

附属資料 3.

事前調査団（予備）ミニッツ

THE FEASIBILITY STUDY OF EXPRESSWAY IN SINGAPORE

RECORD OF VIEWS

- A. The Preliminary Survey Team for the Feasibility Study of Expressway in Singapore (hereinafter referred to as "the Study"), headed by Mr Yukihiisa Tamura and organised by the Japan International Cooperation Agency (hereinafter referred to as "JICA"), visited Singapore from 19 March 1989 to 28 March 1989 in order to clarify further the request made by the Government of the Republic of Singapore, and to discuss the draft Scope of Work for the Study proposed by the Team (attached in Annex A)
- B. The Team exchanged views and had a series of discussions with the Public Works Department of the Ministry of National Development (hereinafter referred to as "PWD") and conducted a field survey in the study area.
- C. PWD informed the Team that the draft Scope of Work was generally acceptable except for the following:
1. 3 Deputy Director-General, PWD (Mr Chua Koon Hoe) would be the signatory for the Singapore side.
 2. The description under OBJECTIVE OF THE STUDY on page 1 should include the words "improvement of the" before "Pan Island Expressway".
 3. Paragraph 1 on Page 4 to be deleted.
 4. Paragraph (6) on Page 5 to include "according to prevailing regulations of the Government of Singapore".

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5. Paragraph (7) on Page 5 to be reworded to read as "to permit the Japanese Study Team to use the data, maps and materials for analysis in Japan".
6. In respect of item (3) on Page 6, PWD suggested that this be best provided by the Study Team. Subject to availability, vehicles used by PWD staff can also be used by the Study Team for site visits. At times when these vehicles are not available, PWD would consider reimbursing the Study Team for travel by taxi.
7. In respect of item (4) on Page 6, PWD suggested that the Study Team provides their own office space and equipment. Similar to the previous Urban Transport Improvement Study, PWD can assist in looking for suitable office space. An alternative way is for the Study team to share office space and equipment, except for international communications facilities, with PWD staff.
8. In respect of item (6) on Page 6, PWD suggested that drilling and hydrographic surveying be provided by the Study Team. The testing of samples can be carried out at PWD's soil laboratory.

D. Both sides also discussed the following :

1. The scales of plans to be used for the Study.

The following were proposed :

	<u>Survey Team's Proposal</u>	<u>PWD's Proposal</u>
Kallang Expressway (including interchange at PIE)	1:2500	1:2000
Paya Lebar Expressway	1:5000	1:2000
Pan Island Expressway	1:2500	1:1000

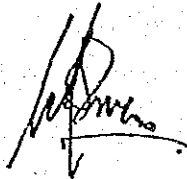
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2. Study of improvement of the PIE between Bukit Timah Expressway and Aljunied Flyover.

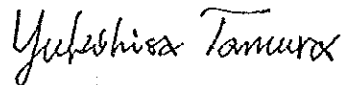
The Team suggested that the Study should exclude the improvement of the interchanges at PIE/CTE and PIE/Woodsville for which plans have been prepared by PWD. The layout proposed by PWD would be accepted as a design limitation in the Study.

- E. The list of officials attending the discussions is attached in Annex B.

27 March 1989, Singapore



CHUA KOON HOE
3 Deputy Director-General
for Director-General of Public Works
Public Works Department
Republic of Singapore



YUKIHISA TAMURA
Leader
The Preliminary Survey Team
The Japan International
Cooperation Agency

(D R A F T)

SCOPE OF WORK
ON
THE FEASIBILITY STUDY OF EXPRESSWAY
IN
SINGAPORE

AGREED UPON BETWEEN

MINISTRY OF NATIONAL DEVELOPMENT
AND
THE JAPAN INTERNATIONAL COOPERATION AGENCY

1989

MINISTER FOR NATIONAL
DEVELOPMENT

YUKIHISA TAMURA
LEADER,
PRELIMINARY STUDY TEAM,
THE JAPAN INTERNATIONAL
COOPERATION AGENCY

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I. INTRODUCTION

In response to the request of the Government of the Republic of Singapore (hereinafter referred to as "Singapore"), the Government of Japan decided to conduct the Feasibility Study of Expressway in Singapore (hereinafter referred to as "the Study").

Accordingly, the Japan International Cooperation Agency (hereinafter referred to as "JICA"), the official agency responsible for the implementation of the technical cooperation programmes of Government of Japan, will undertake the Study, in close cooperation with the authorities concerned of Singapore.

The present document sets forth the Scope of Work for the Study.

II. OBJECTIVE OF THE STUDY

The objective of the Study is to conduct the feasibility study of the Kallang, Paya Lebar Expressway, and Pan Island Expressway between Bukit Timah Expressway and Aljunied Flyover (Location Map attached in Annex 1).

