

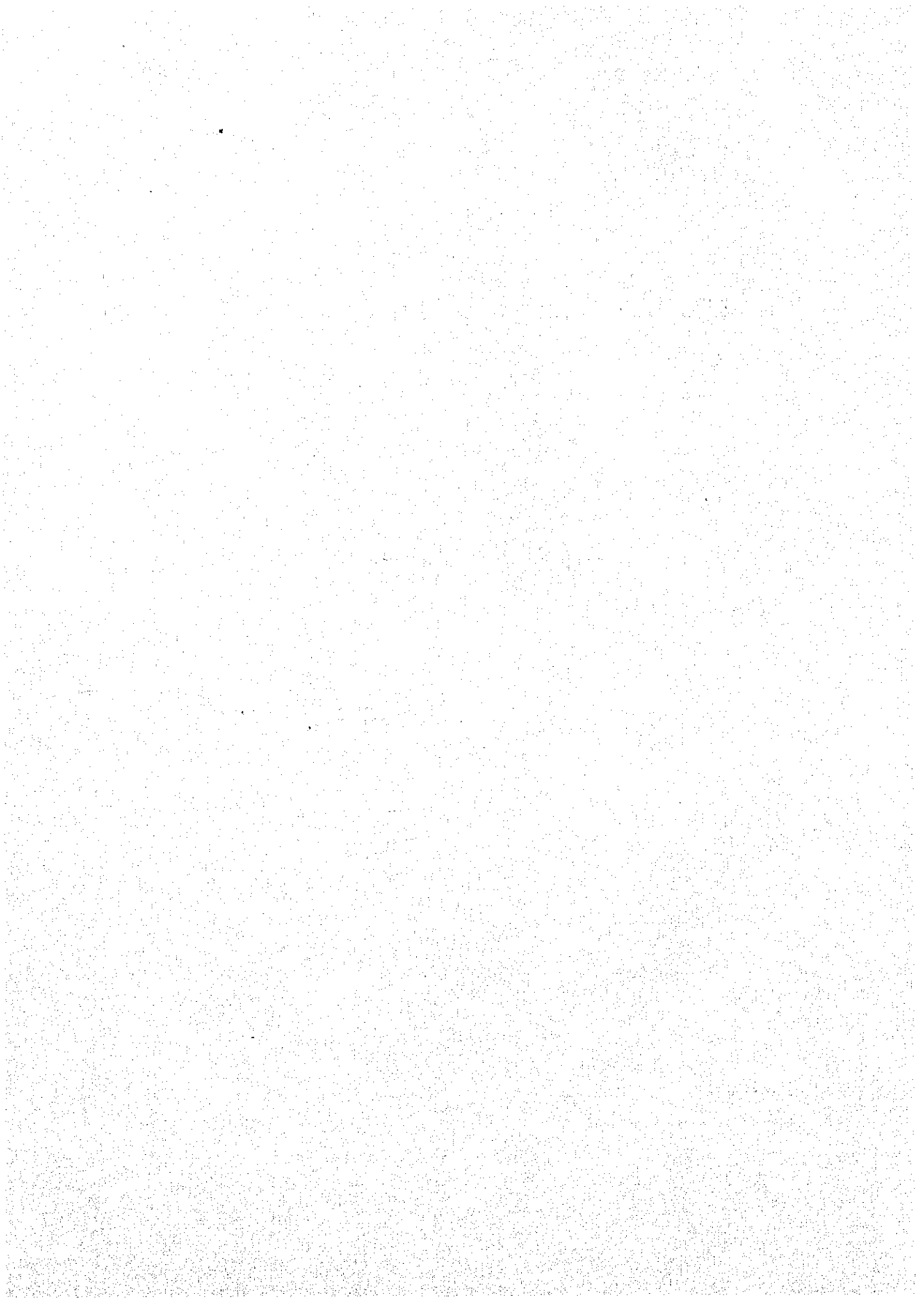
マレーシア国
ジョホールバル道路交通計画
(URBAN TRANSPORT MASTER PLAN STUDY
FOR THE JOHOR BAHRU CONURBATION
IN MALAYSIA)
事前調査報告書

昭和56年3月

国際協力事業団

開調一
81-126

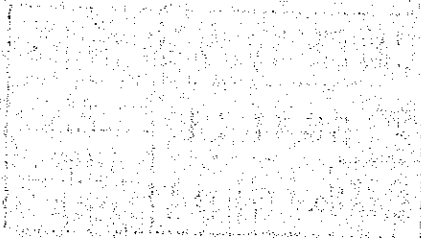




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序 文

日本国政府はマレーシア国政府の要請に応え、同国ジョホールバルの道路交通計画調査を行なうことを決定し、その調査を国際協力事業団が行なうこととなった。この道路交通計画は、ジョホールバル市を中心とする地域において交通調査を実施し、その結果をもとに同地域の道路整備基本計画を作成しようとするものである。

事業団は、明星大学土木工学科教授広瀬盛行氏を団長とする5名からなる事前調査団を編成し、昭和56年1月18日から1月31日まで現地へ派遣した。

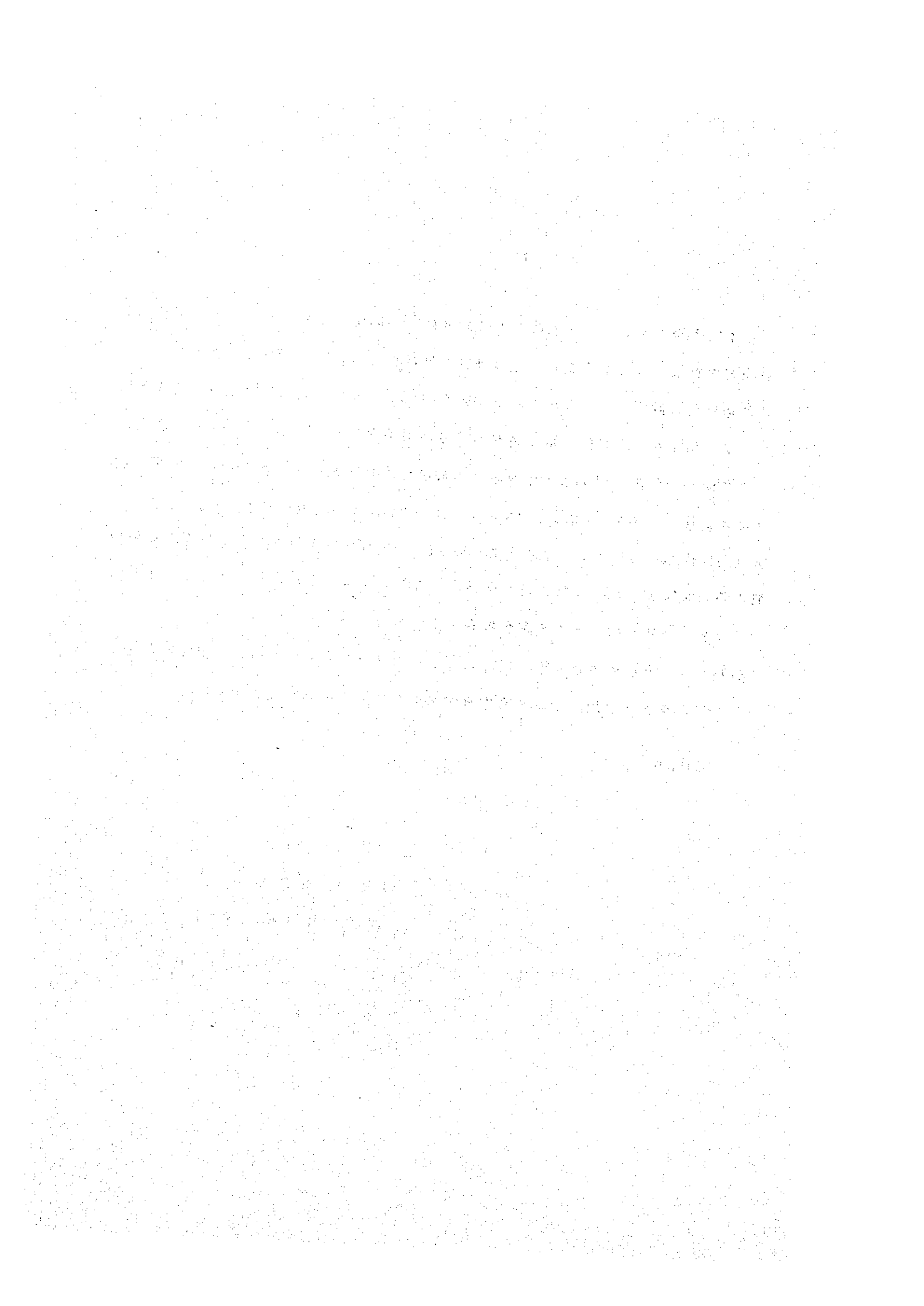
調査団は現地において先方政府と Scope of Work の協議を行うとともに調査対象地域の踏査を実施した。本報告書は今回の調査結果を取りまとめるとともに、ひきつづき実施を予定している本格調査に資するためのものである。

おわりに、今回の調査の実施にあたりご協力いただいたマレーシア国政府、在マレーシア日本国大使館ならびに関係機関に対して厚く御礼申し上げます。

昭和56年3月

国際協力事業団

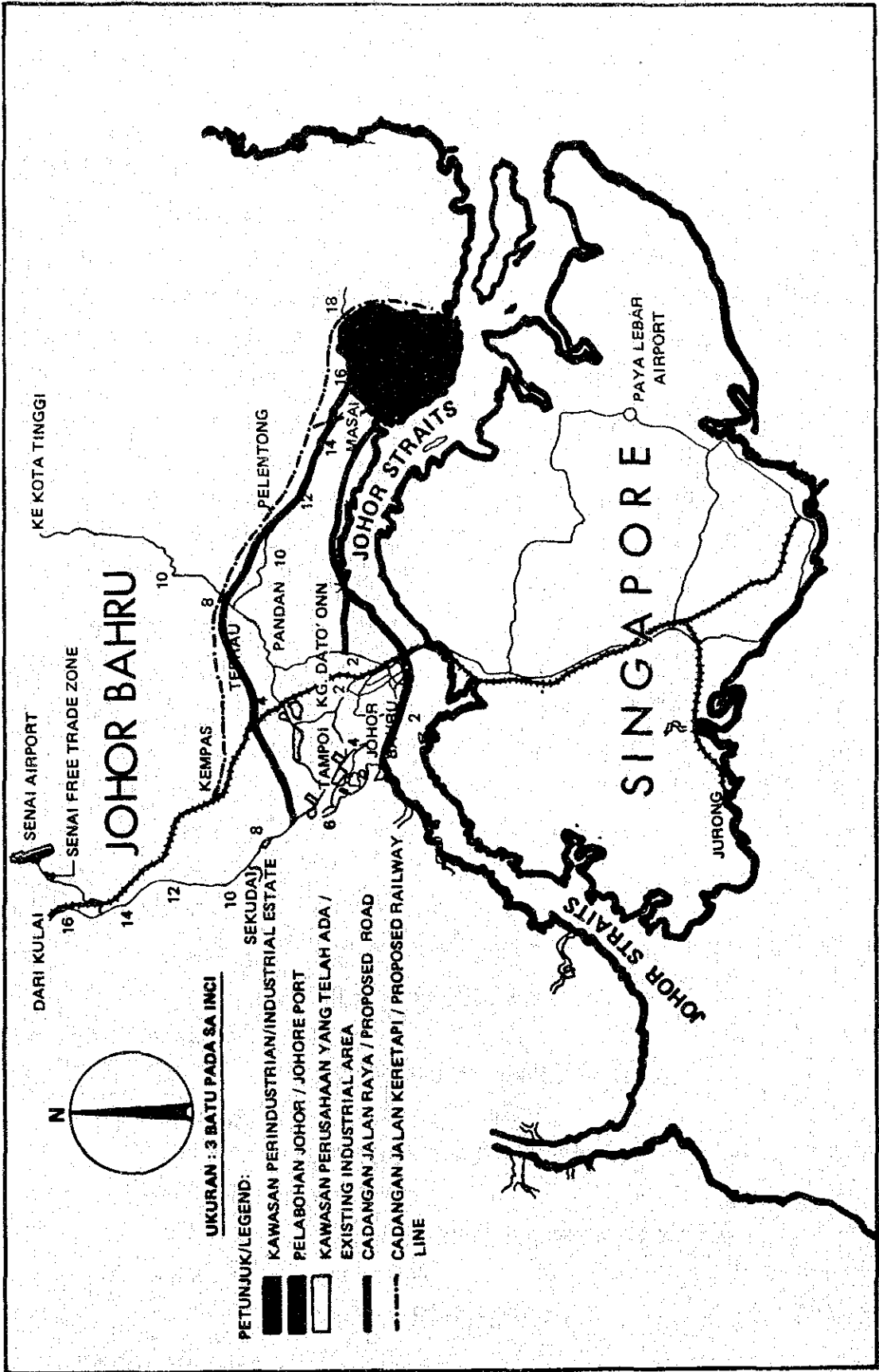
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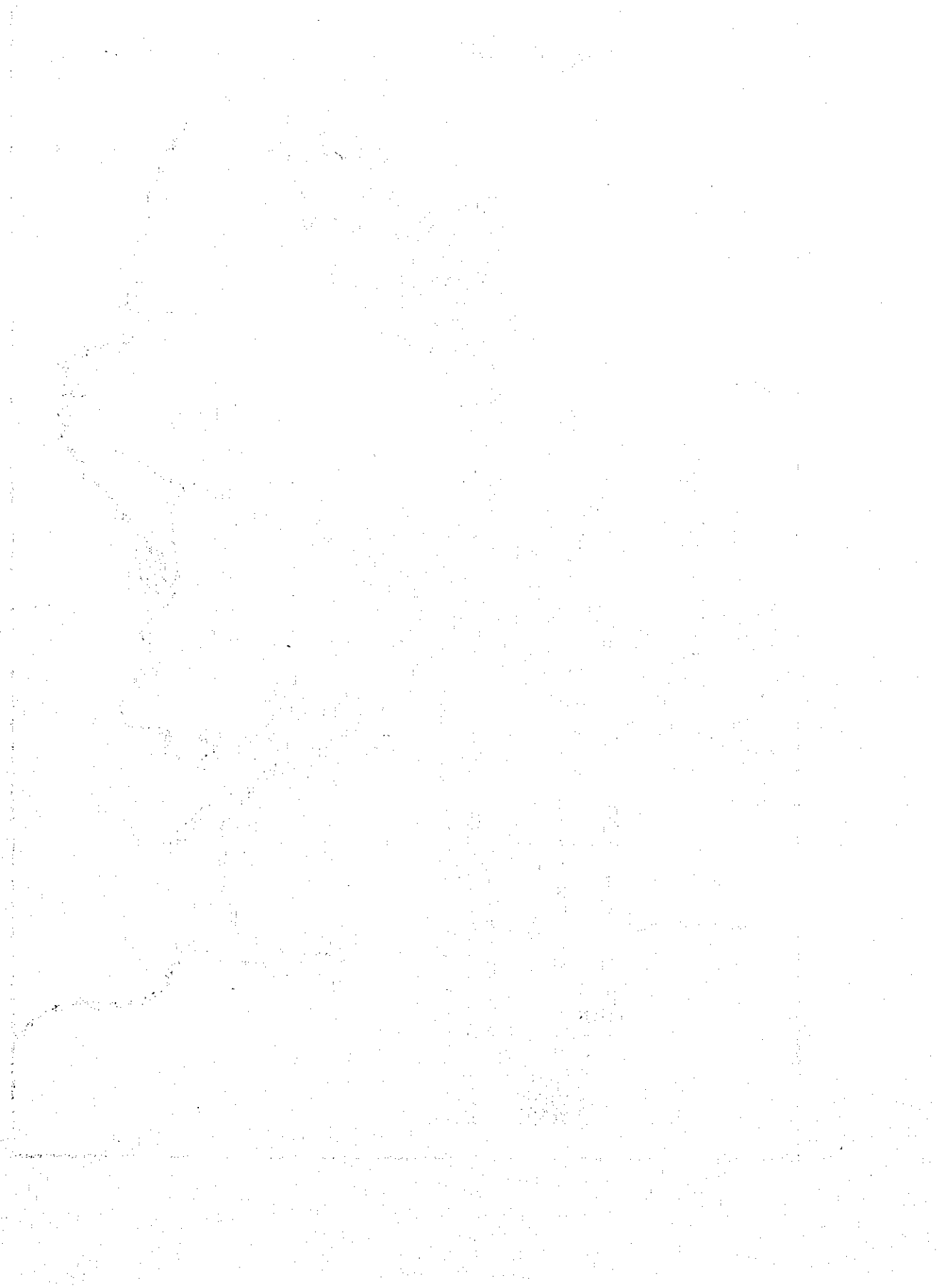


