubungan dengan Bantuan dari Pemerintah Jepang dalam rangka penyusunan "Integrated Transportation Masterplan for Jabotabek", bersama ini kami sampaikan dengan hormat 2 (dua) set TOR untuk studi tersebut di atas. Adapun TOR ini merupakan hasil perbaikan TOR sebelumnya yang telah disampaikan oleh Bappenas kepada Pemerintah Jepang, yang meliputi perbaikan atas struktur dan ruang lingkup studi.

Dalam penyusunan TOR ini kami melaksanakannya bersama-sama dengan Direktorat Jenderal Perhubungan Darat, cq. Direktorat Bina Sistem Lalu Lintas dan Angkutan Kota beserta JICA Expert dan Technical Advisor pada tempat kami.

Demikian kami sampaikan, atas perhatian dan proses lebih lanjut diucapkan terima kasih.

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The Government of Indonesia
TERMS OF REFERENCE
for
AN INTEGRATED TRANSPORTATION MASTERPLAN FOR JABOTABEK

1. INTRODUCTION

1.1 Background

These Terms of Reference outline the requirements for an integrated urban transport study for the major metropolitan areas within the Jabotabek region. The region comprises the capital city DKI Jakarta, covering an area of 650 km² and with a population of about 9 million, and the Kabupaten and Kotamadya of Bogor, Tangerang, and Bekasi with a total area of 6,160 km² and a population of about 10 million. With a total population of approximately 19 million, Jabotabek is one of the largest conurbations in South East Asia, and the largest in Indonesia, for which it provides the engine of economic growth. The population of this region is projected to be in excess of 30 million by 2015.

The region is characterized by rapid population growth primarily due to heavy urbanization. In addition, the high rate of economic growth has resulted in higher incomes, which in turn has resulted in increasing vehicle ownership and usage. On the other hand, transport infrastructure remains limited, and heavy traffic congestion imposes long travel times and high transport costs on residents and businesses. Infrastructure needs for economic movements of this region are enormous.

For a mega city like the Jabotabek region, where many conflicts occur, there is an urgent need for a strengthened transport system, which is integrated, intermodal, and is supported by a strong planning and implementing institution. There is perhaps an even more pressing need for the development of an increased institutional capability for undertaking the consolidated planning of the whole region. Also there is a need for establishing the planning tools, databases, and skilled human resources necessary to take control of and direct the ongoing development of the region.

The proposed study is intended to directly address these issues. It will be initially directed at establishing the tools necessary for planning, and the preparation of a transport system development plan that supports and is supported by, an agreed land use development strategy for the Year 2020. The integration of land use and transport system planning is essential to ensure that both sides of the development coin are planned together. However, it is intended that the study go much further than just the development of a plan; the establishment of a planning process, and its implementation within an institution that is capable of maintaining and directing planning for future growth, is also a major focus of the proposed study. These Terms of Reference describe the establishment of a basic philosophy of what should be addressed by and is to be achieved in the study, set out the study objectives, and specify a scope of work needed to achieve these objectives. Arrangements for the organisation of the study are proposed, and the required disciplines and time inputs from specialist staff are identified.

1.2 Necessity for an Urban Transport Master Plan

Indonesia's rapid rate of economic development has enhanced the importance of the metropolitan function of Jakarta, and Jakarta's development has accelerated and spread into the surrounding areas. Its urban structure is changing rapidly and dynamically, and the urban transport system serving Jakarta and its environs has not been able to be expanded in a way that keeps pace with urban development growth. There is a strong relationship

between urban development and transport accessibility, and where this latter is constrained by a limited transport system, this relationship is even stronger. Hence any changes in the transport system bring about major changes in the patterns and density of urban development. In planning for future urban development, it is essential that this inter-relationship is fully taken into account. The need for the development of an integrated transport network for Jabotabek is a matter of extreme urgency, to properly provide for urban travel demands and urban development, to alleviate traffic congestion and the deterioration of the urban environment, and minimise associated social and economic costs. While expansion of road infrastructure is still necessary, particular emphasis should be placed on providing benefits for low income groups through the provision of an improved public transport system. Detailed urban transport policies and strategies have to be established based on which national and regional development policies can be translated into a metropolitan multi-modal transport setting.

The overall urban transport master plan is thus required in a coherent and comprehensive manner to achieve the sound metropolitan development in Jabotabek with the identification of action programs of respective modes of transport and their prioritisation.

1.3 Need for Comprehensive Surveys of Travel Patterns

The last large scale person trip survey was conducted by JICA in 1985, and covered the whole Jakarta population with a 5% of sampling rate. The results of the survey have been used in various transport sub sectors and partially updated as required for respective projects. However, the base information obtained from the 1985 survey has become obsolete, and it no longer reflects the current characteristics of person trips, which have changed substantially as a result of changes in income levels, availability of transport modes, and the urban structure.

A comprehensive survey of person travel patterns is now required for DKI Jakarta and Botabek, so as to provide a proper base for estimating base year and forecast year travel demands. These are essential for the development of transport network and land use planning models, and for the analysis and evaluation of future development patterns and associated transport infrastructure.

In order to establish and support a flexible and dynamic planning system, the person trip OD survey together with land use, socio-economic, transport facility, and other relevant field surveys will be essential in preparing the overall urban transport master plan.

1.4 Structuring the Study to Address Different Needs

While the overall objective for the study is the preparation of an integrated transport master plan for the Jabotabek region, achievement of this objective will take a long time. There remain a number of other pressing concerns and needs in the area, and these will be reviewed in parallel in the current study. These shorter-term issues are briefly reviewed below.

a. Need to Assist in Relief of Recent Economic Crisis

The recent economic crisis has had a number of major impacts on the transport system in Jabotabek. The combination of reduced employment and dramatic price increases has left many unable to afford travel, even for essential services. The high cost of spare parts, combined with public transport fares which have been frozen by government, and declining passenger demand, have severely hurt public transport operators, and service provision has been substantially reduced as a result. Further, the collapsing value of the rupiah has

substantially reduced the ability of local government to fund essential maintenance works, and the condition of local roads and transport facilities has deteriorated markedly.

There is little that direct funding assistance to the transport sector can do to address the first two problems, except through job creation. Hence the use of labour intensive methods and works for maintenance will assist in all three of these problems.

The first part of the study will therefore be directed at the preparation of a program of immediate repair and maintenance of existing transport infrastructure and facilities.

b. Need for Transport System Improvement Program

While it is intended that as part of the development of the master plan, attention will be given to the preparation of a short- to medium-term investment program for the transport system, there are many immediate and pressing needs for localised improvements that cannot wait. It is therefore essential that a program of relatively low-cost but high-impact improvements be prepared, so that more effective use can be made of existing infrastructure and facilities.

The second part of the study will therefore review local needs for system improvements, and prepare a prioritised program of investment that will help maintain the transport system until more substantial programs become effective.

2. EXISTING CONDITIONS

2.1 Railway Transport

The Jabotabek area is presently served by 7 rail lines totaling about 160 km in length and 55 railway stations of which 140 km are electrified and 90 km double track. The gauge of tracks in Indonesia is actually 1067 mm and the electricity supply in the Jabotabek area is 1500 volts AC. The modal share of railway of all Jakarta-related person trips was very low with 0.25% of all trips inside Jakarta and 4.7% of Jakarta Botabek trips, resulting in an average share 1.1% in 1989. This indicates that currently the role of railway transport within Jabotabek is rather limited. Without discussing reasons in detail, poor service, insufficient supply, and an urban structure development oriented towards major arterial roads and disregarding the rail system explains the low current level of rail mode share.