III. SCOPE OF THE STUDY

1. In order to achieve the above objective, the Study will cover the following items.
 - a) data collection and analysis
 - b) field survey and analysis
 - c) preliminary design
 - d) cost estimate
 - e) economic evaluation
 - f) project evaluation
 - g) implementation schedule

Tam. 2-1 Data Collection and Analysis
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- a) traffic data
 - analysis and estimation of traffic demand
 - traffic surveys, if necessary
- b) socio-economic data
- c) engineering data
 - topographical, soil and geological, hydrological, meteorological, land use, materials, etc.
 - as built drawings of existing expressway, already designed drawings of bridges, etc.
 - design standard
 - road inventory
 - bridge inventory
 - unit cost
 - road user cost
 - others
- d) other data necessary for the Study

2-2 Field Survey and Analysis

2-3 Preliminary Design

- a) design criteria
- b) alternative design
- c) construction methods

2-4 Cost Estimate

- a) construction cost
- b) maintenance cost

2-5 Economic Evaluation

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- a) estimation of benefits
- b) N.P.V., IRR, B/C

2-6 Project Evaluation

2-7 Implementation Schedule

IV. THE STUDY SCHEDULE

The Study will be carried out in accordance with the tentative schedule attached in Annex 2.

V. REPORT

JICA shall prepare and submit the following reports in English to the Government of Singapore.

1. Inception Report

Thirty (30) copies at the beginning of the field survey

2. Interim Report

Thirty (30) copies within four (4) months after commencement of the Study.

3. Draft Final Report

Thirty (30) copies within nine (9) months after commencement of the Study. The Government of Singapore shall submit to JICA its comments within one (1) month after receipt of the Draft Final Report.

4. Final Report

Fifty (50) copies within two (2) months after receipt of the written comments on the Draft Final Report from the Government of Singapore.

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VI. UNDERTAKING OF GOVERNMENT OF SINGAPORE

1. The Government of Singapore shall accord privileges, immunities and other benefit to the Japanese Study Team.

2. To facilitate smooth conduct of the Study, the Government of Singapore shall take necessary measures:

(1) to secure the safety of the Study Team,

(2) to permit the members of the Japanese Study Team to enter, leave and sojourn in Singapore for the duration of their assignment therein, and exempt them from alien registration requirements and consular fees,

(3) to exempt the members of the Japanese Study from taxes, duties and other charges on equipment, machinery and other materials brought into Singapore for the implementation of the Study,

(4) to exempt the members of the Japanese Study Team from income tax and charges of any kind imposed on or in connection with any emolument or allowance paid to the members of the Japanese Study Team for their services in connection with the implementation of the Study,

(5) to provide necessary facilities to the Japanese Study Team for remittance as well as utilization of the funds introduced into Singapore from Japan in connection with the implementation of the Study,

Team -
for

- (6) to secure permission for entry into private properties of restricted areas for the conduct of the Study,
 - (7) to secure permission for the Japanese Study Team to take all data and documents (including aerial photographs such as diapositive and contact prints) related to the Study out of Singapore to Japan,
 - (8) to provide medical services as needed. Its expenses will be chargeable on the members of the Japanese Study Team.
3. The Government of Singapore shall bear claims, if any arises against the member of the Japanese Study Team resulting from, occurring in the course of, or otherwise connected with the discharge of their duties in the implementation of the Study, except when such claims arise from gross negligence or wilful misconduct on the part of the member of the Japanese Study Team.
 4. The Public Works Department, Ministry of National Development (hereinafter referred to as "PWD") shall act as counterpart agency to the Japanese Study Team and also as coordinating body to other relevant organizations for the smooth implementation of the Study.
 5. PWD shall, at its own expence, provide the Japanese Study Team with the followings, in cooperation with other relevant organizations;
 - (1) available data, maps and information related to the Study,

Tam. (2) counterpart personnel,
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- (3) vehicles with drivers
- (4) suitable office space with necessary office equipment,
- (5) credentials or identification cards to members of the Japanese Study Team,
- (6) engineering survey
 - soil and material test including drilling
 - hydrographic surveying, if necessary

VII. UNDERTAKING OF JICA

For the implementation of the Study, JICA shall take the following measures;

1. to dispatch, at its own expense, the Study Team to Singapore,
2. to pursue technology transfer to the Singapore counterpart personnel in the course of the Study.