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第 1 章 緒 論

1-1 調査の背景

ジョホールバルはマレーシア国ジョホールバル州の州都であり、人口約20万人を有し、クアラルンプール、ジョージタウン、イポーに次ぐマレーシア第4位の都市である。位置的にはマレー半島の最南端にあり、マラッカ海峡の対岸にはシンガポールがある。

ジョホールバルは州都として、またシンガポールに隣接しているという地理的好条件からマレーシア南部地方の拠点として近年急速に開発が進んでおり、その中には、ジョホール新港の整備とその後背地における内陸工業団地開発及び大規模住宅団地開発等がある。これらの状況からインフラの整備が緊急の課題となっている。特にシンガポール、ジョホール新港（パシールクダン）及び新空港とジョホールバルを結ぶ幹線道路網の整備とこれに接続する都市内への道路網計画及び交通管理計画並びにバス輸送網の整備等が緊急の課題になっている。

さらにシンガポールとの間の causeway は近年の急速な交通量の増大により渋滞が年々はげしくなっておりマレーシア政府としても将来にわたる causeway の交通需要に対応した計画の検討が必要になってきている。

以上のような背景から本件計画調査の要請がなされたものである。

1-2 調査の目的

今回の事前調査は、マレーシア政府の本件計画に対する考え方、背景等を聴取するとともに、計画対象地域とその関連地域を踏査し、この結果にもとづいて、今後実施する本格調査の内容、範囲等を明らかにし、Scope of work 案についてマレーシア政府と協議を行なったものである。

さらに、本格調査実施に際しての主要な課題と留意点等について提言を行なうことを目的とする。

1-3 調査団の編成及び日程

(1) 事前調査団の編成は下記のとおりである。

団 長	総括・交通計画	広瀬 盛行 明星大学土木工学科教授
団 員	都 市 計 画	椎名 彪 建設省都市局区画整理課建設専門官
団 員	道 路 計 画	井上 靖武 建設省道路局道路交通管理課課長補佐
団 員	交 通 調 査	納 宏 建設省東北地方建設局道路部道路計画第二課長
団 員	業 務 調 整	久保田 一郎 国際協力事業団社会開発協力部

(2) 現地調査は次に示す日程のとおり行った。

月 日	調査内容
1月18日(日)	東京～クアラルンプール
1月19日(月)	調査団内打合せ
1月20日(火)	HIGHWAY PLANNING UNITとの打合せ。 JICA事務所打合せ。
1月21日(水)	HIGHWAY AUTHORITYとの打合せ。 日本大使館表敬打合せ。
1月22日(木)	ECONOMIC PLANNING UNIT (EPU)にて 第一回 STEERING COMMITTEE
1月23日(金)	クアラルンプール～ジョホールバル ジョホールバル現地踏査
1月24日(土)	STATE PLANNING UNIT 表敬打合せ 現地踏査
1月25日(日)	州関係者との合同会議 ジョホールバル～シンガポール
1月26日(月)	在シンガポール日本大使館表敬 シンガポール現地踏査
1月27日(火)	シンガポール～クアラルンプール
1月28日(水)	第二回 STEERING COMMITTEE
1月29日(木)	EPUにて議事録作成打合せ
1月30日(金)	大使館、JICA事務所報告
1月31日(土)	クアラルンプール～東京

1-4 Scope of Work 協議の経緯

(1) 事前調査団出発前の検討

本事前調査団出発にあたり、国内にて調査団を含めた関係者間での原則的な了解事項は概ね次のとおりであった。

- 1) 事前調査団がマレーシア政府と協議する調査の範囲はジョホールバル都市圏の交通基本計画(マスタープラン)に関するものとする。(Scope of Work (Draft)了解)
- 2) Scope of Work 内容はマスタープラン作成のための調査に限られるが、マレーシア政府からフィージビリティ調査(F/S)の要請があった場合はマスタープラン調査終了後実施するということで対処する。
- 3) マレーシア政府から調査の範囲として第二causewayの必要性、建設可能性検討を入れることの要請があるが、先方の要請の内容が不明確なこともあり、今回の事前調査では第二 causewayの必要性のみを検討する方針とすると同時に先方の要請背景、内容等を確認する。

- 4) 調査スケジュールについては本格調査団を3月末日に現地派遣することとし、調査開始後約12ヶ月間でドラフトファイナルレポートを作成する。
- (2) E P Uにての第一回 STEERING COMMITTEE (1/22)(5頁 THE RECORD OF DISCUSSIONS 参照)
- 会議における討議事項は次のとおりである。
- 1) 調査団は本件調査はマスタープランに限られると共に、調査の方式は既に日本がマレーシアに対して協力した経験のあるペナン州における交通計画調査とほぼ同様のものとなることを説明した。
 - 2) マレーシア側からフィジビリティ調査 (F/S) に関する質問がなされ、調査団はマスタープランの調査により選定される優先順位の高いプロジェクトについてF/Sが実施されることを説明した。
 - 3) さらにF/Sについての討議の結果マスタープラン終了後直ちにF/Sを実施することに合意し、何をF/Sの対象とするかについてはマスタープラン調査で確定し、日本、マレーシア両政府で合意したプロジェクトとすることとした。
 - 4) TOWN AND COUNTRY PLANNING (TCP) 関係者より現在 JOHOR BAHRU の STRUCTURE PLAN の作成が計画されていることが明らかにされ、TCP関係者はこのSTRUCTURE PLAN 調査をマスタープラン調査と同時並行的に実施することを希望したが、調査開始時期のズレから夫々独自の調査を進めるとの結論になった。
 - 5) 調査内容についての質疑応答がなされ、事前調査団作成の Draft Scope of Work に対しいくつかの字句修正がなされたが、これらは単に字句の修正にとどまり調査内容の変更につながるものではないので記述は省略する。
 - 6) Draft Scope of Work のマレーシア側 Undertaking に関し、マレーシア側より条文削除の要求があった。
 - 7) Scope of Work の最終案については調査団が JOHOR BAHRU の現地視察を行なった後とすることとした。
- (3) JOHOR BAHRU 州 STATE PLANNING UNIT における州政府関係者合同会議 (1/25)
- この会議において討議確認された事項は次のとおりである。
- 1) 調査対象地域としては将来の開発の拠点および JOHOR BAHRU との経済的な結びつきの観点から COTATINGGI および PONTIEN を包含することが望ましい。さらに先方税関関係者からシンガポールも調査対象地域に入れるべきであるとの意見が述べられたが、調査団は二国間にまたがる調査の実施は日本の技術協力の仕組みから困難であることを説明し先方もこれを了解した。
 - 2) 調査団は本格的な調査が3月末から開始され、コンサルタントが調査期間中現地に滞在し、マスタープラン作成に約1年を要することを説明した。

- 3) 調査団は交通調査として CAR OWNER INTERVIEW あるいは PERSON TRIP SURVEY 実施する予定であることを説明し、調査員の動員可能性について質した。
- 4) コンピュータの利用可能性については JOHOR BAHRU にはコンピュータは無く、利用可能なものはシンガポールあるいはクアラルンプールにしかないということが確認された。さらにマレーシア側からコンピュータの使用についてはクアラルンプールのものを使用するのが適当であろうとの意見が出され調査団もこれを了承した。
- 5) 調査用の OFFICE SPACE の確保については TOWN MUNICIPALITY が担当することになり STATE PLANNING UNIT もこれを BACK UP するとの発言があった。
- 6) 調査団が必要とするデータについては提供可能な限り協力するとの発言があった。
- 7) COUNTER PART についてはマレーシア側より調査団と常時 CONTACT できる人員を提供することは困難であり最大限 TOWN MUNICIPALITY からの ENGINEER 1~2名であると説明があった。さらに調査団との対応については STATE PLANNING UNIT を中心とする COMMITTEE が当ることになるとの説明があった。
- 8) STATE PLANNING UNIT をはじめとする会議出席者から調査団への協力の約束があった。特に CUSTOM 関係者から調査団がシンガポールへ出入りすることについては何ら問題ないとの確約を得た。

(4) EPUにての第二回 STEERING COMMITTEE (1/28)

- 1) 第1回目 STEERING COMMITTEE で協議した通りマスタープランにより選定され、また両政府により合意されたプロジェクトにつき、マスタープラン調査後ひきつづき F/Sを実施することを確した。また今回の協議の対象の S/Wはマスタープランについてのみであることを確認した。
- 2) 調査対象地域については KOTA TINGGI, PONTIAN および東部海岸の観光開発地等を含めることの要望があり、調査団は調査対象区域を Primary Area と Secondary Area の二種類に分け Secondary Area については必要に応じ適宜考慮することとした。
- 3) コンピュータの費用負担に関し、マレーシア側の Undertaking は先行する日本の技術協力案件である「マレーシア、ジョージタウン・パタワース道路計画調査」と同程度にして欲しいとの先方の要望を受けて、これを了承した。
- 4) 交通調査員に関する費用はマレーシア側で負担することで合意した。
- 5) 調査スケジュールについては調査団より交通調査員の確保および電算機の利用について不確定な点があり多少のスケジュール変更は避けられない旨説明し、先方もこれを了承した。
- 6) S/Wのマレーシア側 Undertaking である調査団員の安全確保についての質疑。

THE RECORD OF DISCUSSIONS BETWEEN THE JAPANESE PRELIMINARY SURVEY TEAM AND THE AUTHORITIES CONCERNED OF THE GOVERNMENT OF MALAYSIA ON THE JAPANESE TECHNICAL COOPERATION FOR THE URBAN TRANSPORT MASTER PLAN STUDY FOR THE JOHOR BAHRU CONURBATION, MALAYSIA


The Japanese Preliminary Survey Team (hereinafter) referred to as "the Team" organised by the Japan International Cooperation Agency (herewith referred to as JICA) and headed by Mr. Moriyuki Hirose visited Kuala Lumpur and Johor Bahru between January 18 and 31, 1981 to work out the details for the above mentioned study.

During their stay in Malaysia, the Team exchanged views and had a series of discussions with representatives of the Economic Planning Unit, Ministry of Works and Utilities and relevant authorities including the Johor State Economic Planning Unit and Johor Bahru Municipality on the Scope of Work and the desirable measures to be undertaken by both Governments for the successful execution of the above mentioned study.

As a result of the discussions, the Team and the representatives of the Government of Malaysia agreed upon the matters referred to in the documents attached hereto.