The Jabotabek railway project, which included the elevation of the Central Line from Manggarai to Kota and signalling and electrification of selected priority railway lines/sections, was planned in the 1980's, and it has been steadily carried out in the following decade. The latent potential of mass commuter railways in large cities was made clear as seen in the commencement of the 12-minute headway operation of the Bogor Line (the Central Line) that mainly serves suburban commuters to and from the centre of Jakarta City.

At present, there are still remain many single-track sections throughout the Jabotabek railway, and transport capacity is restricted by insufficient train formations and shortages of operating safety equipment. This constitutes a limited share in terms of the total person trips generated in the metropolitan area. However, the share of railway transport increased significantly on account of the relatively advanced development of the Bogor Line, the Bekasi Line and so on, additionally to improvements of train speed and frequency. As a result, the ridership percentage among travelers has attained 300-400% of prescribed limits, and a notable yearly increase in demand has been realized. Furthermore, there is a significant growth trend among the middle class that use the railway by park-and-ride to avoid worsening traffic jams on streets in the city area.

In response to recent trends of flourishing business districts and residential development in central urban and suburban areas, new railway lines have been planned, no matter what they are conventional heavy rail, light rail transit or subway. A target of the second 25-year plan by Bappenas outlined that at the end of this period participation of the private sector in infrastructure should reach 70% in order to alleviate the burden of government expenses in they sky-rocketing demand for infrastructure and to secure the efficiency of management by the private sector in a booming market.

An attempt begun in 1994 to formulate a public-private implementation of the first priority north-south line, between Blok M and Kota, by mode of underground Mass Rapid Transit (subway). This project including a proposal to commence the basic design was reported formally and approved by the President in January 1995. However, the project is recently suspended, because of a drawback in the financing plan. The Government is, however, still committed to innovative means of project financing, including public-private partnerships.

In order to develop a mass transit system in Jabotabek Area, various study efforts have been made in past decades, results of which should be integrated with the current study.

2.2 Bus Services

Bus services operating in DKI Jakarta diversify in different levels in terms of service areas, capacity and quality of transport. Buses used for the city transport are generally classified into large, medium, and small sizes. The large size includes articulated and double-deck buses and their operations are mainly provided on arterial roads between city bus terminals in Jakarta with different services and fares, i.e. express and air conditioned bus operations. A medium bus like Bis Mikro not only operates between terminals in Jakarta, but also expands the routes to the suburbs of Jakarta. Bis Mikro serves arterial and collector streets and it stops as demanded. A small size bus like Koasi is utilized for short trip distances and it serves mainly the suburban areas of Jakarta and Botabek.

As the rail network develops, the role of the city bus will inevitably change. The city bus service both trunk route and feeder system and the inter-city bus service have to be well organized to maintain the overall transport efficiency of public transport. The existing inefficiency of bus transport lies not only in the formulation of the operating network but also in the management, regulatory, and institutional framework of the bus transport business.

2.3 Road Traffic

According to past traffic count surveys, vehicular traffic crossing the boundary of DKI Jakarta was 172,000 in 1985, 243,000 in 1988, and 523,000 in 1993. The average annual growth rate was 14.9% between 1988 and 1993, which rate was exceeding that of vehicle registration in DKI Jakarta (about 7.5%). In contrast, the growth rate of traffic volume within the central business district seems rather small for the same period. It is indicating that traffic volume in the CBD has already reached a level of saturation and the traffic congestion in CBD is spreading outwards.

To cope with such traffic congestion problems on arterial roads in Jakarta and its surrounding area, the Government of Indonesia is making a great effort, especially for major arterial roads and expressway development. For example, the intra-urban expressway and the outer ring road (ORR) are now providing a high level of road transport services in the area. Provision of roads, however, can not keep up with the rapid increase of traffic demand, especially DKI Jakarta has failed in the development of an effective secondary system.

On the contrary, profit-oriented or short-sighted toll road proposals by private investors have been submitted to the Government, often without proper regard for or perspective of the long-term urban toll road system proposed for and needed by the Jabotabek Area.

2.4 Previous Studies

In order to develop a road network in Jabotabek Area, various studies have been undertaken over the past decade, the results of which should be integrated with the current study. These include:

- The Study of Integrated Transportation System Improvement by Railway and Feeder Services in Jabotabek Area (JICA), 1990
- Transport Network Planning and Regulation Study (IBRD), 1992
- Land and Public Transport Study in Jabotabek Area (IBRD), 1992
- Jabotabek Urban Mass Transit Preparation Program Consolidated Network Proposal, 1993
- The Study of Master Plan of Container Cargo Handling Ports, Dry Ports and Connecting Railways in Indonesia (JICA)
- Preliminary Study for Basic Design Jakarta Urban Express Transit System, Jakarta-Kota-Blok M Subway Consortium, 1996
- Preliminary Study for Railway Double Tracking on Bekasi Line Corridor (JICA), 1998
- Jakarta Urban Transport Short-term Infrastructure Project (JUTSI), DGLT
- Jakarta Immediate Action Plan (JIAP), (DGLT)

3. BASIC PHILOSOPHY OF THE STUDY

3.1 The Study Area should be the Jabotabek Region

The Study Area needs to be the Jabotabek region. While the worst of current traffic congestion problems are in Jakarta, the major development issues are in Botabek regions, where the transport system remains critically underdeveloped. Future development growth in the region, and the transport systems developed to provide for it, interact heavily with Jakarta, and an integration of land use and transport system development for the region as a whole is essential. Obviously, the main urban centres will require much more detailed investigation, but development policies and strategies are to be prepared in a regional context.

3.2 An Integrated Land Use and Transport System Master Plan is required

The region suffers from a disconnection between regional development and transport system development. There is no systematic road development plan for the region, and no coordination between the major land use developments and transport infrastructure provision. There is a high degree of interdependency between transport infrastructure provision and land use development, and between land use development and needed transport capacity. It is essential that strategic planning be directed at both simultaneously, so that a joint transport-land use development strategy that minimizes the costs of development can be prepared.

3.3 Both a future development strategy, and the institutional-setting of an ongoing planning capability, are essential for the future of Jabotabek

Besides an integrated transport master plan, Jabotabek would also need both an institutional structure within which planning can be undertaken, and the capability to undertake planning

within such an institutional structure. Planning involves the refinement, updating, and modification of pre-existing plans, and provides directions and outcomes when changes occur. In a region such as Jabotabek, a permanent ongoing planning capability is absolutely essential. If a study results only in a plan, and does not create a capability for the continuation of the planning process, it will be of only limited value for the future. An essential feature of the Study needs to be assistance with the development of proper institutional structures, the development of planning tools for the future and the training and capacity-building necessary to support continuation of the process.

3.4 The Study should be seen as a starting point rather than an end point for the planning of the region

The Study should be seen as a starting point, with a very significant objective being to establish the beginnings of a planning process rather than to produce the "definitive" plan. As a starting point, there are significant needs to establish the planning process, as well as to identify and have implemented major but overdue transport system improvements. Refinements and additions to the "plan" will be addressed throughout the planning process. Only the most pressing priorities can be addressed in the short-term.

3.5 The Study will identify a short- to medium-term action plan as part of the long-term strategy

It is easier to identify the actions that need to be taken in the short-term than the long-term, because of the uncertainty that surrounds the future. A short- to medium-term action plan identified in the context of a long-term strategy, is more likely to be successful by itself than the long-term strategy. Ongoing planning will be required to achieve the long-term strategy, but a short- to medium-term action plan developed under a government commitment to its implementation, and in the context of identified deficiencies, can generate immediate benefits and significantly help shape the future.