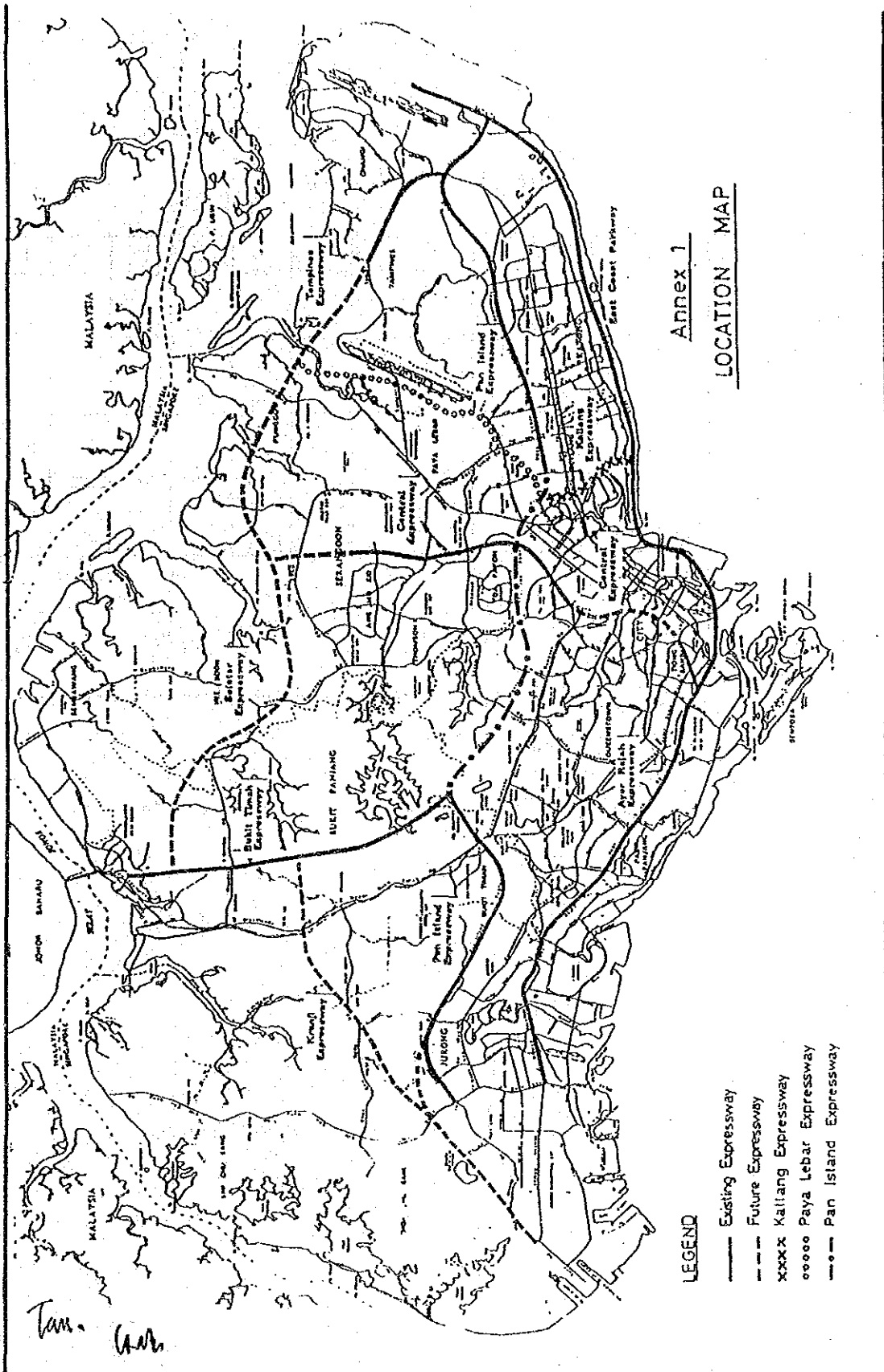
VIII. CONSULTATION

JICA and PWD shall consult with each other in respect of any matter that may arise from or in connection with the Study.

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SINGAPORE



Annex 1

LOCATION MAP

Annex 2

TENTATIVE STUDY SCHEDULE

MONTH	1	2	3	4	5	6	7	8	9	10	11	12
STUDY IN SINGAPORE	[Bar spanning months 1 to 9]											
STUDY IN JAPAN	[Bar in month 1]										[Bar in month 11]	
REPORT PRESENTATION	▲			▲					▲			▲
	IC/R			IT/R					DF/R			F/R

Note: IC/R ... Inception Report

IT/R ... Interim Report

DF/R ... Draft Final Report

F/R ... Final Report

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List of OfficialsPreliminary Survey Team, JICA

Yukihisa TAMURA	Leader
Shinji SUGAWARA	Member
Kozo FUJISHITA	Member
Katsumi OTANI	Member
Mitsuo HATAKEYAMA	Member

PWD, Singapore

Chua Koon Hoe	3 Deputy Director-General Public Works Department
Wong Eng Seng	Director of Roads, Public Works Department
Lam Chuen Fong	Head Roads Planning & Design Branch Roads Division Public Works Department
Mohinder Singh	Higher Executive Engineer Roads Planning & Design Branch Roads Division Public works Department

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附属資料 4.

シンガポール国からの要請書

TERMS OF REFERENCE

For Assistance From Japan

On

**"Route Location Study Of The Kallang Expressway And
Paya Lebar Expressway and Study On The Improvements
To The Pan Island Expressway between Aljunied Road
and Bukit Timah Expressway"**

Submitted by :

**The Public Works Department
Ministry of National Development
Singapore**

November 1988

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1. Background & Need For Study

- 1.1 Singapore's urban transport system is predominantly road-based and will continue to be even when the MRT trains are fully in operation. There are in Singapore today approximately half a million vehicles comprising some 226,000 cars, 9,000 buses, 110,000 goods vehicle and the rest motorcycles and other vehicles.
- 1.2 The PWD has planned an expressway network totalling about 150 km long to meet the long term needs for better, faster, travel on the island (See attached plan). Today, about 77 km of the expressway network had been completed. The rest of the network are due for completion by end 1990.
- 1.3 Kallang Expressway (KLE) forms part of the expressway network in the eastern sector of the island. Linking the Pan Island Expressway with the East Coast Parkway, it also forms the eastern leg of the Central Area Expressway Box System (CAES). The KLE is the only leg of the CAES yet to be implemented.
- 1.4 Paya Lebar Expressway is the northward extension of the Kallang Expressway from the latter's intersection with Pan Island Expressway to the north-eastern sector of the island. Conceptualised only in 1985, this expressway will serve 4 HDB new towns to be developed in the north-east sector in the 1990s and in the early part of the 21st century.
- 1.5 Both expressways are expected to be built in the early part of the 1990s to meet projected traffic requirements. Construction of the two expressway projects is expected to be particularly difficult, in view of various existing development and constraints in the vicinity of the expressway routes.
- 1.6 A route location study is proposed to examine and compare the alternative route locations, traffic interchange layouts and methods of construction. The results of the study would enable the PWD to adopt an optimum alignment for the two expressways.
- 1.7 The Pan Island Expressway (PIE) is the most heavily trafficked expressway in Singapore. It runs from the Changi Airport in the east to Jurong in the west. It links with six new towns along its route.