(MR. MORIYUKI HIROSE)
Leader of Japanese Preliminary
Survey Team


.....
(TAN SRI ISHAK B. PATEH AKHIR)
Director General
Economic Planning Unit
Prime Minister's Department
The Government of Malaysia

Kuala Lumpur,
Malaysia,
January 29, 1981.

Attachments

- a) Notes of discussions
- b) Scope of work for the Master Plan Study

NOTES OF MEETING

Date : 22.1.1981 (2.30 p.m.)
Place : Conference Room
Economic Planning Unit
Kuala Lumpur.
Topic : Steering Committee Meeting On The
Johor Bahru Urban Transport Study

PRESENT

1. Encik Bashah b. Nordin - Chairman
Economic Planning Unit
2. Encik T.S. Jayaratnam
Highway Planning Unit
3. Encik Ghazali b. Bujang
Highway Planning Unit
4. Mr. Hiroshi Nakajima
Highway Planning Unit
5. Encik Zaidan b. Hj. Othman
Malaysia Highway Authority
6. Dr. Shahir b. Nasir
State Economic Planning Unit, Johor.
7. Puan Teh Zawahir bt. Abd. Malek
Town and Country Planning, Kuala Lumpur.
8. Encik Ismail b. Mohamad
Economic Planning Unit
9. Encik Anuar b. Khabar - Secretary
Economic Planning Unit

Members of the Japanese Preliminary Survey Team

10. Mr. Moriyuki Hirose
11. Mr. Takeshi Shiina
12. Mr. Yasutake Inove
13. Mr. Hiroshi Osame
14. Mr. Ishiro Kubota

Embassy of Japan, Kuala Lumpur

15. Mr. K. Takada
First Secretary

JICA Office, Kuala Lumpur

16. Mr. Abe Nobuji

I. PURPOSE OF MEETING

To discuss and come to agreement on the Scope of Work for the Study.

II. DISCUSSION AND DECISION TAKEN

2. The Chairman called the meeting to order and introduced the members of the Steering Committee to the Japanese Mission. It was then followed by the introduction of the members of the Japanese Mission. The Chairman called upon Professor Moriyuki Hirose, the leader of the Japanese Preliminary Survey Team, to brief on the purpose and the objective of his Mission.
3. Professor Hirose, informed the members that the discussion to be held that day would be a preliminary one. He added that his team would be visiting Johor Bahru and would have discussion with the respective departments in Johor Bahru. Based on the above discussions, the Scope of Work would then be finalised at the meeting to be held on the 28th January, 1981. Professor Hirose then called Mr. Shiina to continue with the briefing.
4. Mr. Shiina indicated that the primary objective of the Mission was to finalise the Scope of Work for the Study and

added that the Scope of Work is more or less similar to that of the Penang Urban Transport Study.

5. In reply to the question on the word 'Study' as raised by the Committee, the Mission replied that the word referred to Master Plan Study only. A Feasibility Study would then be carried out on high priority projects identified by the Master Plan Study.

6. In order to avoid the need to put up separate request for each stage of the Study by the Government of Malaysia to the Government of Japan, the meeting agreed that as soon as the Master Plan Study was completed, the Japanese Government would carry out a Feasibility Study on certain high priority projects as identified in the Study and agreed to by both the Governments.

7. The Mission was informed that the Government, through the Department of Town and Country Planning, would undertake the formulation of a Structure Plan for Johor Bahru. It would be beneficial if this Plan could be completed prior to the inception of the Master Plan Study or at least the two studies be undertaken concurrently. As the starting date for the proposed Structure Plan Study has not been determined, it was agreed that the Master Plan Study, planned to commence in March 1981, should proceed. In this light, therefore, the two studies would be regarded as two separate entities.

8. The meeting discussed in detail the draft Scope of Work attached as Appendix A. Certain amendments were agreed upon.

However, in regard to the provision on security of the Japanese Study Team appearing under item 8 of 'UNDERTAKING OF THE GOVERNMENT OF MALAYSIA', the Malaysian side indicated that it would not be reasonable to give such an undertaking. No provision has ever been made with any other organisation in respect of similar studies.

III. CONCLUSION

9. It was agreed that the Mission take the necessary action to amend the Scope of Work as agreed upon and have it submitted for finalisation at the next meeting scheduled on the 28th January, 1981 at 2.30 p.m. at the Economic Planning Unit, Kuala Lumpur.

10. The meeting was adjourned at 5.00 p.m. with a vote of thanks to the Chair.

Economic Planning Unit,
Prime Minister's Department,
Kuala Lumpur.

28.1.1981.

DRAFT

SCOPE OF WORK
OF
URBAN TRANSPORT STUDY
FOR
THE JOHOR BARU CONURBATION
MALAYSIA

AGREED BETWEEN
JAPAN INTERNATIONAL COOPERATION AGENCY
AND
ECONOMIC PLANNING UNIT

I. INTRODUCTION

In response to the request made by the Government of Malaysia, for technical cooperation in conducting the Urban Transport Study for the Johor Bahru Conurbation (hereinafter referred to as "the Study"), the Government of Japan agreed to offer the service of Japanese expert Team for the study and the transfer of knowledge to the counterpart personnel appointed by the Government of Malaysia, in accordance with the laws and regulation in force in Japan.

The Government of Japan conducted the Preliminary Survey on the Study, 1981. Based on the results of this survey, the Japan International Cooperation Agency (hereinafter referred to as "JICA"), responsible for implementation of the technical cooperation programmes of the Government of Japan, will carry out the Study in close cooperation with the Government of Malaysia.

II. OBJECTIVE OF THE STUDY

The objectives of the Study are to formulate a master-plan of urban transport system of Johor Baru Conurbation taking into consideration the various development projects, to recommend major transport policies, to suggest the priority of projects during the course of the Study.

III. SCOPE OF THE STUDY

1. Study Area.

The study area covers the Johor Bahru conurbation area and their neighbouring districts as the need arises.

2. Study Year.

The target year of the Master Plan is 2000. The Study is to identify the short-term projects to be undertaken during the period 1980-85 as well as the long-term projects 1986 onwards to the year 2000.

3. Items of Study

3-1 Master Plan Study

3-1-1 Survey, Analysis and Planning

1) Review of existing data and reports

2) General study

a. population

b. commerce and industry

c. income and expenditure

d. land use.

3) Transportation study

a. package of O-D survey and its analysis

b. existing public transport operations

c. existing transportation facilities

d. forecast of future traffic demand

e. future road network configuration

f. distribution of future parking demand

g. traffic engineering and regulation

4) Construction cost

3-1-2 Recommendation

1) Future public transport policies
and policy measures

2) Private vehicle restraint

3) Parking policies

3-1-3 Suggestion of Priority of Projects

1) Rough economic evaluation of all
projects identified

2) Suggestion of the short-term and the
long-term projects.

3-2 Others

- 1) Works other than the above mentioned will be conducted, if necessary, to fulfil the objectives of the Study as spelt out in the Terms of Reference.
- 2) The consistency with the established policies and committed projects of the Government of Malaysia will be taken into account in the Study.

IV. STUDY SCHEDULE

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

V. REPORTS

JICA will prepare and submit the following reports in English to the Government of Malaysia in the course of the Study.

1. Inception Report
 - 30 copies
 - At the starting date of the Study in Malaysia.
2. Progress Report (I)
 - 30 copies
 - within 4 (four) months after the starting date of the Study in Malaysia.
 - the Government of Malaysia will provide JICA with its comments within 1 (one) month after the receipt of the Progress Report (I).
3. Progress Report (II)
 - 30 copies
 - within 8 (eight) months after the starting date of the Study in Malaysia.

- the Government of Malaysia will provide JICA with its comments within 1 (one) month after the receipt of the Progress Report (II).

4. Draft Final Report

- 30 copies
- within 12 (twelve) months after the starting date of the Study in Malaysia
- the Government of Malaysia will provide JICA with within 1 (one) month after the receipt of the Draft Final Report.

5. Final Report

- 50 copies
- within 2 (two) months after receipt of the Malaysian Government's comments on the Draft Final Report.

VI. UNDERTAKING OF THE GOVERNMENT OF MALAYSIA

1. To provide the Study Team with relevant data and information necessary for the execution of the Study and such survey connected with it.
2. To exempt the Study Team from the provisions of taxes and duties normally accorded under General Circular No. 1 of 1979 for materials, equipment and personal effects brought into Malaysia for the purpose of the Study.
3. To appoint counterpart personnel (officials/ engineers) to the Study Team during the Study period.
4. To provide the Study Team with suitable office space, laboratory space, necessary office equipment and services for the Study.

5. To make arrangements for the Study Team to rent suitable furnished residence and to hire vehicles with driver during the Survey period.
6. To make arrangements for the Study Team to take the data, maps and materials connected with the Study to Japan in order to prepare the reports subject to the approval by the Government of Malaysia.
7. To secure the necessary entry permits for the conduct of the field surveys by the Study Team.
8. To make the Study Team secure during their stay in Malaysia.
9. To provide traffic survey team to undertake traffic counts and O-D survey.
10. To meet the cost of using local computer necessary for data processing.
11. To take necessary measures for the Study Team to enter Singapore during the study period.
12. To collect necessary data and informations from the Government of Singapore for the study.

VII. UNDERTAKING OF THE GOVERNMENT OF JAPAN.

1. To provide Study Team in relevant fields to undertake the Study.
2. To bear necessary expenses for the execution of the Study excluding for the items mentioned in VI. Undertaking of the Government of Malaysia.

TENTATIVE STUDY SCHEDULE

YEAR AND MONTHS	1981												1982						
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	
(a) PREPARATION OF THE STUDY																			
(b) INCEPTION REPORT			X																
(c) STUDY IN MALAYSIA																			
(d) PROGRESS REPORT (I)							X												
(e) COMMENTS								o											
(f) PROGRESS REPORT (II)										X									
(g) COMMENTS												o							
(h) DRAFT REPORT																X			
(i) COMMENTS																	o		
(j) PREPARATION OF FINAL REPORT IN JAPAN																			
(k) FINAL REPORT																			X

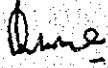
SCOPE OF WORK
OF
URBAN TRANSPORT MASTER PLAN STUDY
FOR
THE JOHOR BAHRU CONURBATION
MALAYSIA

AGREED BETWEEN
JAPAN INTERNATIONAL COOPERATION AGENCY

AND
ECONOMIC PLANNING UNIT

DATED: 14th. JANUARY, 1981.

(MR. MORIYUKI HIROSE)
LEADER OF THE
JAPANESE PRELIMINARY
SURVEY TEAM



(TAN SRI ISHAK BIN PATEH AKHIR)
DIRECTOR GENERAL
ECONOMIC PLANNING UNIT
PRIME MINISTER'S DEPARTMENT
THE GOVERNMENT OF MALAYSIA

I. INTRODUCTION

In response to the request made by the Government of Malaysia, for technical cooperation in conducting the Urban Transport Master Plan Study for the Johor Bahru Conurbation (hereinafter referred to as "the Study"), the Government of Japan agreed to offer the service of Japanese expert Team for the study and the transfer of knowledge to the counterpart personnel appointed by the Government of Malaysia in accordance with the laws and regulations in force in Japan.

The Government of Japan conducted a Preliminary Survey on the Study in January, 1981. Based on the results of this survey, the Japan International Cooperation Agency (hereinafter referred to as "JICA"), responsible for implementation of the technical cooperation programmes of the Government of Japan, will carry out the Study in close cooperation with the Government of Malaysia.

II. OBJECTIVE OF THE STUDY

The objectives of the Study are to formulate a transport master plan comprising policies and short-term as well as long-term programmes that will effectively serve the present and future needs and complement the overall structure plan for the orderly development of Johor Bahru and its conurbation.

III. SCOPE OF THE STUDY

1. Study Area

The study area covers the Johor Bahru conurbation area and its neighbouring districts as shown in figure 1.

2. Planning Period

The target year of the Master Plan is 2000. The Study is to identify the short-term projects to be undertaken during the period 1981-85 as well as the long-term projects from 1986 onwards to the year 2000.

3. Items of Study

3-1 Survey, Analysis and Planning

- 1) Review of existing data and reports
- 2) General study
 - a. population
 - b. commerce and industry
 - c. income and expenditure
 - d. land use
- 3) Transportation study
 - a. package of O-D survey and its analyses
 - b. existing public transport operations
 - c. existing transportation facilities for passengers and freight
 - d. forecast of future traffic demand
 - e. future road network configuration
 - f. distribution of future parking demand
 - d. traffic engineering and regulation
- 4) Construction Cost

3-2 Recommendation

- 1) Future public transport policies and policy measures
- 2) Road network investment
- 3) Traffic management and control
- 4) Parking policies
- 5) Priority projects
- 6) Preliminary economic evaluation of all projects identified
- 7) The short-term and the long-term projects.

3-3 Others

- 1) Works other than the above-mentioned will be conducted, if necessary, to fulfil the objectives of the Study
- 2) The consistency with the established policies and committed projects of the Government of Malaysia will be taken into account in the Study.

IV. STUDY SCHEDULE

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

V. REPORTS

JICA will prepare and submit the following reports in English to the Government of Malaysia in the course of the Study.

1. Inception Report
 - . 50 copies
 - . At the starting date of the Study in Malaysia.

2. Progress Report (I)
 - . 50 copies
 - . within 4 (four) months after the starting date of the Study in Malaysia.
 - . the Government of Malaysia will provide JICA with its comments within 1 (one) month after the receipt of the Progress Report (I).

3. Progress Report (II)
 - . 50 copies
 - . within 8 (eight) months after the starting date of the Study in Malaysia.
 - . the Government of Malaysia will provide JICA with its comments within 1 (one) month after the receipt of the Progress Report (II).