3.6 The Study needs to "balance" all forms of urban transport modes

Proper balance to all modes of transport needs to be given to achieve "equilibrium" in the system. This should not be seen as a "roads" study any more than it should be seen as a "public transport" study. Each mode, whether toll roads or public transport system, demands proper attention, relative to their different and complementary roles in overall development in the region. In light of institution and financial reforms of Perumka, special attention needs to be devoted to Jabotabek Railway and the efforts that have been made by the Government to increase its share in passenger ridership to 20% in the next several years. The Study and its recommendations for effective development strategies needs to be both "multi-modal" in respect of transport provision, and "integrated" in respect of transport/land use development strategies.

3.7 Study "Ownership" and Management must be Multi-Agency

The planning of Jabotabek involves 9 different levels of government and many different government departments, and their cooperation and commitment to the Study is essential to its success. Considerable attention must be given to the management structure devised for the study. A Steering Committee comprising senior officials from related government agencies will be established towards the end of the study period, and will provide the direction needed to those charged with study execution. The Steering Committee will be assisted by a Technical Committee that will oversee the execution of the Study on a daily basis.

4. STUDY STRUCTURE AND OBJECTIVES

4.1 Study Structure

For reasons previously discussed, the overall study will consist of three parts:

- PART A:** Preparation of Transport System Recovery Programs
- PART B :** Identification of an Immediate Transport System Improvement Program
- PART C:** Preparation of an Integrated Transport System and Land Use Development Master Plan

4.2 Study Objectives

Part A: Preparation of Transport System Recovery Programs

The first part of the study is intended to identify and prepare a program of funding for immediate interventions that will restore transport infrastructure and operations to maintainable conditions. The objectives for this are to:

- a. Identify and prepare a works program for urgently needed repair and maintenance of transport infrastructure and facilities, to address problems and needs arising from the current economic crisis

Part B : Identification of an Immediate Transport System Improvement Program

The objectives of the second part of the study are to:

- a. Identify and prepare a program of low-cost transport system management (TSM) and improvement measures that will increase the capacity and efficiency of the existing system
- b. Develop appropriate evaluation and prioritisation procedures for use in sub-project selection and programming
- c. Review short-term needs and opportunities for the mitigation of adverse environmental impacts from urban traffic
- d. Review the opportunities for and potential benefits from advanced technologies, such as Intelligent Transport Systems (ITS)

Part C: An Integrated Transport System and Land Use Development Master Plan

The Study Objectives for the preparation of an integrated transport and land use development Master Plan for Jabotabek include the following:

- a. To prepare a detailed transport development policy, transport system master plan and implementation strategy for Jabotabek, that will support and be supported by preferred regional growth and land use development strategies. This will give due weight to each mode of transport for both passengers and freight, at a level of detail consistent with the timeframe of the forecasts and the strategic nature of the study. The horizon year for the Master Plan will be 2020
- b. To prepare preferred regional growth and land use development strategies that minimise the overall costs (social, environmental and economic) of development, and which are consistent with and will be promoted by the transport system implementation strategy
- c. Develop the databases and analytical tools necessary for the study, and for the continuance of the planning process that will be established, for use and further refinement by others. This will require, inter alia, a major program of household

- interview and traffic surveys; land use, employment and business activity inventories; transport system inventories; and other data collection tasks
- d. Prepare a staged and prioritised action plan and implementation schedule for the short-term (0-5 years) for each transport sub-sector, including roads (primary and secondary arterials; toll roads; busways); bus operations policies; passenger rail options appropriate to the short-term. The Action Plan will identify both infrastructure investment needs (which will be prepared to pre-feasibility study level as part of the study), and the need for transport systems operational improvements in particular areas. These will then be further prepared by others in subsequent more detailed planning studies using tools, techniques and forecasts prepared during the study
 - e. Prepare an indicative medium-term (5-10 years) investment program for all transport modes, indicating priorities and optimal investment staging, and required funding levels
 - f. Investigate investment funding strategies, and the availability and sources of funding that can support the forward investment program, including opportunities for Private Sector Participation (PSP) and more innovative financing strategies
 - g. Conduct a detailed institutional review to identify appropriate structures and mechanisms that will allow the establishment of an on-going planning process, and an institutional environment that is empowered to influence development directions and investment strategies in the Jabotabek region. This activity should be initiated at the earliest opportunity, to allow maximum time for its completion. The first step will be the establishment of a Jabotabek Institutional Review Committee, to assist the development of such governmental structures, and an appropriate mechanism for achieving this will be an urgent preliminary task
 - h. Prepare and deliver a training program to counterpart staff appointed to work with the Study Team, and selected outside participants, that will assist the necessary transfer of knowledge, and allow the continuance of the planning process established in the study.

5. SCOPE OF WORK

PART A:

5.1 Preparation of Transport System Recovery Programs

The principal tasks to be undertaken are:

- 1) Develop a procedure for the identification, prioritisation and selection of projects to be included in this program. A clear set of criteria is to be derived under which specific projects may be selected for inclusion in the rescue program.
- 2) Through the application of these procedures, prepare an indicative annual program for the years 1999/2000 – 2000/2001. Calculate a cost for the rescue program, subdivided by various sectors of transport.
- 3) Define various options for program financing, including traditional sector program loan (SPL) and project loans (such as those supported by OECF), and possibly other innovative financing options.
- 4) Derive an Implementation plan for implementing components of the rescue program within defined time frames, by each responsible administrative agency. Spending controls and monitoring activities are seen as essential in this regard to ensure that all funds are fully and effectively applied toward intended purposes.

PART B:

5.2 Identification of an Immediate Transport System Improvement Program

While there is an urgent need for a Transport Master Plan for Jabotabek, there are also urgent needs for immediate actions to overcome the very significant transport and traffic problems that affect the whole region. There exists a need to identify and implement an effective urban transport improvement program that focuses on improving the transport capacity and performance of the existing infrastructure. It is also necessary to give urgent attention to the reduction and mitigation of the environmental impacts of urban transport.

A program of low-cost improvements to the transport and traffic system is therefore required, that will maximise the effectiveness and capacity of the existing system through attention to proper Transport Systems Management (TSM) techniques. These are likely to include traffic demand management, improved and co-ordinated traffic signals, road marking and signage, public transport priority measures, improved enforcement and driver education. The benefits from a properly designed and implemented set of integrated TSM improvements are likely to include increased capacity, increased safety and reduced environmental impact.

It is further anticipated that the approaches above could be further enhanced by longer-term strategies that would include Intelligent Transport Systems (ITS), including Area Traffic Control Systems (ATCS), Traffic Information Systems, Electronic Toll Collection Systems and other developments that are now easily implementable in Indonesia.

The Tasks that need to be undertaken to achieve these objectives are outlined below:

1. Compile all current plans, programs and proposals for transport systems improvement in the region, and identify the underlying problems they purport to address.
2. Consult with all relevant agencies to identify forward proposals and identified problem areas
3. Develop a methodology for assessing the priority for TSM improvement measures and formulating a forward program of priority improvements

4. Undertake appropriate surveys for designing and evaluating sub-projects
5. Prepare and cost annual programs for the period 1999/2002
6. Review the opportunities for and likely costs and benefits of advanced technology systems, and comment on the opportunities for and constraints on implementation in the Jabotabek region.