1.8 The dual 3-lane expressway carries more than 120,000 vehicles per day. The stretch of the expressway between Woodsville flyover and the Bukit Timah Expressway is already operating at or close to its practical capacity during the peak periods. Traffic projections indicate that its existing capacity would be unable to cater for future traffic volumes. Its level of service is expected to continue to deteriorate unless measures are taken in the 1990s to increase its capacity.

1.9 A study is required to explore different ways of increasing the expressway's capacity. The study is likely to include an evaluation of the need to reconstruct some of its key interchanges, and improvements and alterations to others to meet the forecasted increases in traffic volumes.

2. Objectives Of Study

The objectives of the Study are as follows :

- 2.1 To examine and compare the alternative route locations, traffic interchange layouts and methods of construction for the proposed Paya Lebar Expressway (PYE) and Kallang Expressway (KLE) and to recommend the preferred route and traffic interchange layouts from the alternatives examined.
- 2.2 To examine alternative ways of increasing the capacity of the stretch of the Pan Island Expressway (PIE) between the Bt Timah Expressway and the Aljunied Flyover, not limited to widening, traffic interchange layouts, method of construction and traffic diversions, and recommend the preferred arrangement.
- 2.3 To develop in more detail preliminary designs of the above expressways and to establish their right-of-way requirements.
- 2.4 To cost the expressway proposals and their appurtenances, including modifications and reconstruction of existing flyover, bridge structures and connecting streets, and other ancillary works.

3. Scope Of Study

- 3.1 Route Location Study of the Kallang Expressway and the Paya Lebar Expressways

The above Study is likely to include the following :

1. Preparation of topographic plans for the possible routes of the 2 expressways.
2. Soil investigation along selected stretches of possible routes of the 2 expressways.
3. Examination of existing major roads and future proposed roads and road improvements along possible routes of the 2 expressways.
4. Examination of available traffic forecasts for the expressways and other major roads.
5. Study of existing landuse commitments and other constraints along possible routes of the 2 expressways.
6. Preparation of alternative proposals.
7. Analysis and evaluation of alternative proposals.
8. Costing and environmental appraisal of alternative proposals.
9. Recommendation of the preferred routings of the 2 expressways.
10. Development of more detailed notional designs of the 2 expressways, including interchange layouts and establishment of their right-of-way requirements.
11. Drawing up of an implementation programme.

3.2 Study on the Improvements to the Pan Island Expressway between the Bt Timah Expressway and Aljunied Flyover

The above Study is likely to include the following :

1. Preparation of topographic plans of the route of the PIE.
2. Examination of existing traffic flows and traffic conditions along the PIE, its interchanges and intersecting roads.
3. Examination of available traffic forecasts for the PIE and intersecting roads.

4. Study of landuse commitments along expressway's frontage and existing expressway's reserve, traffic lane complements, flyover and bridge layouts.
5. Preparation of alternative proposals to increase expressway's capacity.
6. Analysis and evaluation of alternative proposals, including methods of constructions and traffic diversion.
7. Costing and environmental appraisal of alternative proposals.
8. Recommendation of the preferred arrangement.
9. Development of more detailed notional designs of the preferred arrangement and establishment of the proposal's right-of-way requirements.

4. General Description of Study Details

4.1 Data Collection

- 1 The data inputs required for the study are likely to include the following:
 - aerial photographs
 - topographical maps of 1:2000, 1:5000, 1:25,000
 - soil information
 - expressway network
 - road network
 - existing land use commitments
 - traffic forecast
2. Available information relevant to the study would be made known to the Consultant. It is envisaged that in order to collect additional information or to fill up information gaps, the consultant will need to carry out full or supplementary surveys and other investigation work.

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4.2 Alternative proposals

1. The alternative proposals are to take into account existing landuse commitments and other commitments such as:
 - . air base requirements
 - . development concept of the North-East Sector
 - . National Stadium Complex
 - . MRT lines
 - . accessibility to residents
 - . nearby interchanges
2. In addition to this, the Consultant is to study the manner in which the separate stretches of the 2 expressways are to be carried on the alternative routes viz whether depressed, at-grade, by viaducts or tunnels.
3. Determine ways the existing PIE between Aljunied Road and BKE can be improved by, for instance:
 - . adding lanes to existing PIE
 - . constructing viaduct and/or tunnels
 - . partial or full re-routing of the PIE
 - . reconstructing existing flyovers and bridges

4.3 Cost Estimates

1. The Consultant is to make an estimate of the capital investment, as well as maintenance and management cost of each alternative, based on the prevailing market prices for labour and materials. Some of the expected items of work include:
 - . cut and fill
 - . drains
 - . road base
 - . road surfacing
 - . bridge
 - . retaining wall
 - . culvert
 - . tunnel
 - . supporting facilities
 - . traffic diversion

4.4 Economic and, Financial Analysis

1. The Consultant is to make an estimate of the economic benefit and financial value of the Project. Benefit may include:
 - . reduction in maintenance cost
 - . reduction in vehicle running cost
 - . reduction in travel time
 - . reduction in accident rate

4.5 Sensitivity Analysis

1. The Consultant is to analyse the sensitivity of the project against key values such as:

- . traffic demand
- . construction cost
- . benefit.