4. Draft Final Report
 - . 50 copies

 - . date of the Study in Malaysia.
 - . the Government of Malaysia will provide JICA with its comments within 1 (one) month after the receipt of the Draft Final Report.

5. Final Report
 - 50 copies
 - within 2 (two) months after receipt of the Malaysian Government's comments on the Draft Final Report.

VI.

UNDERTAKING OF THE GOVERNMENT OF MALAYSIA

1. To provide the Study Team with available relevant data and information necessary for the execution of the Study.
2. To exempt the Study Team from taxes and duties normally accorded under the provision of General Circular No. 1 of 1979 for materials, equipment and personal effects brought into Malaysia for the purpose of the Study.
3. To appoint counterpart personnel (officials/ engineers) to the Study Team during the Study period.
4. To provide the Study Team with suitable office space, necessary office equipment and services for the Study.
5. To make arrangements for the Study Team to rent suitable furnished residence and to hire vehicles with drivers during the Survey period.
6. To make arrangements for the Study Team to take the data, maps and materials connected with the Study to Japan subject to the approval by the Government of Malaysia in order to prepare the
7. To secure the necessary entry permits for the Study Team to conduct field surveys.
8. To provide traffic survey team to undertake traffic counts and O-D survey.

9. To take necessary measures for the Study Team to enter Singapore during the study period.
10. To collect necessary data and information from the Government of Singapore for the study.

VII.

UNDERTAKING OF THE GOVERNMENT OF JAPAN

1. To provide a Study Team in relevant fields to undertake the Study.
2. To bear travelling expenses and fares between Japan and Malaysia and also within Malaysia for members of the Study Team in regular visits to initiate and coordinate the study activities.
3. To meet the cost of salaries and allowances for all personnel employed by or appointed by the Government of Japan.
4. To meet the cost of accomodation and living expenses for members of the Study Team during their visits to Malaysia.
5. To meet the cost of telephonic, postal, telegraphic, cable and telex communications originated by members of the Study Team for transmission of information between Japan and Malaysia.
6. To transfer the technology for planning of urban transport system to the Malaysian personnels during the study period including the cost involved in training in Japan of a selected number of Malaysian Government professionals and/or technical officers associated with the Study.

ITERATIVE STUDY SCHEDULE

YEAR AND MONTHS	1981												1982					
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6
(a) PREPARATION OF THE STUDY																		
(b) INCENTION REPORT				X														
(c) STUDY IN MALAYSIA																		
(d) PROGRESS REPORT (I)							X											
(e) COMMENTS																		
(f) PROGRESS REPORT (II)										X								
(g) COMMENTS																		
(h) DRAFT REPORT															X			
(i) COMMENTS																	O	
(j) PREPARATION OF FINAL REPORT IN JAPAN																		
(k) FINAL REPORT																		X

Figure 1

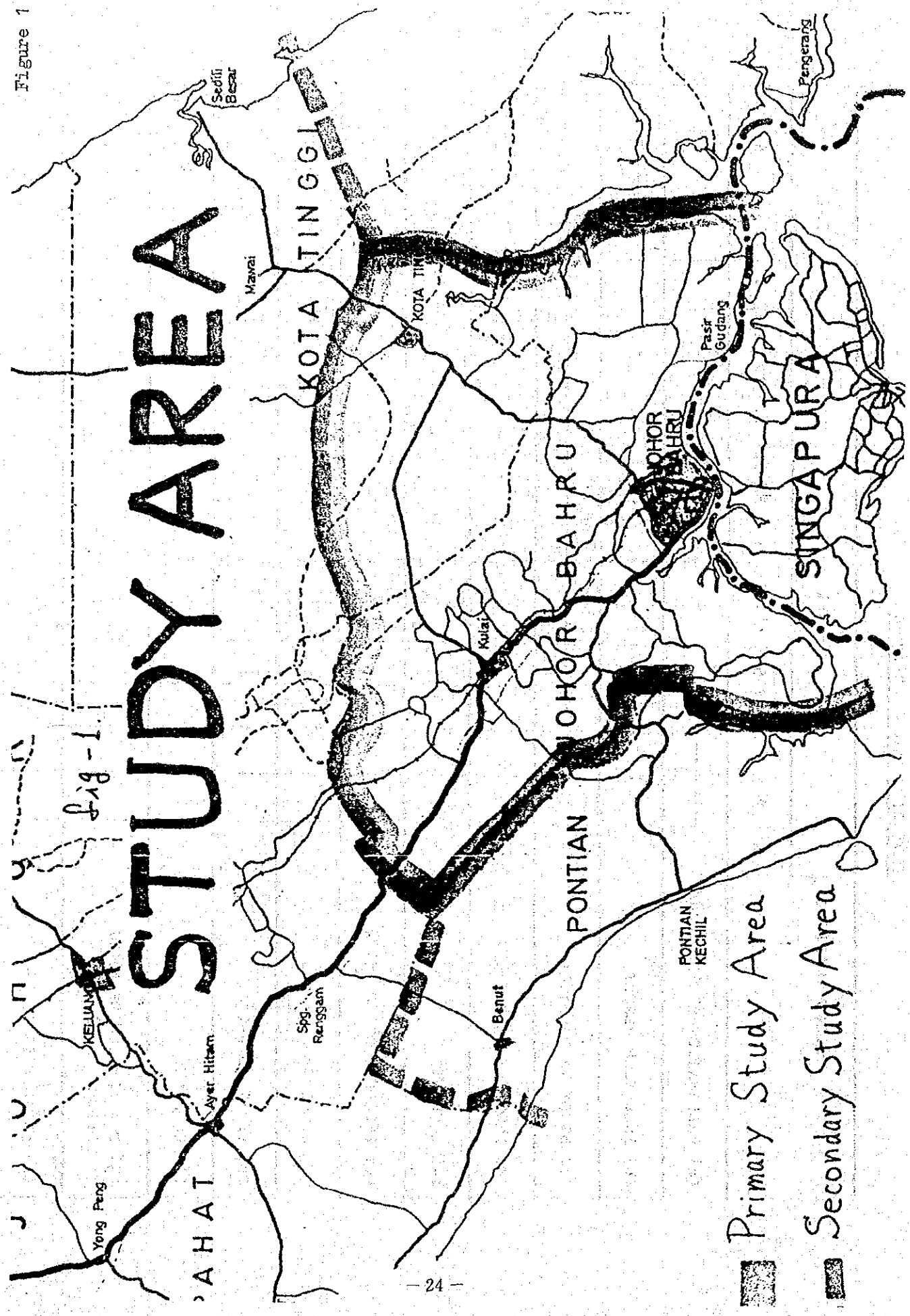


Fig-1.

STUDY AREA

- Primary Study Area
- Secondary Study Area

KERAJAAN MALAYSIA

KEMENTERIAN KERJAJAYA & KEMUDAHAN-KEMUDAHAN AWAM

BAHAGIAN PERANCANG JALAN

GOVERNMENT OF MALAYSIA

MINISTRY OF WORKS & UTILITIES

HIGHWAY PLANNING UNIT

* * * * *

TRANSPORT STUDY

FOR

THE JOHOR BARU CONURBATION

* * * * *

TERMS OF REFERENCE, DRAFT 1

* * * * *

NOVEMBER 1979

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1. BACKGROUND

Johor Baru is the capital of the State of Johor and located at the southern tip of Peninsular Malaysia opposite the Republic of Singapore. Thus Johor Baru is, firstly, the natural regional centre of trade and commerce, transport, administration and public life and, secondly, the focal point of all land communication between Singapore and Peninsular Malaysia. For many years in her history, however, Johor Baru was overshadowed by the dominant role of Singapore with her prominent port and capability to provide a higher order of services. It was only since Independence and, increasingly after the withdrawal of Singapore from Malaysia that Johor Baru experienced a rapid development towards self-sufficiency and self-reliance.

In the field of transportation the Malaysian Government distinctly supported this development by the creation of the Senai Airport and the Pasir Gudang Seaport. Various residential and industrial schemes sprang up in and around Johor Baru.

Although many transport facilities in particular new roads were provided to cope with the growth demand, the Government is somewhat concerned about the existing gap between the demand for transport, including public transport and traffic management, and the appropriate supply in facilities and services. The Government therefore seeks the assistance of a Consultant to draft a suitable strategy by means of elaborating a Transport Study to overcome the current transport inadequacies and to meet future transport requirements in the conurbation of Johor Baru.

2. OBJECTIVES

It is the objective of the Transport Study to assist the Government in formulating a concerted programme :

- to improve the existing traffic conditions in the Study area as indicated in the location plan (see last page) by means of a short term traffic improvement plan, and,
- to meet the future traffic demand in adopting a long term transport development plan.

The Consultant entrusted with the Study is expected to provide proposals in particular in the fields of :

- traffic control and traffic management
- transport policies and regulations, in particular concerning the Causeway traffic between Singapore and Peninsular Malaysia
- transport investment.

In pursuance of his work the Consultant is expected to cover with his recommendations :

- road planning
- vehicle restraint measures in the urban core area, if any,
- public transport, in particular the case of the minibuses,
- parking policies and facilities,

- rail transport, in particular that to and from the port,
- air transport,
- financial implications.

The nature of the recommendations to be made shall comply with the Government's general policy as laid down in the Third Malaysia Plan and in the New Economic Policy.

3. SCOPE OF WORKS

3.1 General

The Consultant shall perform all technical and administrative studies, economic and transport analyses, financial and organization investigations, and related works as required to fulfil the study objective formulated in Part 2 of these Terms of Reference.

The Study shall include all modes of transport which have a present or future role in the movement of people and goods within the Study area.

In the conduct of this work the Consultant shall closely collaborate with the Malaysian Federal Government and the Malaysian Local Authorities. Furthermore, the Consultant is expected to maintain close and friendly contacts with the relevant Singaporean Authorities on matters of mutual technical interest. The Malaysian Authorities will provide all available data and services as outlined in Part 6 of this Terms of Reference.

In all his reports (see part 4 of this Terms of Reference) the Consultant shall clearly distinguish between short term measures to be implemented easily without meeting major physical, financial or administrative obstacles and long term measures which need profound and far-reaching analyses and preparation.

3.2 Review of Existing Situation and Policies

The Consultant shall review the transport situation in the areas concerned, establish the existing conditions and trends, and identify the present and potential problems for the transport sector including linkage between transport, economic activities and landuse.

Relevant subjects to be reviewed include, but are not necessarily limited to, the following :

- a) Land Use: Present land use and zoning; committed and permitted changes, existing land use plans, pattern of economic activity and its relationship to transport, cost and services.
- b) Transport Use: The volume and pattern of peak period and daily passenger and goods movements on all major routes within the areas by all public and private modes of transport.
- c) Traffic Distribution Facilities: The nature, classification, location, extent, and capacity of major roads in the areas, the design, location and capacity of main road crossings, design, location and capacity of bus and railway terminals; identification of major one way streets; volume/

capacity characteristics for roads of differing design standards, standards of traffic engineering; committed and planned road improvements.

- d) Parking Facilities: The number and location of on-street and off-street parking spaces with standard of provision, design and layout thereof; pricing and cost; regulations; committed and planned increases.
- e) Bus Transport: Type, number, capacity, fares, age and condition of vehicles, routing, terminals and stops, frequency of service and waiting time characteristics, volume/capacity characteristics of actual services; cost of vehicles, fuel; maintenance and repair related to mileage and speed; transport fares and rates, costs and revenues of operations; organization and management of bus operating companies.
- f) Taxis, Hired Cars, Pirate Taxis: Type, capacity, age and condition of vehicles; costs of vehicles, fuel, maintenance and repair related to mileage and speed; transport fares and rates, costs and revenue of operations; organization and management of taxi operating companies; licensing policy.
- g) Rail Transport: Type, capacity, age and condition of vehicles, age and condition of facilities, frequency of services, fares and rates, costs and revenues; organization and management of rail transport operation in the area.

- h) Trishaws: Number and main zones of operation; effect on traffic congestion (volume/capacity); licensing policy.
- i) Private Vehicles Use: The number and type of private vehicles including bicycles, non-motorised vehicles, motor-cycles, cars and lorries, the availability of private modes of transport by type of household; regulations and taxes on private vehicle ownership and use.
- j) Pedestrian Facilities: Existing linkages between activity centres and transport terminals, pedestrian volume and existing facilities and regulatory measures.
- k) Transport Resources: The financial and staff capacities of the roads authorities, the amount and disposition of revenues derived from taxes and other impacts on public and private vehicle ownership and use.
- l) Traffic Management and Regulations: Traffic management and control measures, legal authority of transport agencies.
- m) Transport Proposals and Recommendations: The transport improvement proposals identified by Governmental agencies, other Consultants or any other sound recommendation made by any other institution, association or individual.

3.3 Traffic Investigations and Forecast of Future Traffic

Applying profound analytical techniques the Consultant shall prepare forecasts of future travel demands for the period of 1980 to 2000.

The forecast shall be based on existing traffic data and data to be collected by the Consultant. Additional surveys, however, should only be carried out when the need for them arises.

The Consultant shall assess the likely impact of the implementation of the Ayer Hitam - Tampoi Expressway.

The Consultant shall estimate the probable range of accuracy of the forecast and their sensitivity to changes in the underlying variables and to changes in transport policies. The Consultant shall interpret the forecasts in terms of their implications concerning travel times, speed/volume/capacity relationships, modal distribution, parking requirements and similar basic characteristics for the period stated above assuming a continuation of present transport trends and policies.

3.4 Transport Strategies

Based on the foregoing analyses of the existing situation and forecasts of future conditions the Consultant shall undertake detailed studies and make recommendations concerning policies and programmes for each of the following subjects.