PART C: AN INTEGRATED TRANSPORT SYSTEM AND LAND USE DEVELOPMENT MASTER PLAN

5.3 Inception Report: Formulation of Study Approach

Within an initial 3-month review period, a full review of the existing situation will be undertaken to identify the priority planning and development issues, and provide for the detailed formulation of a comprehensive study approach that will address them. At the end of this period, the draft Study Approach Report will be presented to involved government agencies and interested parties (including developers) in a seminar, so as to fully disseminate its findings and discuss issues in an interactive setting. It is expected that this report will provide an initial review of all relevant issues, and the approach that will be taken to address them. These are likely to include but will not be limited to:

- existing patterns and levels of development, and the extent of their consistency with existing Regional Development Master Plans,
- Transport implications of observed growth directions, and the extent to which they are provided for by existing transport investment plans/strategies
- Land development and transport issues to be addressed,
- Proposed transport and land use modelling approach for the formulation, testing, and evaluation of alternative strategies,
- Data collection needs, with emphasis on data needs to be provided by regional government,
- Summary review of institutional constraints and opportunities in the integrated planning of Jabotabek,
- Overall study approach.

5.4 Analysis of Existing Conditions

The base year analysis will include the collection and analysis of all relevant information and data, and the establishment of an appropriate database system (which might include a GIS system); assembly and review of all current development and planning proposals. Identification of current policies affecting regional development and transport systems, and the development of all transport network and land use development models and their calibration to existing conditions.

5.4.1 Information Assembly and Data Collection

a. Preparation of Information Assembly and Data Collection Plan

The task of information assembly and data collection is an extremely large one, and the participation and assistance of government agencies at all levels will be essential. To this end, an *Information and Data Collection Plan* is to be prepared. This will identify the range of information and data needed; specify the data needs to be provided by regional government; and develop survey procedures for the collection of land use, socio-economic, employment, trip-making, traffic and transport system operations data. This plan will need to be approved by the Technical Committee.

As part of this task, consideration will need to be given to ways by which the maintenance and development of this extremely valuable data resource can be secured.

b. Assembly of Existing Data and Information

Without being prescriptive, it is envisaged that the following broad categories of data and information from existing sources will be collected for the region. It is expected that this task will have been initiated during the initial review period, but will need to be completed before the study proceeds further.

1. Assembly of relevant study reports and previously collected data
2. Land use inventory of current development, and future development plans
3. Topographic and physical data, and recent aerial photography data
4. Population, housing and socio-economic data
5. Inventory of transport infrastructure
6. Public and private transport system, management, and operations inventory, and existing recent traffic and registration data
7. Proposed and/or committed transport system improvement projects
8. Policy, institutional and regulatory information
9. Traffic Accident data
10. Data on administrative organizations and transport budgetary system

c. Survey Program

A very large survey effort will be required to collect data relevant to transport network and land use model development, for the forecasting of future travel demands, and the evaluation of strategy plans. The detail of these surveys will be determined by the detailed modelling and analytical needs, but will include:

1. Household-level socio-economic and travel behaviour surveys
2. Roadside interview surveys
3. Trip generation surveys at typical commercial, business, public, and other facilities
4. Traffic surveys (travel times, speed, delay, cordon, and screen line surveys)
5. Public transport passenger surveys
6. Freight/container surveys
7. Transport infrastructure inventories
8. Public transport operations surveys
9. Land use, employment, and industrial survey
10. Preliminary environmental conditions survey
11. Aerial photography

d. Database Development

A comprehensive database will need to be developed for the storage, processing, management and maintenance of this data. Consideration will be given to the opportunities that might be afforded by the development of a GIS framework for this database. Consideration also needs to be given to the possibilities of appointing a special research institution to be responsible for maintaining, developing, and analysing the collected data and information to be used by respective various government and private agencies.

5.4.2 Regional Development and Land Use Patterns and Intensities

Regional Development Plans have been previously prepared for the region as a whole, and for each Kabupaten and Kotamadya. An important part of the *Analysis of Existing Conditions*

will be the assessment of the extent to which existing development has conformed to these development plans. In turn, this will allow the identification of any physical, institutional, or transport-related constraints or influences that either promoted preferred development, or resulted in development pressures that were at variance with development master plans.

An important source of information about the development process itself is considered to be private sector developers, and those in government agencies closely involved in development. It is proposed that a *Panel of Development Experts* be formed to contribute to the discussion of development-related issues. An appropriate mechanism for such an approach will be established during the study.

The tasks to be undertaken in this component are likely to include:

1. Establish "base year" existing conditions from data collection, and prepare maps showing development patterns and intensities
2. Compare actual versus planned development patterns and intensities
3. Establish a mechanism for the proposed participation of a Panel of Development Experts, and other involved agencies and institutions, and initiate a dialogue that will add to information about influences and constraints on development.
4. Review influences and constraints on development, and identify current directions of development that will be likely to continue into the future.

5.4.3 Development of Transport Network Analysis and Land Use Development Models

The development of an appropriate set of transport network modelling and travel demand forecasting models, and models for the analysis and forecasting of the interaction between land use and transport system investment, is a task of major importance to the development of analytical planning tools for strategic planning. These tools will be used for the assessment of the future consequences of alternative land use strategies, and for the evaluation of the effectiveness of proposed transport system improvements.

The set of models to be developed, and its application framework (the software package within which the travel demand model system will be applied), is to be of international standards of "best practice". Models for small-area traffic modelling or simulation will not be required as part of this study, but the model system will be required to be able to produce outputs which will be compatible with the requirements of such systems.

Three general sets of models will be required:

- Person travel demand models, incorporating public transport and private vehicle trip models, capable of producing peak-hour and all day flows for base and forecast years for private vehicle (including motor cycle and taxi) and public transport modes.
- Freight movement models, producing base and forecast year estimates of freight tonnage and vehicle movements. (The results of these two sets of models will be combined to produce the necessary matrices of vehicle movements for network assignment and evaluation)
- A transport/land use strategic planning model that will assist in identifying the development implications of alternative transport investment scenarios.

a. Person Travel Demand Models

It is expected that these will be a segregated set of models based on trip purpose, and will incorporate trip generation, trip distribution, mode choice and route choice sub models using structures that are behaviourally appropriate and well-specified. In developing the model system, attention will need to be given to the following aspects:

- the effect of changing income levels on vehicle ownership and use, and on trip frequency, destination and mode choices, will need to be represented in ways that are consistent with its longitudinal (time) effect, rather than just the cross sectional effect
- Trip generation models need to take account of accessibility influences and changed trip rates with growth in opportunities
- Destination choices must be modelled in such a way that the effect of major changes in zonal attractiveness is represented in mathematically correct forms. Models equivalent to singly constrained gravity models will not be appropriate for person travel demand models.
- Research using household interview or special purpose survey data will be required before final selection of mode choice models can be made. Mode choice behaviour may not be well-represented by traditional choice models, and great care needs to be exercised in structuring these models so that they give adequate base and forecast year estimates of mode shares
- Road network coding procedures and traffic assignment models are to be fully consistent with the Indonesian Highway Capacity Manual

b. Freight Movements Model

It is necessary to develop a separate model or estimation approach (which may not be a formal model) for forecasting truck movements, because of the heavy regional influence of freight movements. All-day freight flows are to be converted to equivalent vehicles, and the assignment model must be capable of assigning selected vehicle classes to designated truck routes.

c. Land Use Model

An appropriate model structure will be required for the strategic-level modelling of the effect of major accessibility changes on preferred development patterns. This will be used interactively with other models, to help identify the "optimum" future regional development and transport network patterns.

Model Calibration: All models developed are to be fully calibrated so that they adequately represent existing conditions, using calibration procedures that are fully consistent with model structures and which do not compromise the forecasting capability of the models. Calibration procedures will therefore need to be determined as part of the model system design. Structural problems that result in significant under-or- over-prediction in the base year must be corrected by adjustments to model form and structure, rather than by retrospective application of calibration coefficients.