4.6 Environmental Analysis

The Consultant is to appraise the environmental impact particularly of noise problems, for each of the alternative routes.

4.7 Project Evaluation

The Consultant is to evaluate the viability of the alternatives by taking into account the following:--

- . economic benefit
- . financial cost
- . impact on environment
- . other relevant factors

4.8 Recommendation and implementation progress

Finally, upon evaluation of the alternatives, the Consultant is to recommend the preferred routings of the 2 expressway and the way or combination of ways the improvement can be made to the PIE.

5. Study Organisation

5.1 The Public Works Department (PWD) will co-ordinate the Study.

5.2 It is envisaged that a Steering Committee, comprising officers from the PWD, the Planning Department, the Housing and Development Board and MINDEF will be set up to steer and monitor the progress of the Study.

6. Study Duration

(Ministry of Defense)

6.1 The Study is expected to take nine (9) months.

7. Study Team Staff Requirements

7.1 The Study team is expected to comprise the following :

1. Project Director (1)
2. Senior Highway Engineer (1)
3. Highway Engineer (2)
4. Senior Structural Engineer (1)
5. Structural Engineer (1)
6. Senior Tunnel Engineer (1) (part time)
7. Facility Planner (1) (part time)
8. Traffic Planner/Analyst (1) (part time)
9. Soil Material Specialist (1) (part time)
10. Environment Specialist (1) (part time)
11. Economist (1) (part time)
12. Administrator/Manager (1)

It is envisaged that some members would be required for part of the Study's duration.

8. Reports

8.1 Inception Report

30 copies of the Inception Report outlining the methodology, work schedule, staffing requirements are to be submitted within one (1) month of the start of the study.

8.2 Interim Report

30 copies of the Interim Report outlining the progress of study and highlighting special problems encountered are to be submitted within six (6) months of the start of the study.

8.3 Draft Final Report

30 copies of the Draft Final Report outlining the findings, conclusions and recommendations of the study are to be submitted within nine (9) months of the start of the Study.

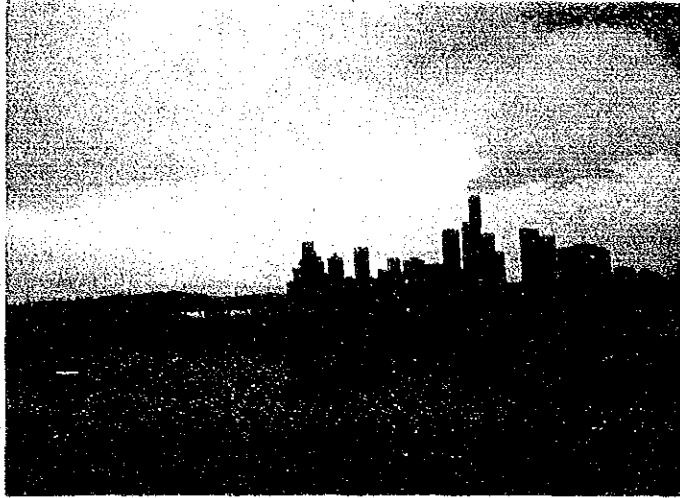
8.4 Final Report

50 copies of the Final Report are to be submitted within (2) months upon receipt of the comments from the Government of Singapore. These comments are expected to be made known to the Consultants within one (1) month of the submission of the Draft Final Report.

附 属 資 料 5.

現 地 写 真 集

シンガポールの概況



▲ 商業・業務中心部 (CBD) 遠景



▲ CBD内の状況

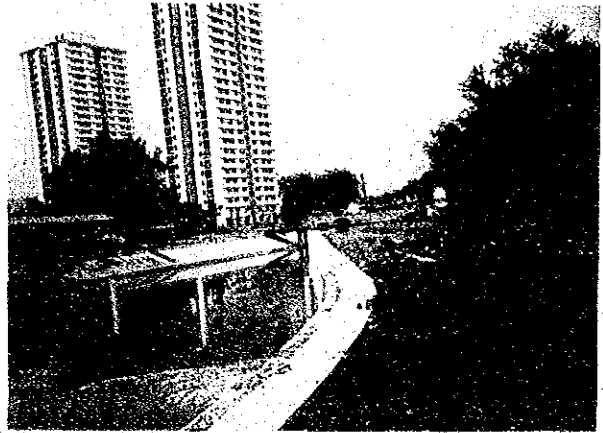


▲ 代表的ニュータウン
(アンモキオ・ニュータウン：
Ang Mo Kio New Town)