3.4.1 Road Network Configuration

The Consultant shall analyse the present road network and make recommendations on the future network configuration. In establishing a road hierarchy the Consultant shall incorporate committed and proposed projects and identify supplementary roads which are likely to improve the present facilities.

3.4.2 Public Transport

The Consultant shall analyse and make recommendations on detailed and comprehensive changes in public transport routes, schedules, facilities and institutions and related matters with the objective of improving, expanding and supplementing existing forms of public transport to attract and accommodate significantly higher absolute and relative numbers of passengers.

The Consultant shall investigate in detail the introduction of minibus services, drawing on the experiences made in Metropolitan Kuala Lumpur and the findings of the Trishaw Replacement Study for Trengganu and Ipoh.

The Consultants shall in particular examine and make recommendations on the feasibility of establishing bus-only lanes, bus priorities at intersections, etc.

The Consultant shall identify likely obstacles to the attainment of the proposed changes and shall recommend ways and means for reducing or eliminating those obstacles imposed by public policies, rules and actions.

The Consultant shall recommend immediate and long-term feasible public transport development programmes and shall estimate their costs and their likely effects on patronage, quality of service and passenger satisfaction, operators costs and revenues, and efficiency in the use of road and rail capacity and the allocation of development resources.

3.4.3 Private Vehicle Restraint Programme

The Consultant shall assess the necessity of measures to restrain the use of private automobiles, particularly for journey to work trips and in areas of concentrated development as in the core of Johor Baru. These measures may include regulations or prohibitions on the use or parking of vehicles in specified areas.

The Consultant shall identify likely obstacles to the implementation of the above measures and shall recommend ways and means for reducing or eliminating those obstacles imposed by public policies, rules and actions.

The Consultant shall recommend - if found necessary - immediate and long-term programmes to encourage restraint in the use of private automobiles in the city of Johor Baru and shall estimate their costs and their likely effects on mobility, trip diversion to public transport modes, environmental quality, and similar considerations.

3.4.4 Traffic Engineering and Regulations

The Consultant shall identify detailed and comprehensive traffic engineering and regulation measures which will improve the safety and efficiency of pedestrian and vehicular movements in the study area. These measures may include changes in signs, signals and markings; one way streets, establishment of pedestrian malls; parking and turning regulations and prohibitions; and similar measures which have been used effectively in other locations.

The Consultant shall recommend immediate and long-term programmes for traffic engineering and regulations, specifying the location

and type of measures in sufficient detail to permit Government to proceed directly to their detailed design and application. The Consultant shall estimate the costs of items included in the programmes and shall assess their likely effects in meeting the objectives of improved safety and efficiency.

3.4.5 Parking

The Consultant shall identify detailed changes in existing legislation governing private parking development and policies and programmes for public parking to complement the above described programmes.

3.4.6 Causeway Traffic

The Consultant shall pay special attention to the existing and future causeway traffic and assess the necessity, firstly, for immediate changes in the tactical arrangement at the immigration and custom facilities and, secondly, review plans for major structural changes at the border.

3.5 Project Implementation

The Consultant shall recommend a realistic time schedule for immediate (1980 - 85) and long-term (1986 onwards) measures for the improvement of the transport system in the study area. For each individual project identified in the study the Consultant shall prepare a cost-benefit analysis in order to determine their economic justification and to establish a balanced investment strategy based on priority ranking.

The results of the cost-benefit analyses shall be tested in a sensitivity analysis, varying the main input parameters such as traffic, traffic growth and construction costs.

Particular attention should be given to high priority projects for which feasibility studies and preliminary engineering should be completed at the earliest possible stage.

The Consultant shall make recommendations for improvements in the organization and coordination of Government agencies responsible for transport planning in order to establish a continuous planning process and to achieve effective project implementation.

4. Time Schedule, Reports and Meetings

The Consultant shall commence work on this project not later than 30 days after receiving the Letter of Intent. The Consultant shall prepare and submit to the Government the following reports (in English, A4 size, 50 copies each):

An Inception Report two months after the starting date. The report shall cover in fair detail the Consultant's work programme and methodology, description of key procedures to be followed and progress so far achieved, and giving information on problems encountered.

A series of Working Papers between three and eight months after the starting date, each paper giving a summary of a specific part of the work performed, and each containing a brief outline of the work completed in total and the work still to be carried out, both in real and percentage terms.

A Draft Final Report nine months after the starting date. The Draft Final Report shall describe in detail all work performed during the study period, methodologies applied, findings and recommendations of the Consultant including maps, plans, diagrams and supporting data.

A Final Report one month after receipt of the Government's comments. The Final Report shall incorporate all revisions deemed appropriate by the Government.

All reports and papers shall contain a concise first chapter summarizing all findings and recommendations and shall be accompanied by sufficient supporting data to permit checking of all calculations without further information. In case a report comprises more than one volume each volume shall carry a table of contents of all volumes.

The Government during the study will call from time to time for meetings with the Consultant to discuss relevant issues. Such meetings can also be called for should the Consultant request them.

5. Study Data

The Consultant shall collect all data necessary for the study and shall solely be responsible for their analysis and interpretation and for findings, conclusions and recommendations derived from them.

The Consultant shall review, sort and index :

- all data, maps and reports etc. made available by the Government or others or collected and

prepared by the Consultants in the
course of the study,

and

all computer programmes including
detailed manuals used in this study.

Data processing shall be carried out on local computers. All
documents as outlined above shall - upon completion of the study -
be handed over to the Government for its full retention.

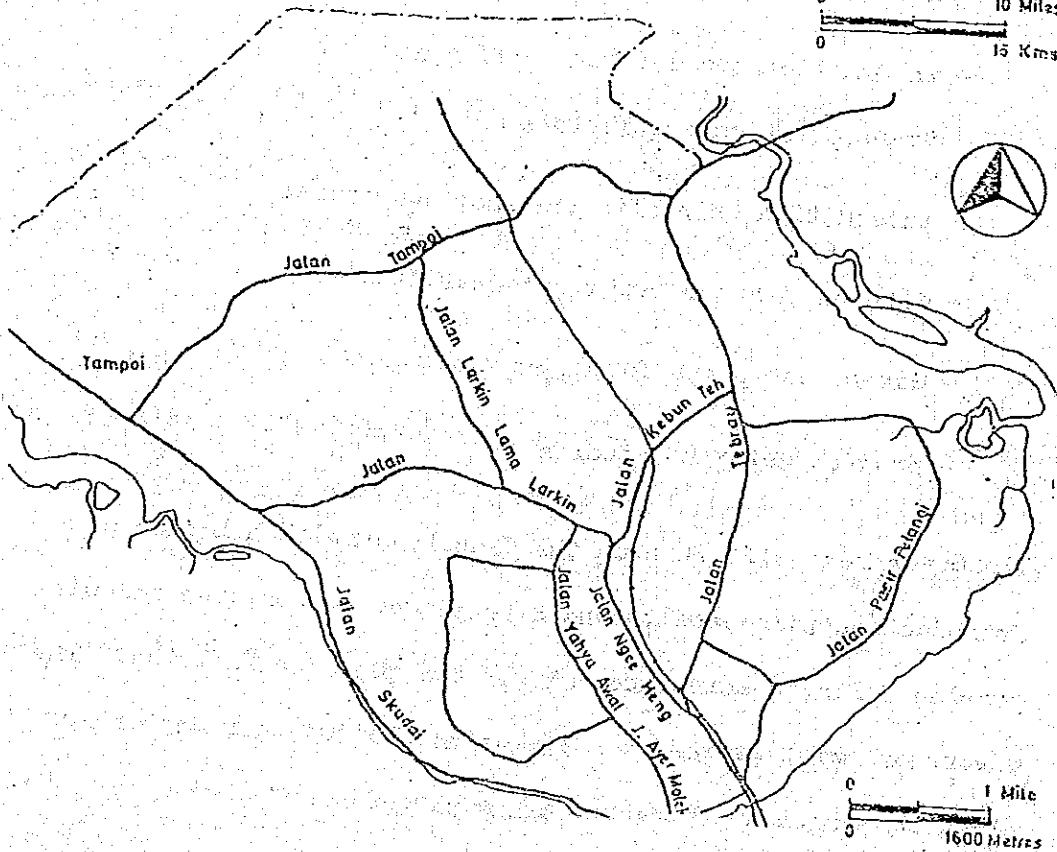
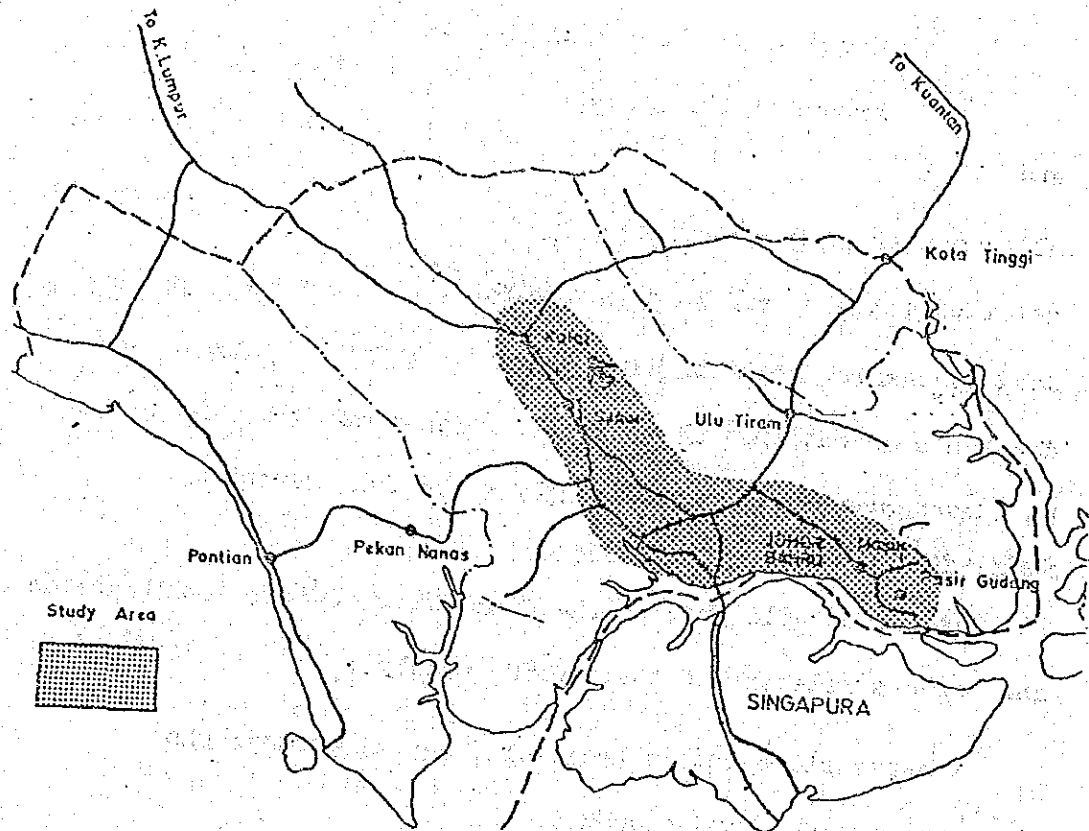
6. Services Provided by the Government

The Government will provide the Consultant with all available data
and reports relevant to their work, namely :

- maps, plans and if available, aerial photographs
- demographic and economic data
- information and data on traffic and
transportation regulations
- information on public transport companies
- data on land use and its regulations
- Government plans for major investments
- project relevant studies

The Government will furnish the Consultant with a Letter of
Introduction addressed to the Singaporean Authorities and will
provide further assistance, should the need for it arise. The
Government will designate a full-time project coordinator for
close cooperation during the study period.

TRANSPORT STUDY FOR THE JOHOR BARU CONURBATION
 — LOCATION MAPS —



第2章 事前調査結果

2-1 社会・経済の動向

(1) 人口

1957年から1970年にかけての人口の推移は、表-1のとおりである。1970年のJohor Stateの人口は1,274千人で、1957年に比べ347千人の増加となり、年成長率は2.5%であり、Peninsular Malaysiaの年成長率と概ね同じである。しかし、Johor Bahru Districtで見ると、年成長率4.1%を示し、Peninsular Malaysiaのなかでも非常に高い人口成長率である。各Districtの人口を表-2に、人口の分布状況を図-1に示している。

州都Johor Bahruの人口は、1970年で135,936人であり、これは首都クアラルンプール、ジョージタウン、イポーに次いで全国第4位に相当する。市都面積は115km²であり、人口密度はほぼ1,200人/1m²である。

最近の統計はないが、1957-1970年のトレンドで推計すると1980年では、表-1のように予想されている。

表-1 Population trends 1957-1970

	Unadjusted census figures		Annual average growth rate - %	Adjusted figures 1970	Projections of trends		Population as % of Peninsular Malaysia			
	1957	1970			1980	1990	1957	1970	1980	1990
JB Town Council Area	74,909	136,234	4.7	141,683	224,277	355,019	1.2	1.5	1.9	2.3
JB District	158,185	267,913	4.1	278,630						
Pontian District	99,103	117,686	1.3	122,393						
JB & Pontian Districts	257,288	385,599	3.2	401,023	549,498	752,945				
Study area (including part of Kota Tinggi)	- Not available -			418,745	573,782	786,219	4.3	4.6	4.8	5.1
Johor State	926,850	1,273,990	2.5	1,324,950	1,696,048	2,171,084	14.8	14.5	14.3	14.2
Peninsular Malaysia	6,278,800	8,801,399	2.6	9,153,500	11,832,070	15,294,461	100.0	100.0	100.0	100.0
Study area (excluding JB Town Council Area)	- Not available -			277,062	349,505	431,200	(3.2)	3.0	2.9	2.8