5.5 Evaluation of Existing Conditions

It is necessary to undertake a detailed review and evaluation of existing deficiencies and problems caused by inadequate transport capacity or inappropriate land development patterns. This will help identify a short-term program of needed improvements, and assist in identifying improvement options that will be included and properly evaluated as part of the preparation of a longer-term Master Plan. However, final identification of the short-term

improvement program will need to wait until final completion of the Master Plan, so that those options most important to securing long-term objectives will be selected for short-term implementation.

5.5.1 Evaluation of Transport System Performance and Deficiencies

This will require the following broad tasks:

1. Prepare a set of performance measures that should be met by a properly functioning transport system, and a methodology for identifying system deficiencies.
2. Prepare a set of Road Network Planning Guidelines appropriate to Indonesia and the region, addressing road hierarchy, appropriate density and spacing of roads of different classes, and other related matters. Based on these Guidelines, review network structure and connectivity issues, and identify deficiencies.
3. Based on the results of network analysis, identify those links that suffer from excessive congestion or delays.
4. Identify the major classes of traffic that cause these problems, and identify root causes and appropriate solution strategies (which may well require network improvements elsewhere to improve overall route structures)
5. Review institutional responsibilities for urban transport, and ways that these might be strengthened or restructured to improve responsibilities for and management of planning, implementation and operational control of transport in Jabotabek.
6. Identify programs of network and other improvements that would be required to address existing problems, and test their effectiveness using the transport network planning models developed.

5.5.2 Evaluation of Regional Development and Land Use

Review the extent to which current patterns and levels of development, or trends in the development process, are consistent with overall development goals. This general review is likely to include but not be limited to the following activities:

1. Establish a methodology for assessing the performance of the development process, including the procedures by which development plans are exercised, and development controls established in the context of the existing Regional Development Master Plans (RDMPs). It may be expected that this will require a highly level of review and discussion with local BAPPEDAS, the Panel of Development Experts, and other related agencies and institutions
2. Review development policies, and assess their effectiveness and impact on actual development.
3. Identify areas where development pressures have resulted in substantial differences between planned and actual development, and evaluate the consequences of these divergences
4. Identify particular localities where RDMPs may have been less effective, and where further development controls may need to be implemented to minimize adverse social, environmental or other consequences.

5. Identify the extent to which development is adequately supported by existing, or proposed transport infrastructure and services, and those areas where transport infrastructure is weakest.
6. Using the Transport/Land Use strategic planning model, and the base year transport network and planning model, review the forecast development patterns produced, and assess the implications of any significant divergences between model results, actual development levels, and the content of RDMPs.
7. Repeat this task, using the base year network plus identified improvements, to determine the possible development implications of improvements to the current transport system.
8. Review the opportunities for increased co-ordination between planning agencies, private developers and transport agencies, so that development and the provision of transport infrastructure and services might proceed in a co-ordinated manner.
9. Prepare a detailed Report summarising these findings, and identify needed improvements in development planning and controls for future development. Identify possible strengthening of development policies; likely and preferred directions of future development; improved institutional structures; and other matters that will improve the overall development process in the region.

5.5.3 Summary of Short-Term Improvement Strategies

Based on the above, prepare a Report outlining the various short-term improvement measures that have been identified. These will later be used as input to development of the Master Plan.

5.6 Formulation of a Regional Development and Transport System Master Plan

The Master Plan for regional development and transport system development will need to be formulated jointly, so that an "optimum" Master Plan is identified in which the proposed transport system supports and is supported by likely regional development patterns. This will require a degree of iteration between proposed development patterns and planned transport system development. It will also require the preparation of a number of different development "scenarios", that reflect different levels of economic and development growth, as well as different spatial development patterns directed at alternative development policy options. The overall process by which the formulation of the Master Plan is to be achieved is summarized in the tasks that are outlined below.

5.6.1 Future Regional Development Profiles

Based on the previous reviews, together with forecasts of population, economic and development growth, identify the most likely levels of future development at a regional level, for the years 2005, 2010, 2015 and 2020. Development policies and constraints will need to be reviewed for each region within Jabotabek, and account taken of possible major industrial developments within and outside the region.

A number of scenarios will need to be developed and tested for their transport implications, to allow the joint determination of what will be a mutually consistent and supportive land use and transport development plan for the region. This will involve:

- A "base case" development scenario that reflects the development strategies of existing RDMTs modified by the results of their assessment conducted in Task 5.3.2. These will be further adjusted as appropriate to reflect major development pressures that have emerged since these were prepared. Profiles for the 4 forecast years are required, and the transport system plan will be developed from these.
- A modified base case, for the Year 2020 initially, that reflects the major influences on development that will be generated by the future transport strategy. This will be based on the results of the strategic Transport/Land Use Model, and the proposed future transport system plan based on the base case development profile. This requires iteration between these two tasks, and is further reviewed later. This analysis is only required for the Year 2020, and not for intermediate years.
- Alternative development scenarios, based on alternative development policies. These will be prepared after extensive discussions with all agencies involved, and will be used to examine the effects on the proposed transport system plan. They will be prepared for the year 2020 only. It is envisaged that two alternative plans only will be required.

For each development scenario (and horizon year where applicable), relevant population, socio-economic, employment and other required forecasts are to be prepared, as input to the travel demand forecasting process that will follow. Estimates of land use intensity by type of activity, by planning zone, will be required as part of these forecasts.

5.6.2 Preparation of a Transport System Master Plan - Base Case

The base case regional development profile should form the basis for the preparation of the Transport System Master Plan, which can be subsequently adjusted to suit more appropriate development scenarios as required. The overall task is to develop a staged transport system development plan consistent with future development, and which adequately provides for forecast demand levels, for each of the forecast years.

It is likely that this will be most easily achieved by starting from the development profile for the Year 2020, developing a road and mass transit system that most effectively provides for this scenario, then working backwards to identify the successive system increments for each five-year period. In this way, the short-term implementation strategy that best suits the long-term goals, will be more easily identified.

The following transport system elements are to be considered:

Mass Transit: Corridors where mass transit is likely to be an appropriate and feasible system will be identified, based on a preliminary assessment of alternative technologies, and the demand envelopes for which they are feasible. This will be investigated as a separate task in this study.

Busways: Busways on reserved rights-of-way are an appropriate solution for some corridors, and this option requires investigation.

Bus Services: Bus services will remain as the major element of the future public transport system. In a strategic planning study, it will not be appropriate to undertake detailed service planning studies, and such services can be easily represented for modelling, and demand forecasting purposes in the coded transport network that will be developed. Service planning, operations and regulatory issues, while important, will be undertaken as separate studies.

Main (Perumka) Rail: Detailed freight forecasts for this system are outside the scope of this study, and a limited assessment only of the need for additional track capacity and/or new alignments for the existing regional rail system will be required. Existing rights-of-way are to be preserved for the system, and mixed passenger-freight services will not provide sufficient passenger capacity to justify detailed investigation. It may be possible for the ROW to be extended to allow parallel operation of other services, separate from Perumka Operation.

Jabotabek Rail: Current development plans for intra-urban and commuting rail services must be actively considered in the study, and the feasibility of expanding their current role is to be seriously considered in this Study

Toll Roads: Extension of the existing toll road network will be an important element of the future network, and will be specifically examined as part of the study.

Road Network: The primary and secondary arterial road network to provide for future development will provide the basis of the future transport system. Planning standards (developed in a previous task) will provide the basis for planning in what are currently less developed areas on the outskirts of Jakarta. Inevitably, new road links and widened links will be required in built-up areas. As noted, bus ways and toll roads will be planned as part of the overall road planning exercise.