カラン・パヤレバ高速道路通過予定地域の状況



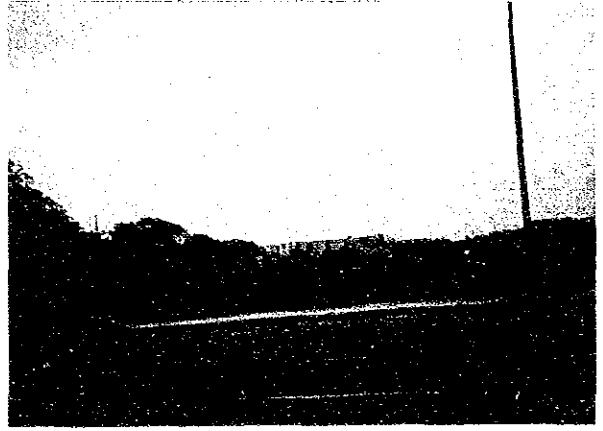
▲イースト・コースト・パークウェイ
(East Coast Parkway: ECP)
カラン高速道路 (Kallang Expressway :
KLE) とのインターチェンジ予定地附近



▲パン・アイランド高速道路
(Pan Island Expressway : PIE)
とのインターチェンジ予定地
パヤレバ高速道路
(Paya Lebar Expressway : PYE)
は、このキャナル (Canal) 上流を利用し、高架で通過する予定



▲PWD案では、KLEはこの下を
トンネルで通過する計画



▲PYEと並行して走ることになる
ホーガン通り (Hougang Ave.) から見た沿道状況



▲KLE通過予定地
開発規制を実施しており、道路両側
の建物は改築が許されていない



▲空軍基地西側の工業団地の状況。
この団地内を通過するルートがPYE
の一つのルート案となる

パン・アイランド高速道路 (Pan Island Expressway : PIE)



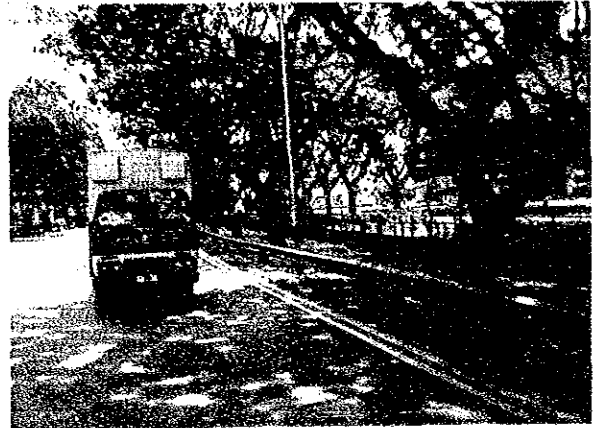
▲夕方ピーク時の交通状況



▲PIEの標準的横断構成



▲バス停の状況



▲PIE、バッファゾーンの状況



▲PIE/CET及びPIE/Woodsville
インターチェンジ間の交通状況
(最も交通量の多い区間)



▲PIE、分・合流車線が追加されている

その他高速道路の状況



▲アヤラジャ高速道路 (Ayer Rajar Expressway : AYE) の高架橋区間
(周辺土地利用との調和、圧迫感等により、
政府内部では評価が高くない)



▲セントラル高速道路
(Central Expressway : CET) 北部区間



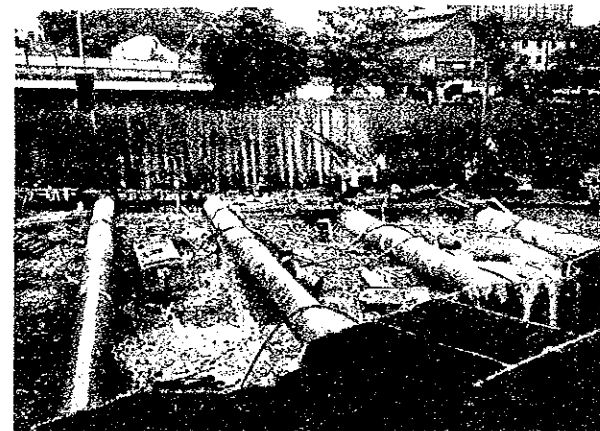
▲AYEインターチェンジ



▲CET : Phase II
工事中区間 (トンネル区間)

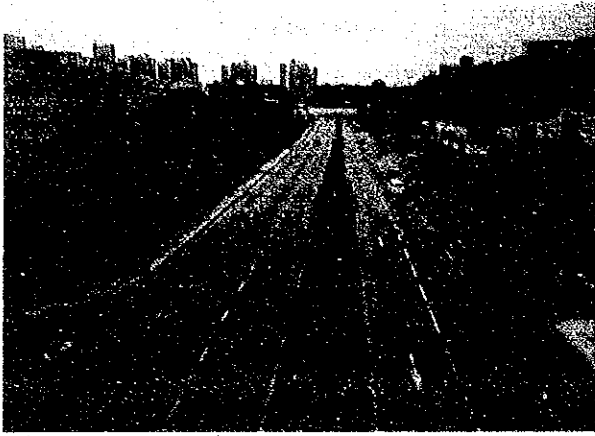


▲ブキティマ高速道路
(Bukit Timah Expressway : BKE)