Source: Census 1957 and 1970; South Johor Study

表-2 POPULATION

District	population	Major Town	Population
Batu Pahat	249,869	Batu Pahat	53,087
Johor Bahru	271,448	Johor Bahru	135,936
Kluang	133,317	Kluang	43,297
Kota Tinggi	61,406	Kota Tinggi	8,706
Mersing	34,620	Mersing	7,444
Muar	279,261	Muar	61,203
Pontian	117,622	Pontian Kechil	8,290
Segamat	126,447	Segamat	17,815
Johore State	1,273,990		335,778

Source : 1970 National Census

また、South Johor Region 及び Johor Bahru Metropolitan Area (Johor Bahru Town Council および隣接区域) の人口は、表-2 及び表-3 のように予測されており、都市部での著しい人口増加が予想される。

表-3 South Johor Region

年次	人口	年成長率(%)
1970	418,745	3.1
1980	567,540	
1990	731,180	2.6

表-4 Johor Bahru Metropolitan Area

年次	人口	年成長率(%)
1970	159,738	6.7
1980	305,630	
1990	515,940	5.4

表-5 は racial composition について見たものであるが、Malay がとくに伸びていることがわかる。このことは Malay が農村から都市へ人口移動しているのに対して、Chinese は Malay 程の人口移動を示していないことによるものと考えられる。

表-5 Racial composition of population, 1957 and 1970, South Johor Region

	Johor Bahru Town Council Area				Johor Bahru and Pontian District				South Johor Region	
	1957		1970		1957		1970		1970	
	No.	%	No.	%	No.	%	No.	%	No.	%
Malays	28,920	38.6	70,177	49.5	112,174	43.6	202,425	50.5	216,605	51.7
Chinese	33,302	44.5	54,914	38.8	116,444	45.3	162,099	40.4	163,427	39.0
Indians	7,374	9.8	12,585	8.9	21,847	8.5	31,978	8.0	33,739	8.1
Others	5,313	7.1	4,007	2.8	6,823	2.6	4,521	1.1	4,974	1.2
Total	74,909	100.0	141,683	100.0	257,288	100.0	401,023	100.0	418,745	100.0

Source ; Census, 1957 figures unadjusted, 1970 figures adjusted for underenumeration

图-1 South Johor Region

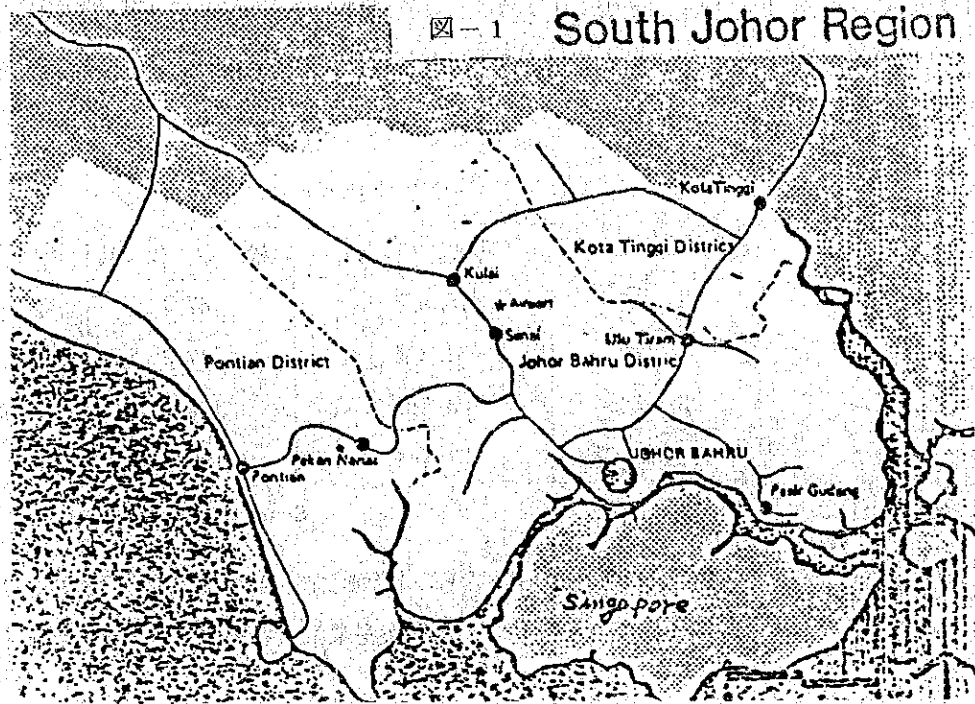
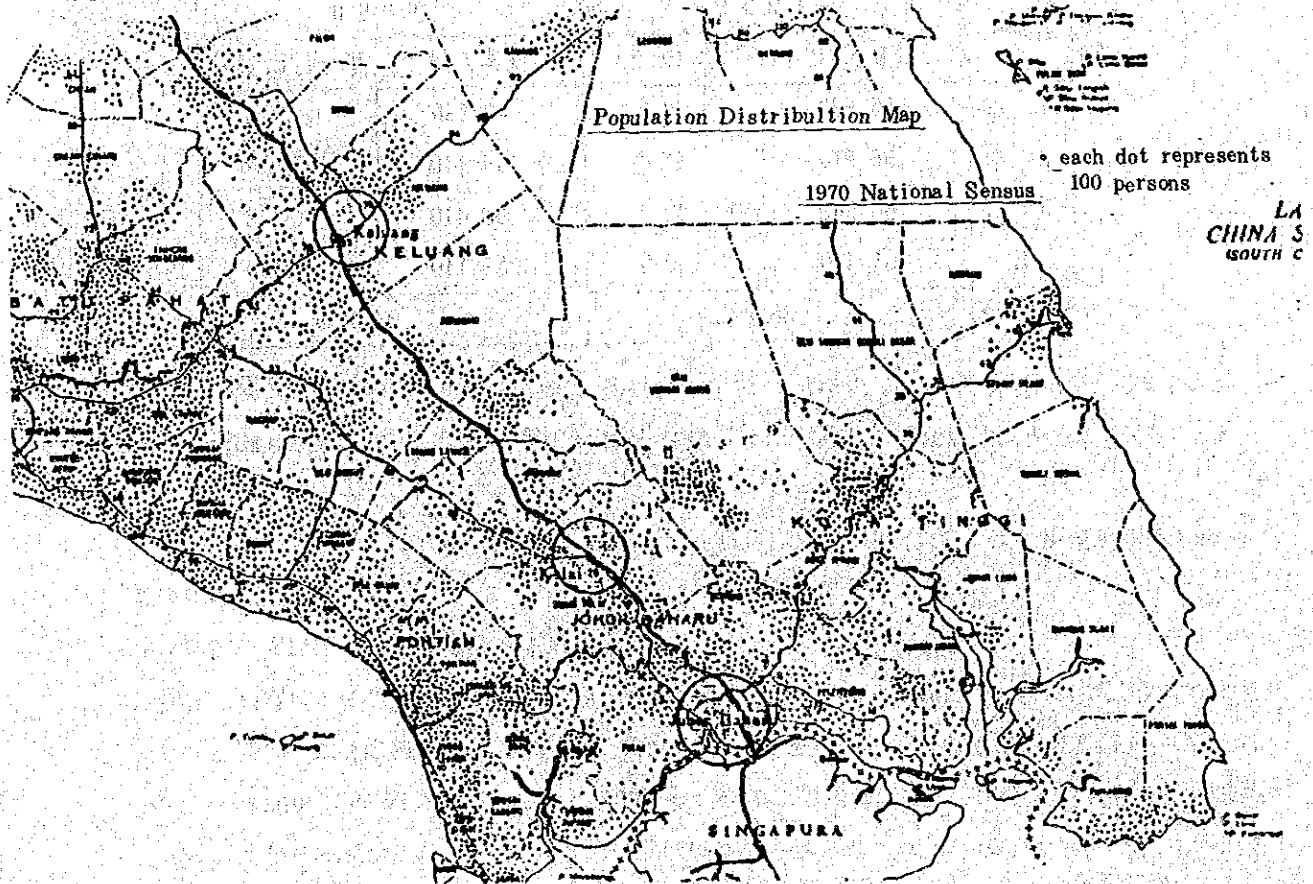


图-2



(2) 就業人口

1970年の South Johor の就業人口は123,444人、したがって就業率は29.5%である。これを産業別にみると表一6のとおりである。

表一6 就業人口 (South Johor)

	就業人口(人)	構成比(%)
1次	18,528	47.4
2次	21,375	17.3
3次	43,541	35.3
計	123,444	100.0

South Johor, 1970

将来に向けて、これらの就業率は年々上昇するものと予測され、表一7に示すように、1次産業就業者の人数、構成比とも減少傾向にあるのに対し、2次産業就業者の伸びが大きくなると予測されている。

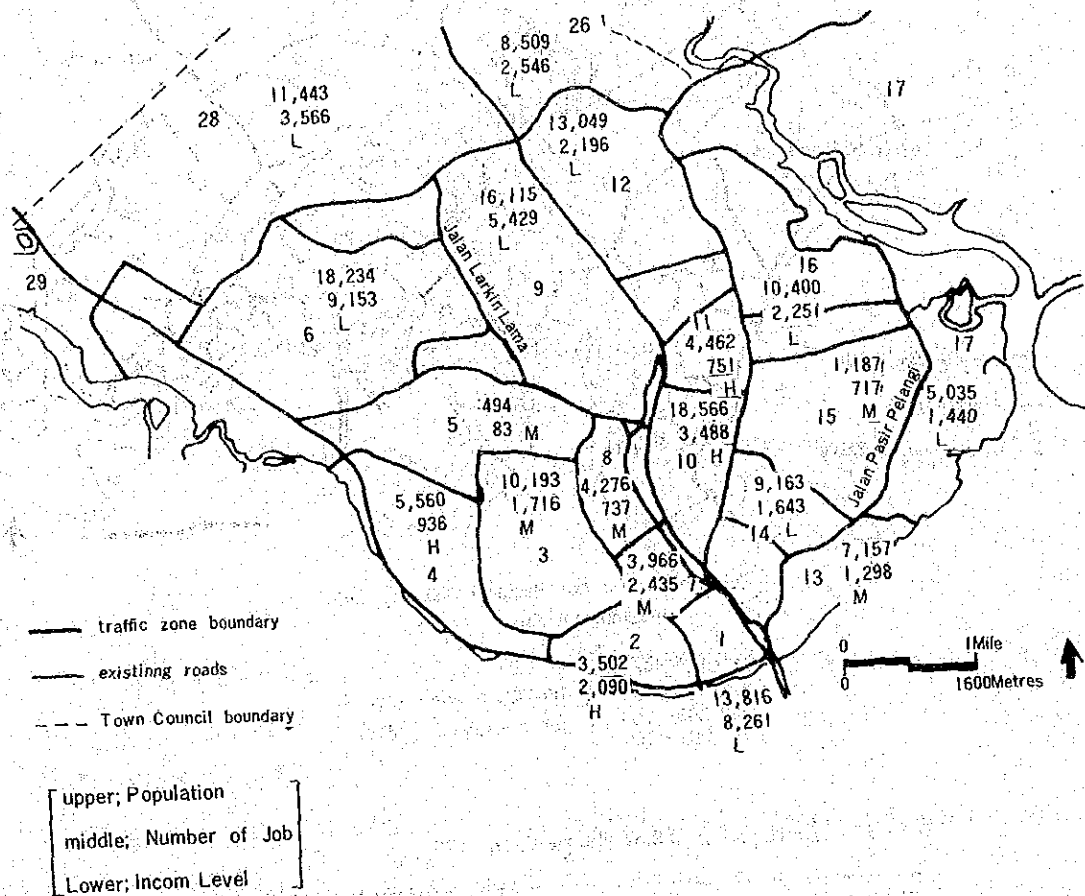
表一7 将来の就業人口

	1980		1990	
	就業人口	構成比	就業人口	構成比(%)
1次	55,520	30.6	43,590	17.4
2次	56,970	31.4	114,110	45.4
3次	68,940	38.0	93,410	37.2
計	181,430	100.0	251,110	100.0
就業率(%)	38.0%		34.3%	

South Johoy, 1970

図-3には、人口分布と就業人口ならびに平均所得水準を示している。

図-3 Population Distribution and Job Number (1970)



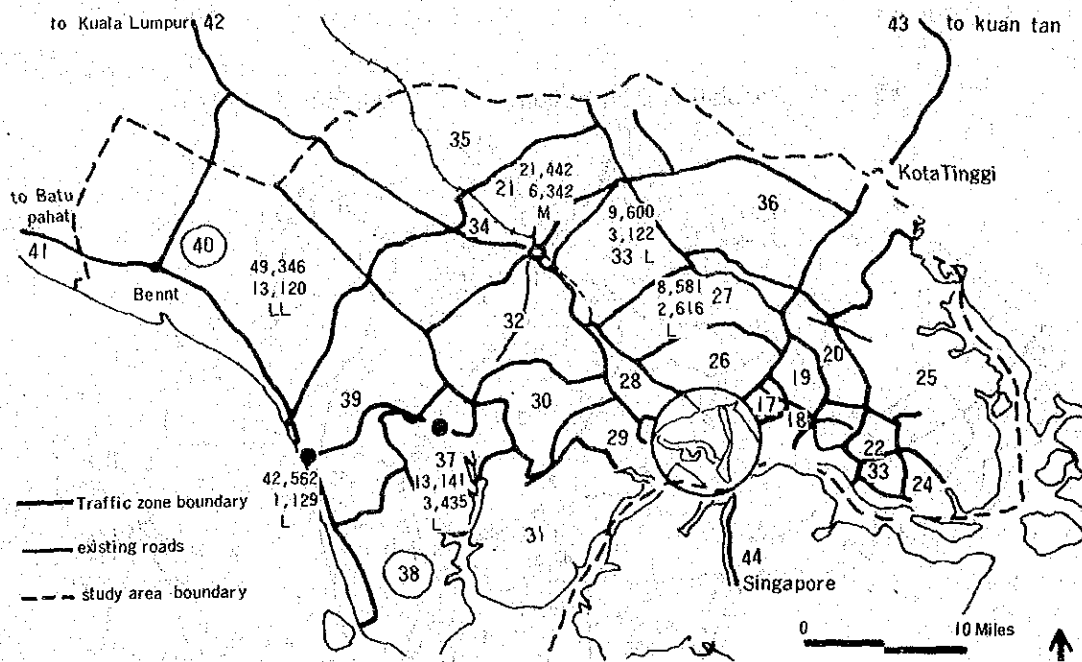
(3) 土地利用

Johor Bahru Town の土地利用の現況を見たのが表-8である。1970年現在のものであるが、Johor Bahru Town 内でも 48.8%に及ぶ Vacant land があり、開発用地は十分にあるものと考えられる。