Freight Vehicles: Some consideration will need to be given to providing heavy vehicle routes, particularly those leading to port and large industrial areas. Detailed facility design will not be appropriate, but the possible need for dedicated facilities to provide needed capacity should be indicated.

This is a large task, which will require the following, broad areas of activity indicated below :

1. Prepare detailed population and socio-economic forecasts, estimates of land use activity by type, vehicle ownership levels and other forecasts required by the model structures used.
2. Prepare indicative standards for road network planning appropriate to Indonesia, covering such matters as road hierarchy, spacing of roads of different classes, network connectivity and other standards. Review the results of previous studies, committed and proposed road investment programs, and the review of existing conditions undertaken as Task 5.3.1, to identify road schemes for consideration in the plan.
3. An initial review of feasible and appropriate mass transit technologies, and the recommendation of an appropriate and minimal set of technologies to be actively considered. This review will take account of operational capacities, operating and construction costs, fare structures and other relevant matters. To aid review, an envelope of demand levels where selected technologies are likely to be financially feasible would be useful. Previous work undertaken under earlier studies for Jakarta will provide a useful initial guide for this work, and for the identification of possible mass transit alignments.
4. Review previous work (in JUTSI and TNPR Studies) on the opportunities for and characteristics of bus ways, and identify demand envelopes in which these might be feasible options for bus services.
5. Develop an evaluation methodology for the initial prioritisation of transport system elements, and for judging the performance of alternative networks. This will be

used to screen candidate improvements, and select those elements that contribute most effectively to the system.

6. Develop a transport system strategy plan for the Year 2020, based on the above elements.

5.6.3 Undertake Sensitivity Testing on Alternative Regional Development Scenarios

a. Taking Account of Land Use Development and Transport System Interaction-Base Case

An analysis using the strategic Transport/Land Use model is to be undertaken, to examine the extent to which the transport system master plan development for Year 2020 might promote a different development profile to that assumed as the basis for transport system planning. The results of the analysis will be used to identify the extent of any divergence. Appropriate adjustments will then need to be made to the base case development profile, relevant forecasts revised, and travel demands estimated. The effect of these changes will then be examined, and their effect on the proposed transport system master plan evaluated.

b. Analysis of Alternative Regional Development Profiles

Two alternative development scenarios to be examined, the extent to which alternative development patterns will change the preferred transport system master plan, and priorities for implementation, need to be assessed. ~~This analysis should be undertaken for the Year 2020 only.~~ The following general tasks will be required:

1. Prepare all necessary forecasts for the alternative scenarios to be analysed
2. Develop and iteratively test and refine, a transport system plan for each scenario
3. Prepare an evaluation procedure for the comparison of the base case and alternative scenario master plan, to assist review of the transport implications of the alternatives
4. Present summary results and recommendations for the alternatives.

5.6.4 Prepare Staged Transport System Development Plan for Preferred Development Scenarios

A detailed review of the results of the above process by senior government officials will be required to provide the necessary direction for further refinement of the preferred transport system/land use development scenario. Once this has been completed, and appropriate direction has been provided, the refinement process will produce a staged implementation program for the proposed Master Plan, for successive five-yearly intervals (2005, 2010, 2015 and 2020). The following general tasks will be required:

1. Revise as necessary previous forecasts to be consistent with the regional development profile determined as being, most appropriate to government's development goals
2. Working, backwards from year 2020, prepare staged implementation plans for each of the target years

3. For evaluation purposes, prepare an appropriate "do-nothing" transport system plan that incorporates the likely minimum transport system investments consistent with the continuation of the current base case development scenario.
4. For the major elements of the proposed master plan, undertake economic evaluation to determine economic feasibility of the plan, and make appropriate modifications so that it incorporates system improvements that are economically feasible.
5. Identify other impacts (land acquisition, resettlement; environment impact) in broad terms, for subsequent detailed review by others.
6. Prepare detailed recommendations for the proposed plan.

5.7 Review Funding Implications

Undertake a detailed review of the funding implications of the proposed plan, and identify possible opportunities for private sector participation and possible innovative approaches to financing and the development of "public-private sector partnerships" for implementation. This will require:

1. Develop a financial model for use in estimating the financial costs of the plan, and estimate the costs for each year.
2. Review the cost implications of the plan for all levels of government, and the sources of funding that might be available. Thereby identify additional funding needs for the plan
3. Review the possibilities for PSP in aspects of the plan, for example mass transit, busways and toll roads, and the likely implications.
4. Review the possibilities for the participation of developers in implementing sections of the proposed road network, as an integral part of future developments, and identify institutional and regulatory constraints and opportunities. Develop a participatory model for such a possible involvement, and identify the likely financial implications.
5. Review other innovative funding and participatory schemes, for consideration

5.8 Developing an Institutional Framework for Future Planning for Jabotabek

An important aspect of the study will be the review of possible institutional models for the development of an ongoing planning capability for the Jabotabek region, and the identification of existing institutional constraints and opportunities for the development of institutional structures and mechanisms for this important activity. This activity should begin as early as possible in the study work schedule, and may be expected to continue throughout the Study period. It will require:

1. A review of existing institutions and agencies to identify relative roles and responsibilities for forward planning, and for implementation of recommended infrastructure investment.
2. Review ways by which existing difficulties in controlling and shaping development in accordance with development plans can be overcome. Review relevant

regulations, and identify any improvements that will assist in realizing development goals.

3. The identification of a variety of alternative institutional models for creating a permanent, responsive and pro-active planning capability, that is capable of efficient interaction with existing institutions in all aspects of the planning process.
4. Review opportunities for creating staffing and funding a specialist planning unit for ongoing planning
5. Review current laws and regulations relevant to these questions, and identify areas where changes would be required to implement alternative models
6. Develop and implement a consultative process with all relevant agencies to promote discussion of these issues
7. Prepare recommendations for high-level review of appropriate future actions

5.9 Training Program

As part of the Inception Report, identify a possible training program that will be delivered to assist technology transfer. It is intended that a program of counterpart staff participation and training in the planning process will be implemented at an early stage in the study. It will be necessary to identify an appropriate participatory and training model for this purpose, so that this can be implemented as early as possible in the study. A detailed review of how such a program can be made effective is required as part of the Inception Report.

6. STUDY MANAGEMENT

6.1 Steering Committee

A high-level Steering Committee will be formed for the purposes of managing this study. Considering the importance of the study and its potential impact on the many different institutions and government agencies involved, the Steering Committee will be chaired by Deputy State Minister of National Development Planning/Chairman of Bappenas for Infrastructure Affairs. Due to high degree of inter-relationship between transport system and spatial and regional development planning, and also because of the interagency nature of the Study, Bappenas will act as the Executing Agency for the study.

6.2 Technical Committee

A multi-agency Technical Committee will be formed, and will provide on-going technical management and direction of the study on a daily basis.

7. STAFFING

It is envisaged that the expert foreign and local staff positions listed below will be required during the study period of 36 months. Because of the very different nature of each part of the overall project, three separate study teams will be required.