▲同 上

幹線街路の状況



▲クウィーンズウェイ・ファレル道路
(Queensway Farrer Road)

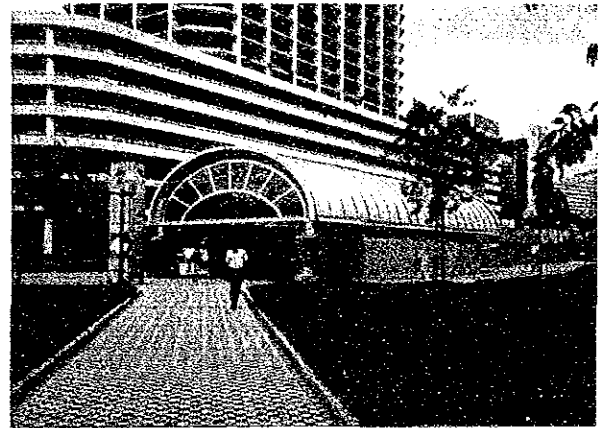
公共輸送機関の状況



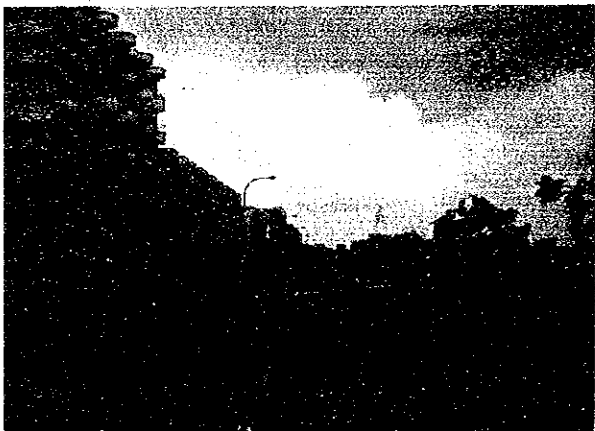
▲大量高速輸送鉄道
(Mass Rapid Transit : MRT)
高架区間の駅



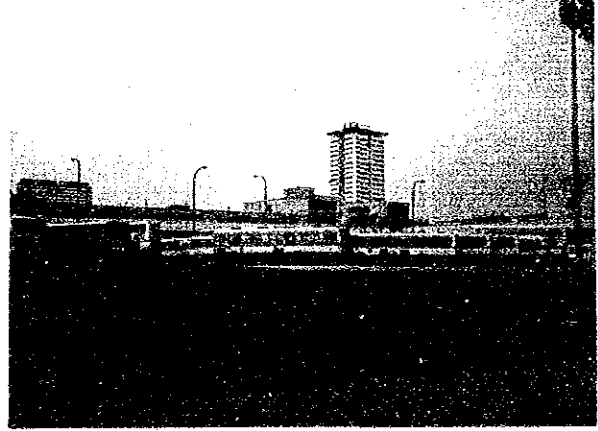
▲アンモキョ通り3
(Ang Mo Kio Ave. 3)



▲MRT、地下区間の駅への入口



▲ホーガン通り
(Hougang Ave.)



▲バス・インターチェンジ
(トアパヨ ニュータウン：
Toa Payoh New Town内)

附属資料 6.

現地収集資料リスト

現地収集資料リスト

A. 開発、マスタープラン関係

1. 名 称 : WRITTEN STATEMENT To Accompany The Revised Master Plan :
1985

著者/発行所 : Planning Department, Ministry of National Development

発行年度 : 1985

内 容 : シンガポールのマスタープランは5年ごとに見直しが行われる。
1985年に見直されたマスタープランについての説明版である。

形 態 : オリジナル A-4 40頁

2. 名 称 : REPORT OF SURVEY (Revised Master Plan : 1985)

著者/発行所 : Planning Department, Ministry of National Development

発行年度 : 1985

内 容 : 1985年に見直されたマスタープランの計画コンセプトを示したものの。

形 態 : オリジナル A-4 72頁

B. 地図関係

3. 名 称 : 地形図(1:50,000)

著者/発行所 : Mapping Unit, Ministry of Defence

発行年度 : 1987

内 容 : 1986年の航空写真をベースに作成された地形図であり、コンター間
隔は10cm。

形 態 : オリジナル B-1 1枚

4. 名 称 : 道路地図(1:25,000)

著者/発行所 : Mapping Unit, Ministry of Defence

発行年度 : 1988

内 容 : 1987年の航空写真をベースに作成された道路地図であり、道路のク
ラスが太さで判るようになっている。

形 態 : オリジナル B-1 4枚

5. 名 称 : パン・アイランド線沿線地形図(1:5,000)
著者/発行所 : Mapping Unit, Ministry of Defence
発行年度 : 1986
内 容 : ベドック北道路とのインターチェンジからブキティマ線とのインターチェンジ間のパン・アイランド線沿線の地形図。
形 態 : コピー A-1横長 1枚