住居地域は 3,297 acres (1,319 ha) であり全体の 19.1%を占める。次に農地が 2,401 acres で全体の 13.9%である。

地域別の人口密度の状況は図-4に示している。

現在、政府は工業開発に伴ない、人口急増が見込まれる Johor Bahru の住宅地域の開発を進めている。特に、鉄道沿線や河川 (Tebrau, Skudai) 沿地域の不法居住者等に対する Low Cost Housing Estates の開発が急がれており、Tampoi 街路の周辺地域等の都市周辺部に積極的に進めている。(これらの家は 1戸 M\$ 10,000 という低価格で分譲される)ただ、都心までの交通機関は何もなく、居住者はもっぱら後述の自タクを利用している状況である。



Source: South Johor Regional Planning and Development Study (1974)

LL : 151-225
 L : 226-300
 M : 301-500
 H : 501-1000 } average monthly income per household (M\$)

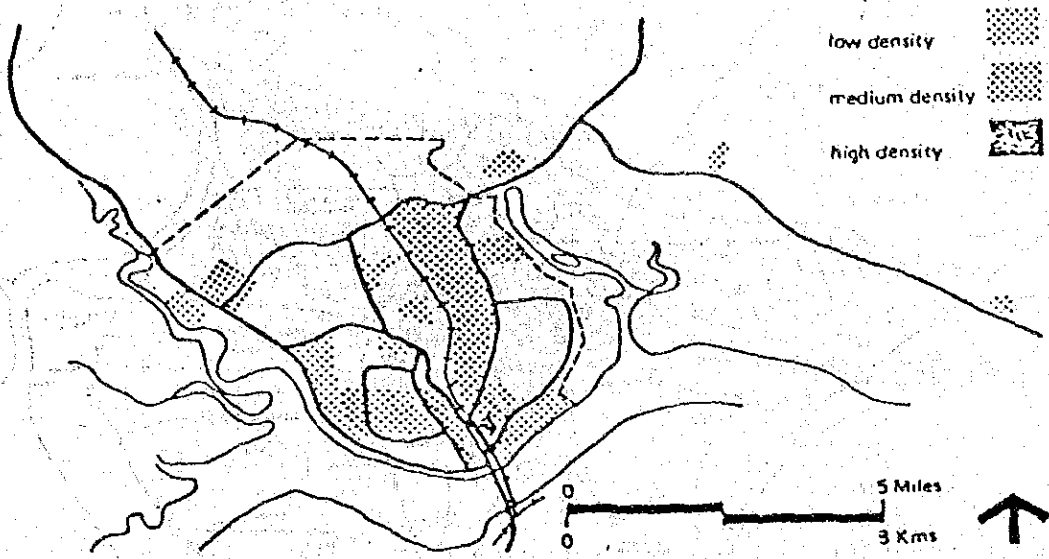
表-8 Land use in Johor Bahru town 1970

Land use category	Area (acres)	Percentage of town area	Percentage of developed land
Residential	3,297	19.1	37.3
Roads	490	2.9	5.5
Industrial	325	1.9	3.7
Commercial	87	0.5	1.0
Public open space	123	0.7	1.4
Public uses	1,317	7.6	14.9
Agricultural	2,401	13.9	27.2
Special reserves	799	4.6	9.0
Vacant land	8,429	48.8	-
Total	17,268	100.0	100.0

Source : Johor State Department of Town and Country Planning

図-4

Existing housing density



(4) 工業開発

小規模工業は Johor Bahru Town 内に点在しているが、大規模工業は特定地域に計画的に配置されている。

現在、大規模工業としては、

① Tampoi Larkin の工業地域として、Jalan Tampoi 及び Jalan Larkin 沿いの図-5, 6 に示す地域である。

② Pasir Gudang 新港の背後地の工業開発

Johor Bahru 東部の Pasir Gudang に新港が整備されており (1972 ~ 1977 年で完了したもので dry cargo zone と liquid cargo zone があり dry cargo 埠頭は 2 本、1,200 ft、36 ft depth, 3 万トン級) 木材、ボーキサイト、みかげ石等が積み出されている。

(5) 商業

商業は、図 5.9 に示されるとおり、Johor Bahru Town の中心地に Commercial Center があり、中央市場、商業施設、飲食店が集中している。

(6) その他

その他の施設は、図-7.8 に示されている。

图-5 土地利用图

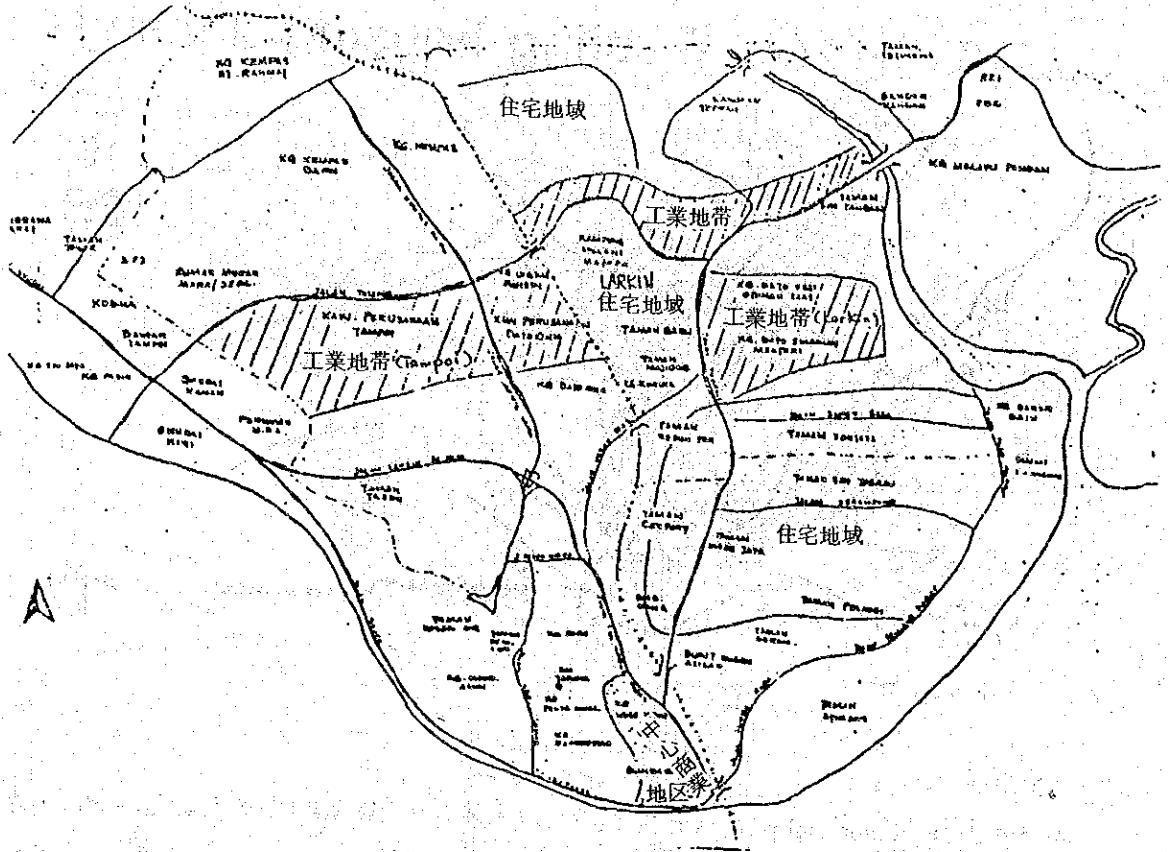


图-6 Existing industrial locations

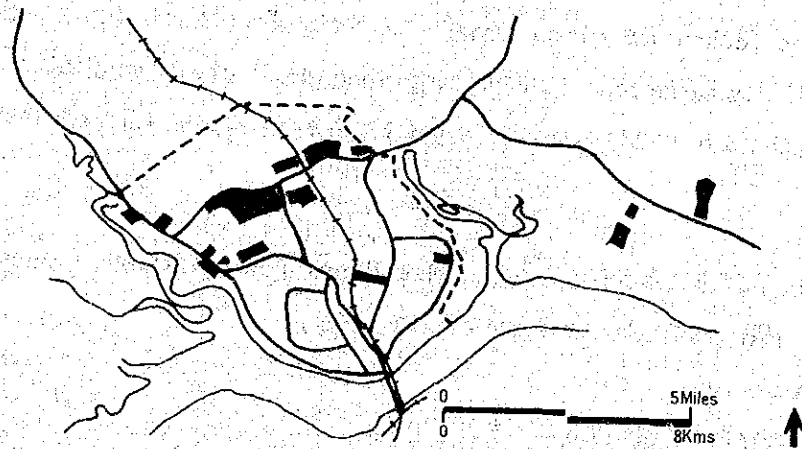


图-7 Civic functions on the coastal strip

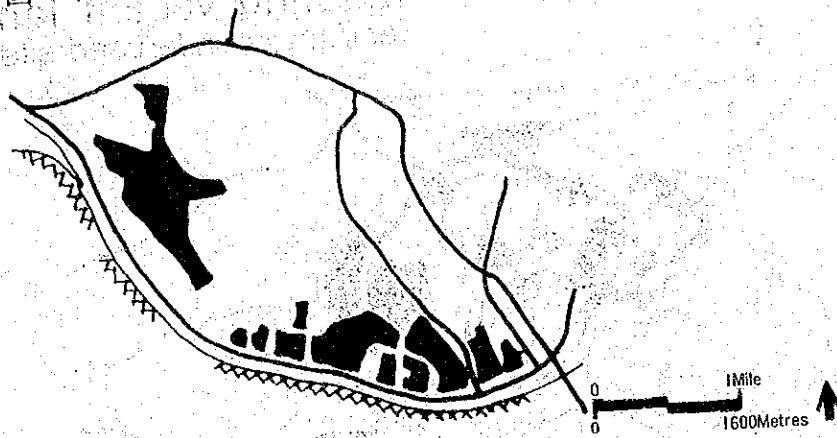


图-8 Major outdoor recreation

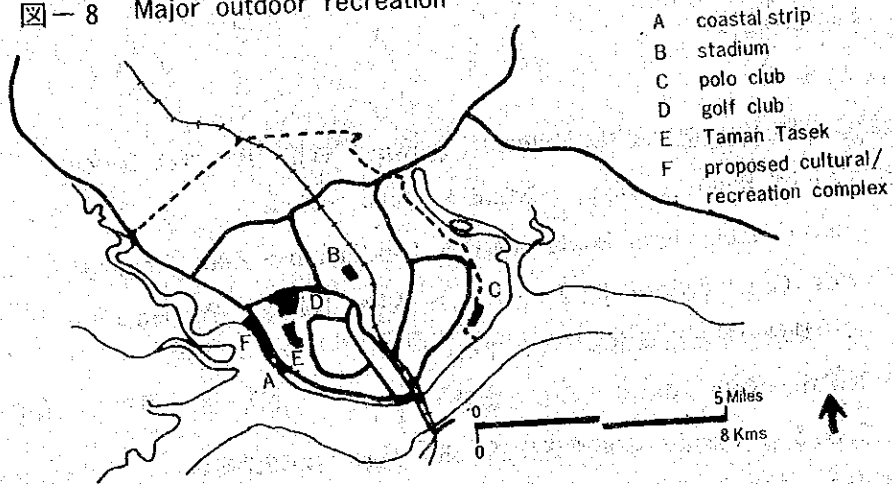


图-9 Johor Bahru commercial centre

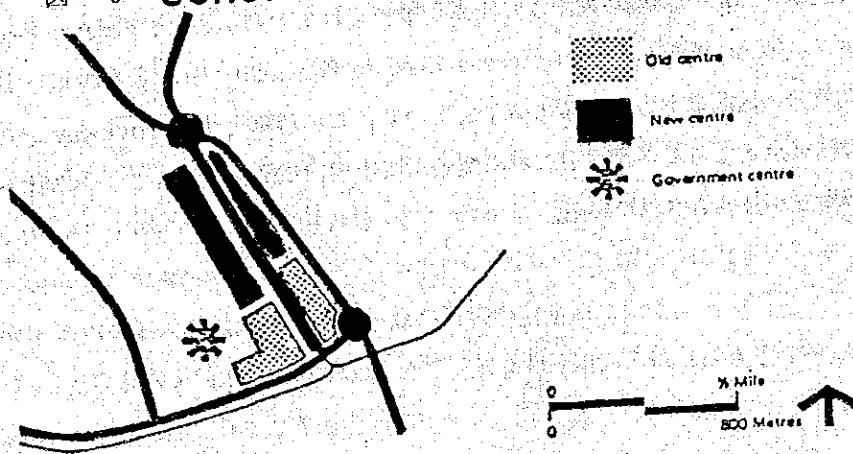
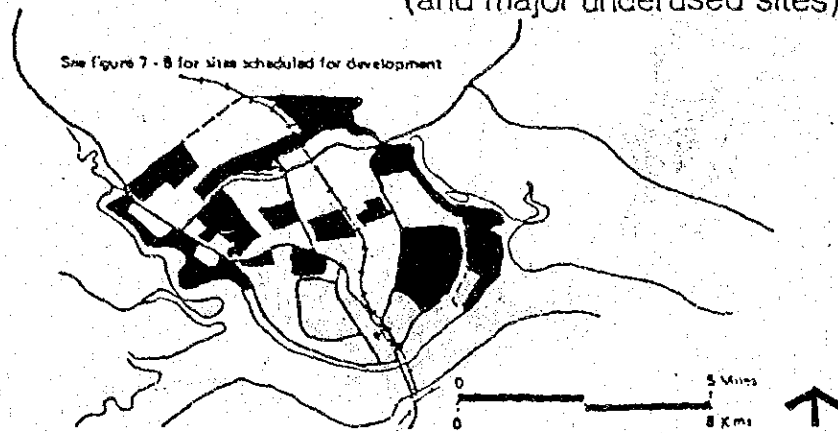