Position	Person Months Part A	Person Months Part B	Person Months Part C
Highway Engineer	12		
Pavements Engineer	6		
Public transport operations engineer	6		
System Analyst	6		
Team leader/Traffic Mgt. Spec		12	
Traffic Management Specialist		6	
Traffic Engineers		12	
Public Transport Operations		10	
Transport Planner, ITS Specialists		24	
Transport Economist		4	
Team Leader/Urban Transport Planner			36
Transport modelling specialist			55
Transport/land use modeller			11
Regional planners			24
Urban planners			21
Environmentalist			21
Demographer			8
Highway engineers			36
Rail mass transit specialist			11
Public transport planner			23
Bridge engineer			6
Cost engineer			11
Traffic engineer			16
Institutional specialist			12
Training specialist			9
Transport economist			11
Finance specialist			8
Traffic survey specialist			10
Household interview survey specialist			10
Database specialist			11
GIS specialist			6
Total person months	30	68	356

8. REPORTING REQUIREMENTS

8.1 Project Management Reports

8.1.1 Monthly Progress Reports

Twenty (20) copies of a monthly progress report, in Bahasa Indonesia and English, are to be submitted by the tenth day of each month, documenting progress achieved during the preceding month; reporting staff movements; identifying any problems or delays, and proposed solutions to these. Reports are to be kept as brief as possible consistent with these requirements.

8.1.2 Quarterly Reports

Twenty (20) copies of a Quarterly Progress Report in Bahasa Indonesia and English, are to be submitted every third month. This will summarise the study progress over the preceding quarter; identify any problems impeding progress, and propose means of dealing with these problems.

8.2 Technical Reporting

There will be a large reporting requirement for this large and complex program of studies, but it is not possible at this stage to be prescriptive about the types and titles of all the reports that will be required. Instead, these will be defined initially in the Inception Report, and as needs arise as the study progresses. At least the following reports will be required:

Part A:

- A1. Part A Inception Report within 4 weeks of the start of Part A. Defines the work proposed to be undertaken during this period, and details the approach to be taken and the timing of the results that will be produced
- A2. First Year Program. Presents the proposed first year expenditure program. Required by February, 1999
- A3. Technical Report: Project Identification and Prioritisation Procedures
- A4. Project Financing and Implementation Report for Second Year Expenditure Program
- A5. Final Report

Part B:

- B1. Part B Inception Report, within 6 weeks of the start of Part B
- B2. Technical Report: Evaluation, Prioritisation and Programming of TSM Improvement Strategies
- B3. Proposed Three-Year Program
- B4. Final Report

Part C:

- C1. Part C Inception Report within 3 months of the start of Part C. Full review of the existing situation to identify the main planning and development issues, and provide for the detailed formulation of a comprehensive study approach
- C2. Technical Report: *Information and Data Collection Plan*
- C3. Technical Report: *Proposed Database for Jabotabek Integrated Transportation Master Plan*
- C4. Technical Report: *Regional Development, Land Use and Transport in Jabotabek*. Reviews the extent to which development has been shaped by development controls, transport investment or other factors. Review current and likely future development directions, constraints and opportunities
- C5. Technical Reports: *Transport Network Analysis and Travel Demand Model Development*. Reports all work related to the development and calibration of travel demand models

- C6. Technical Reports: *Evaluation of Existing Conditions*. Extensive reporting on analysis of existing conditions, and implications for future development strategies for land use and transport
- C7. Technical Report: *Short-Term Improvement Strategies*
- C8. Technical report: *Future Regional Development Scenarios for Jabotabek*. Review the Regional Development Profiles that were developed and analysed, resulting in preferred development scenarios, including the analysis of the transport implications of alternatives examined
- C9. Technical Reports: *An Integrated Transportation Master Plan for Jabotabek*. Comprehensive series of reports, documenting all aspects of the final preparation of the Master Plan
- C10. *An Institutional Framework for Regional Development and Transport Planning for Jabotabek*. Extremely important review identifying institutional constraints, needs and opportunities; the form and structure of an appropriate institutional setting for ongoing planning; and a recommended development strategy for establishment.
- C11. *Funding Jabotabek Integrated Transport and Regional Development*. Funding implications; possible sources; role of and opportunities for the private sector; innovative methods of funding, such as land value capture, land tax improvements, etc.
- C12. *Human Resource Development and Training Needs for Ongoing Planning*. A review of the HRD and training needs for an institutionalised planning capability for Jabotabek

INTEGRATED TRANSPORT AND LAND USE DEVELOPMENT MASTER PLAN FOR JABOTABEK

FIG. 1: TASK SCHEDULE

TASKS	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	34	35	36	
PART A: PREPARE TRANSPORT SYSTEM RECOVERY PROGRAM	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
PART B: IMMEDIATE TRANSPORT SYSTEM IMPROVEMENT PROGRAM	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Inception Report	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Review programs & proposals; identify problems	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Data collection and analysis	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Identify and evaluate TSM strategies	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Prepare and post annual implementation program	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Advanced technology and ITS review	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
PART C: INTEGRATED TRANSPORT AND LAND USE DEVELOPMENT MASTER PLAN FOR JABOTABEK																																					
Initial Review and Inception Report	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Analysis of Existing Conditions																																					
Information Assembly and Data Collection																																					
Regional Development and Land Use																																					
Transport and Land Use Model Development																																					
Evaluation of Existing Conditions																																					
Evaluation of Transport System Performance																																					
Evaluation of Regional Development																																					
Summary of Short-Term Improvement Strategies																																					
Formulation of Regional Development and Transport System Master Plan																																					
Future Regional Development Profiles																																					
Preparation of Transport System Master Plan																																					
Sensitivity Testing on Alternative Development Scenarios																																					
Staged Transport System Development Plan																																					
Review Funding Implications																																					
Developing an Institutional Framework for Ongoing Planning																																					
Develop Training Program																																					
Final Reporting																																					

INTEGRATED TRANSPORT AND LAND USE DEVELOPMENT MASTER PLAN FOR JABOTABEK

FIG. 2: STAFFING SCHEDULE

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ORIGINAL TOR	PROPOSED TOR by DGLT	PROPOSED TOR by Bina Marga
1. INTRODUCTION 1.1 Background 1.2 Necessity of Urban Transport Mater Plan 1.3 Need for Large Scale Person Trip OD Survey 1.4 Need for Repelita VII Urban Transport Programs	1. INTRODUCTION - ditto - 1.4 Necessity for Identifying short-term/medium-term Urban Transport Improvement Programs 1.5 Need to Reflect Impacts of Recent Unrest	1. INTRODUCTION - ditto - 1.4 Structuring the Study to Address Different Needs a. Need to Assist in Relief of Recent Economic Crisis b. Need for Transport System Improvement Plans
2. THE EXSISTING CONDITION 2.1 Rail Transport 2.2 Bus Services 2.3 Road Traffic	2. THE EXISTING CONDITION - ditto - 2.4 Previous Studies	2. THE EXISTING CONDITION - ditto - 2.4 Previous Studies
3. BASIC PHILOSOPHY OF THE STUDY 3.1 The Study Area should be the Jabotabek Region 3.2 An Integrated Land Use and Transport System Master Plan is required 3.3 Both a future development strategy, and the institutional-setting of an on going planning capability, are essential for the future of Jabotabek 3.4 The Study should be seen as a starting point rather than an end point for the planning of the region 3.5 The Study will identify a short-term action plan as part of the long-term strategy 3.6 The Study needs to 'balance' all forms of urban transport modes 3.7 Study Ownership and Management must be Multi-Agency 3.8 Level of detail to be consistent with a strategic plan	3. BASIC PHILOSOPHY OF THE STUDY - ditto -	3. BASIC PHILOSOPHY OF THE STUDY - ditto - deleted
4. STUDY STRUCTURE AND OBJECTIVES 4.1 Study Structure Part A: Identification of Repelita VII Programs Part B: Preparation of an Integrated Transport System and Land Use Development Master Plan	4. STUDY STRUCTURE AND OBJECTIVES 4.1 Study Structure Part A: Preparation of a Rescue Program and Study Approach Part B: Identification of Short/medium-term Program and Reform of Existing System and Preparation	4. STUDY STRUCTURE AND OBJECTIVES 4.1 Study Structure Part A: Preparation of Transport System Recovery Programs Part B: Identification of Transport System Improvement Program