C. 高速道路、道路関係

6. 名 称 : Map of Singapore Expressway System
著者/発行所 : Public Works Department
発行年度 : 1989
内 容 : 1:50,000の道路地図上に、既存及び計画高速道路路線を示したもの。計画路線については、予定完成年度を示してある。
形 態 : コピー A-1 1枚
7. 名 称 : SINGAPORE PAN ISLAND EXPRESSWAY
著者/発行所 : Public Works Department
発行年度 : —
内 容 : パン・アイランド線の紹介パンフレット。
インターチェンジの型式が紹介されている(ただし中央線とのインターチェンジが建設される以前に作られたパンフレットであり、このインターチェンジは示されていない)。
形 態 : オリジナル A-1 8頁
8. 名 称 : パン・アイランド線工事竣工図(1:500)
著者/発行所 : Public Works Department
発行年度 : 1982
内 容 : パン・アイランド線工事竣工図の一部。
標準断面、ウッズビルインターチェンジの平面図、縦断図等を含む。
形 態 : コピー A-3 17枚

9. 名 称 : Proposed Kallang Expressway, Location Plan
 著者/発行所 : Public Works Department
 発行年度 : 1989
 内 容 : PWDが作成したカラン線計画検討図(1:5,000)。
 形 態 : コピー B-1 1枚
10. 名 称 : BUKIT TIMAH EXPRESSWAY
 著者/発行所 : Public Works Department/RDC Construction Private Limited
 発行年度 : —
 内 容 : ブキティマ線の紹介パンフレット。インターチェンジの型式、建設時の
 写真等が紹介されている。
 形 態 : オリジナル A-4 8頁
11. 名 称 : AYER RAJAH EXPRESSWAY
 著者/発行所 : Public Works Department
 発行年度 : —
 内 容 : マヤラジャ線の紹介パンフレット。インターチェンジの型式が紹介され
 ている。
 形 態 : オリジナル A-4 8頁
12. 名 称 : CENTRAL EXPRESSWAY THROUGH THE CITY
 著者/発行所 : Public Works Department
 発行年度 : —
 内 容 : 中央線フェイズII(現在建設中)の紹介パンフレット。
 大半が地中構造(トンネル)であり、地中インターも建設される予定である。
 形 態 : オリジナル A-4 6頁

D. 交通量、騒音関係

13. 名 称 : 定期交通量観測地点図
 著者/発行所 : Public Works Department
 発行年度 : 1988
 内 容 : 定期交通量観測地点を示した図。
 形 態 : コピー B-1 1枚

14. 名 称 : 交通量観測データ
 著者/発行所 : Public Works Department
 発行年度 : 1989
 内 容 : パン・アイランド線の定期交通量観測地点5カ所における1989年1月の交通量データ。
 形 態 : コピー A-4 11頁
15. 名 称 : 高速道路交通量
 著者/発行所 : Public Works Department
 発行年度 : —
 内 容 : 高速道路主要地点の1987年実測交通量及び2000年予測交通量等。
 形 態 : コピー A-3 6枚
16. 名 称 : SPEED PROFILE CURVE
 著者/発行所 : Public Works Department
 発行年度 : —
 内 容 : パン・アイランド線、朝夕のピーク時における方向別走行速度。
 形 態 : コピー A-4 2頁
17. 名 称 : 騒音観測データ
 著者/発行所 : Public Works Department
 発行年度 : —
 内 容 : 1986年に高速道路沿道4カ所、幹線街路沿線2カ所及び幹線街路の交差点2カ所で実施した騒音観測データ。
 形 態 : コピー A-4 14頁

E. 関係機関

18. 名 称 : Ministry of National Development, Annual Report 1987
 著者/発行所 : Ministry of National Development
 発行年度 : 1988
 内 容 : 国家開発省の1987年活動報告書。
 形 態 : オリジナル A-4 48頁

19. 名 称 : Organization Chart of Public Works Department
著者/発行所 : Public Works Department
発行年度 : 1988
内 容 : 公共事業局の組織図。
形 態 : コピー A-3 1枚

20. 名 称 : PWD Staff List
著者/発行所 : Public Works Department
発行年度 : 1989
内 容 : 公共事業局の主要スタッフリスト。
形 態 : コピー A-4 18頁

F. 統計関係

21. 名 称 : YEARBOOK OF STATISTICS, SINGAPORE 1987
著者/発行所 : Department of Statistics
発行年度 : 1988
内 容 : 人口、経済、運輸等、シンガポールの各種統計データを取りまとめたもの。
形 態 : オリジナル B-5 306頁

22. 名 称 : SINGAPORE STATISTICAL CHARTS 1987
著者/発行所 : Department of Statistics
発行年度 : 1988
内 容 : シンガポールの各種統計データを図・表で示したもの。
形 態 : オリジナル B-5 157頁

23. 名 称 : SINGAPORE 1988
著者/発行所 : Information Division, Ministry of Communications and Information
発行年度 : 1988
内 容 : シンガポールの社会、政治、経済、文化事情を紹介したもの。
形 態 : オリジナル A-4 324頁

24. 名 称 : THE BUDGET FOR THE FINANCIAL YEAR 1988/89
著者/発行所 : —
発行年度 : 1988
内 容 : 予算年度1988/89のシンガポール国家予算書。
形 態 : オリジナル A-4 797頁

25. 名 称 : SINGAPORE, FACTS AND PICTURES 1986
著者/発行所 : Information Division, Ministry of Communications and Information
発行年度 : 1987
内 容 : シンガポールの社会、経済、政治、文化等を写真を多用しながら紹介したものである。
形 態 : オリジナル B-5 255頁

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