図-10

Existing vacant land
(and major underused sites)



2-2 交通の現況

(1) 道路現況

地域の道路網は、次の3本のFederal Highwayで骨格が形成されている。

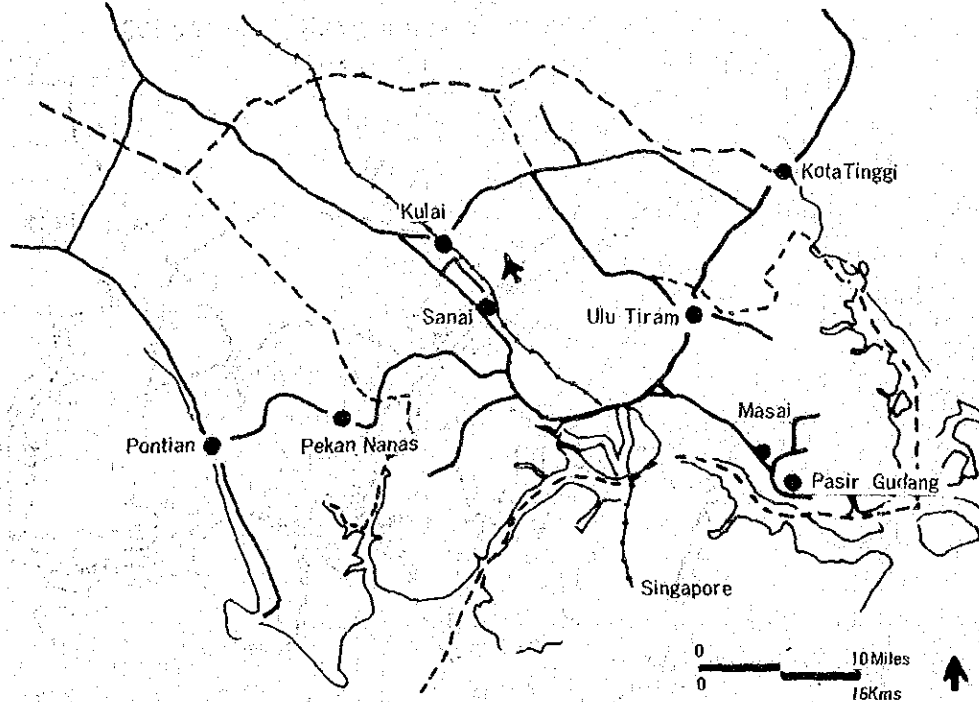
- ① Federal Route 1 (J.B. ~ Senai ~ Kulai ~ K.L.)
- ② East Coast Federal Route (J.B. ~ Ulu Tiram ~ Kota Tinggi)
- ③ West Coast Federal Route (J.B. ~ Pekan Nanas ~ Pontian)

その他の地域の重要路線としては、

- ④ Kulai ~ Kota Tinggi に伸びる道路
- ⑤ J.B. から Masai への州道路及び Johor Port への新設道路
- ⑥ Federal Route 1 から Senai 空港までのアクセス道路

道路整備計画についての既定計画および将来構想は図-12のとおりである。地域の幹線道路である Federal Route 1 は現在拡巾改良工事が進められている。また、Federal Route 1 から Pasir Gudang の Johor 新港への Port Access Road が Feasibility Study を終え、1983 年までに整備すべく大部分の区間において事業に着手している。この道路と Toll Highway との I.C. が全国幹線道路との結接点となることから、これに関連して市内、主要拠点とのアクセス体系、周辺土地利用計画等の樹立が必要とされている。

図-11 Regional highway networks, 1973



(2) 交通需要

一般的にマレーシアの主要都市部における道路交通量は急激な伸びを示しているが、Johor Bahru もその典型として顕著な伸びを示している。(表-9) なお、重交通の占める割合が比較的高いことが注目される。

Johor Bahru での道路交通量は、図-13及び表-10に示されるように、各道路とも相当の勢いで伸びており、カウントはされていないが Federal Highway の新道(4車線 1978年完了)、Jalan Tebrau (一部4車、二車主体)が極めて混雑している。この両路線は、本市の骨格を形成するものであり、特に Jalan Tebrau の整備が極めて急がれている。Johor Bahru 周辺での Traffic Pattern を図-15に示す。

また、現在マレーシア政府は、図-16に示すような国土縦貫道を Alor Star から Johor Bahru の間約 600 mile を有料道路として 1986 年には全線供用する計画を推進しており、そのための実施主体となる Highway Authority of Malaysia (道路公団) が設立され、Johor Bahru の区間は現在 Feasibility Study が実施されている。その Recommendation の一つに起点インターチェンジと Johor Bahru 市内を結ぶ分散道路計画の早急な実施が望まれている。

なお、起点 I.C と都市内を結ぶ Main Road での交通量は 1983 年 19,471 台、1988 年 27,286 台、1998 年 58,256 台、2003 年 79,169 台を推定している。

图-12 Recommended highway network: 1980 and 1990

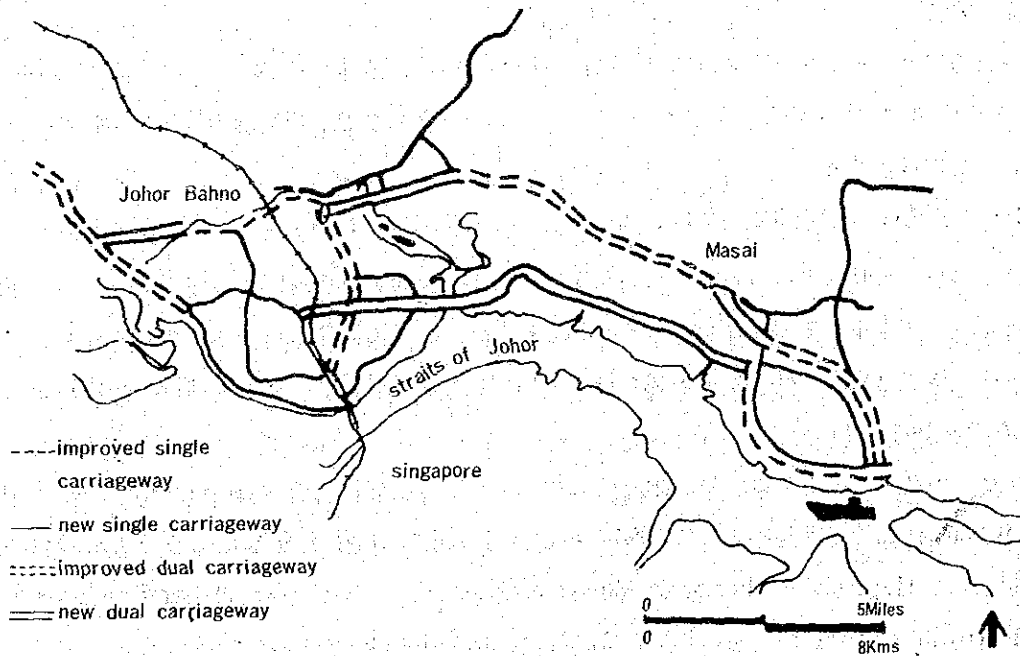
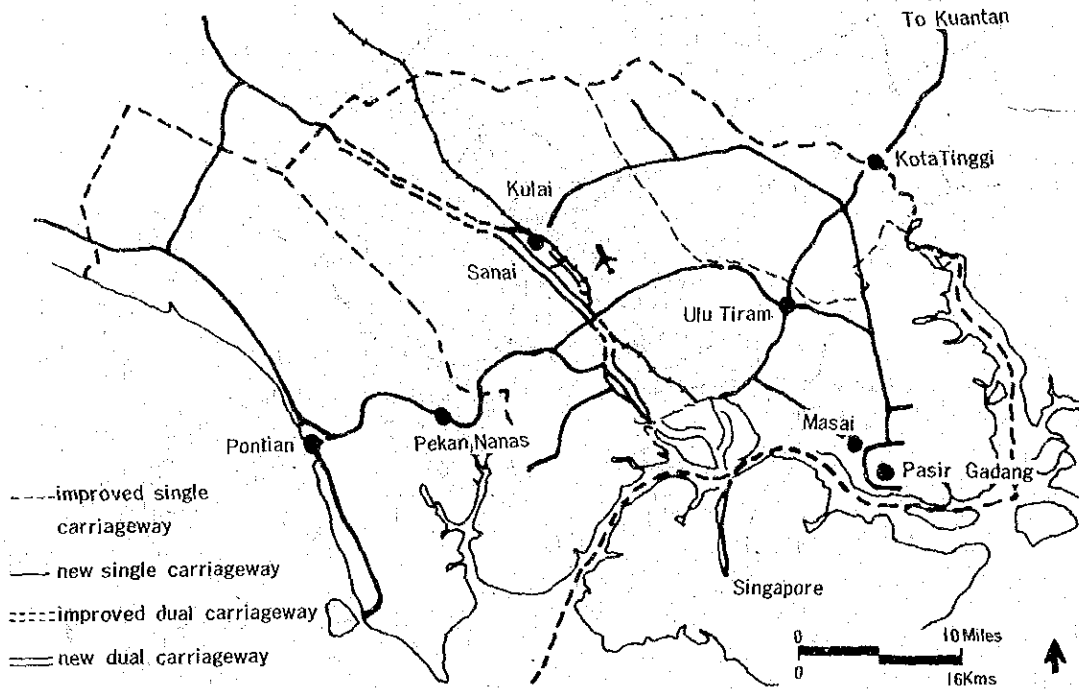


表-9 TREND OF TRAFFIC VOLUME AT MAJOR CITIES

单位：百台

CITY	ROAD	STATION No.	1973 April	1977 Oct.	GROWTH RATE (73-79%/Year)	1979 Oct.
KUALA LUMPUR	F. II	74	9 2232 134	100,113 138	1.7	186,300 6
		76	4,366 314	6,641 255	11.1	2,200 12
	State	F 6	3,014 112	5,102 64	8.7	5,800 7
GEORGE TOWN	State	F 7	13,806 110	25,299 105	13.9	35,500 6
	F. I	16	9,109 223	12,334 184	4.6	13,800 21
IPOH	F. I	17	14,037 16.9	15,406 16.3	-0.4	21,100 14
	F. I	47	18,276 232	22,728 172	1.9	22,000 15
JOHORE BAHRU	State	F48	8,663 27.1	14,485 24.5	13.7	19,230 22
	F. II	71	29,379 28.3	43,517 20.2	6.0	58,270 17
KLANG	F. II	72	20,341 22.5	37,647 21.4	3.2	37,300 24
	F. II	73	25,363 17.4	45,417 19.3	10.3	51,170 17.1
PETALING JAYA	F. II	74A	45,282 24.5	51,727 18.4	10.3	85,930 11.5
	State	F37	8,620 24.7	11,931 19.3	8.7	16,687 15.2
MALACCA	State	F39	8,807 14.4	13,059 13.7	6.7	15,429 12.8
	F. I	31	8,920 23.7	5,450 18.1	-3.9	7,434 14.9
SEREMBAN	State	F28	6,996 14.4	11,007 9.1	9.6	21,994 22.3
	F. I	2	5,282 20.1	7,940 14.1	11.3	9,440 14.9
AIOR STAR	F. I	A 8	3,725 19.0	7,674 17.7	8.7	6,970 13.7
	F. I	7	13,275 22.2	23,532 16.3	16.1	31,365 14.5
BUTTERWORTH	F. I	8	12,933 33.9	15,035 27.9	6.6	19,258 26.5
	State	F41	3,208 16.8	5,541 17.5	11.6	6,731 14.3
MUAR	State	H19	2,841 19.5	4,092 16.1	11.7	4,566 11.1
	F. III	98	7,358 9.9	11,357 6.4	12.6	17,757 11.7
KOTA BAHARU	State	L 8	6,320 7.5	15,495 10.4	23.1	13,345 7.6
	F. I	12A	5,621 28.8	8,259 29.6	4.2	7,060 2.4
TAIPING	State	F 8	11,250 13.8	19,096 11.4	10.9	21,250
	F. III	95	1,968 26.5	3,176 17.5	7.5	NOT ABAL 4,134
KUALA TRENGGANU	F. III	94	1,885 17.8	3,315 13.5	12.0	160
	F. III	J22	3,290 28.6	7,901 23.9	19.1	7,700 19.1
KUANTAN	F. III	S31	2,037 26.3	5,848 18.5	20.7	5,630 15.1