<p>4.2 Study Objectives</p> <p>Part A:</p> <ol style="list-style-type: none"> 1) identify current planning and development issues, constraints and opportunities. 2) identify existing transport capacity and development problems, and analyze their impacts 3) prepare short-term investment strategy of prioritized transport system improvement for Repelita VII. 4) prepare a comprehensive review of approach for Part B 	<p>for Part C</p> <p>Part C: Formulation of an Integrated Transport System and Land Use Development Master Plan</p> <p>4.2 Study Objectives</p> <p>Part A:</p> <ol style="list-style-type: none"> 1) Prepare a rescue program required within a few years as an urgent action plan 2) Prepare a comprehensive review of the approach to be used for Part B and Part C <p>Part B:</p> <ol style="list-style-type: none"> 1) identify current planning and development issues, constraints and opportunities. 2) identify existing transport capacity and development problems, and analyze their impacts 3) prepare action plan and implementation schedule for short-term (0-5 years) for each transport sub-sector 4) prepare indicative medium-term (5-10 years) investment program for all transport modes. 5) develop a land use strategy and integrated policy for Part C 6) establish a management framework for database 7) investigate investment funding strategies, including opportunities for PSP and more innovative financing strategies. 8) conduct a detailed institutional review together with a Jabotabek Institutional Review Committee. 	<p>Part C: Preparation of an Integrated Transport System and Land Use Development Master Plan</p> <p>4.2 Study Objectives</p> <p>Part A:</p> <p>Identify and prepare a work program for urgently needed repair and maintenance of transport infrastructure and facilities, to address problems and needs arising from the current economic crisis</p> <p>Part B:</p> <ol style="list-style-type: none"> 1) identify and prepare a program of low-cost transport system management (TSM) and improvement measures 2) develop appropriate evaluation and prioritization procedures for use in sub-project selection and programming 3) review short-term needs and opportunities for the mitigation of adverse environmental impacts from urban traffic 4) review the opportunities for and potential benefits from advanced technologies, such as ITS
<p>Part B:</p> <ol style="list-style-type: none"> 1) conduct a large scale person trip OD survey. 2) develop databases including such transport related data as socio-economy, land uses and transport facilities 3) prepare regional growth and land use development strategy that minimizes the overall costs 4) prepare a detailed transport development policy, transport system master plan and implementation strategy 	<p>Part C:</p> <ol style="list-style-type: none"> 1) -ditto- 2) -ditto- 3) -ditto- 4) -ditto- 	<p>Part C:</p> <ol style="list-style-type: none"> 1) -ditto- 2) -ditto-

<p>5) prepare action plan and implementation schedule for short-term (0-5 years) for each transport sub-sector</p> <p>6) prepare indicative medium-term (5-10 years) investment program for all transport modes.</p> <p>7) investigate investment funding strategies, including opportunities for PSP and more innovative financing strategies.</p> <p>8) conduct a detailed institutional review together with a Jabotabek Institutional Review Committee.</p> <p>9) conduct pre-feasibility study for selected short-term priority action plans and programs.</p> <p>10) prepare and deliver a training program to staffs.</p>	<p>5) -ditto-</p> <p>6) -ditto-</p> <p>4.3 Review of Scope of Works</p>	<p>3) develop the databases and analytical tools necessary</p> <p>4) -ditto-</p> <p>5) -ditto-</p> <p>6) -ditto-</p> <p>7) -ditto-</p> <p>8) -ditto-</p>
<p>5. SCOPE OF WORKS</p> <p>5.1 Preparation of Repelita VII Program and Study Approach</p>	<p>5. SCOPE OF WORKS</p> <p>5.1 Preparation of Rescue Program and Study Approach</p> <hr/> <p>5.2 Identification of Short-term/medium-term Program and Reform of Existing System</p> <p>5.2.1 Analysis of Existing Conditions</p> <p>5.2.1.1 Information Assembly and Data Collection</p> <p>5.2.1.2 Regional Development and Land Use Patterns and Intensities</p> <p>5.2.2 Evaluation of Existing Conditions</p> <p>5.2.3 Summary of Short/medium-term Improvement Strategies</p> <p>5.2.4 Formulation of Short/medium-term Programs</p> <p>5.2.5 Review Funding Implications</p> <p>5.2.6 Developing an Institutional Framework for Future Planning for Jabotabek</p>	<p>5. SCOPE OF WORKS</p> <p>5.1 Preparation of Transport System Recovery Programs</p> <p>> develop procedure for the identification, prioritization and selection of projects to be included in the program</p> <p>> prepare an indicative annual program for the years 1999/2001</p> <p>calculate a cost for the rescue program</p> <p>> define various option for program financing, including SPL and project loans, and other options</p> <p>> derive an implementation plan for implementing components of the rescue program within defined time frames, by each responsible agency</p> <p>* review a current maintenance system and identify issues involved in it</p> <hr/> <p>5.2 Identification of Transport System Improvement Plan</p> <p>> compile all current plans, programs and proposals for transport system improvement, and identify underlying problems</p> <p>> consult with all relevant agencies to identify forward proposals and identified problem areas</p> <p>> identify existing transport capacity and development problems</p> <p>> develop a methodology for assessing the priority for TSM improvement measures and formulating forward program of priority improvements</p> <p>> undertake appropriate survey for designing and evaluating sub-projects</p>

		>prepare and cost annual programs for 1999/2002 >review opportunities for and likely costs and benefits of advanced technology systems, and comment on the opportunities for and constraints on implementation
5.2 Analysis of Existing Conditions 5.2.1 Information Assembly and Data Collection 5.2.2 Regional Development and Land Use Patterns and Intensities 5.2.3 Development of Transport Network Analysis and Land Use Development Models 5.3 Evaluation of Existing Conditions 5.4 Formulation of a Regional Development and Transport System Master Plan 5.4.1 Future Regional Development Profiles 5.4.2 Preparation of Transport System Master Plan 5.4.3 Undertake Sensitivity Testing on Alternative Regional Development Scenarios 5.4.4 Prepare Staged Transport System Development Plan for Preferred Development Scenario 5.5 Review Funding Implications 5.6 Developing an Institutional Framework for Future Planning for Jabotabek 5.7 Training Program	5.3 Formulation of an Integrated Transport System and Land Use Development Master Plan 5.3.1 Survey Program 5.3.2 Development of Transport Network Analysis and Land Use Development Models 5.3.3 Formulation of a Regional Development and Transport System Master Plan 5.3.4 Training Program	5.3 Inception Report : Formulation of Study Approach 5.4 Analysis of Existing Conditions - ditto - 5.5 Evaluation of Existing Conditions 5.5.3 Summary of Short-term Improvement Strategies 5.6 Formulation of a Regional Development and Transport System Master Plan - ditto - 5.7 Review Funding Implications 5.8 Developing an Institutional Framework for Future Planning for Jabotabek 5.9 Training Program
6. STUDY MANAGEMENT 6.1 Steering Committee 6.2 Technical Committee 6.3 Database Maintenance and Management System	6. STUDY MANAGEMENT - ditto -	6. STUDY MANAGEMENT - ditto -

	I	II	III	
Part A				Preparation of Transport System Recovery Programs
Part B				Identification of Transport System Improvement Program Traffic System Management, Advanced Technologies
Part C				Inception Report, Funding Implications, Institutional Framework Existing Conditions, Model, Master Plan, Training, Database System, etc.