社会開発協力部報告書

フィリピン共和国
マニラ首都圏南部地区幹線道路網
計画事前調査報告書

昭和55年12月

国 際 協 力 事 業 団

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はしがき

日本国政府は，フィリピン共和国政府の要請に応え，マニラ首都圏南部，郊外幹線道路網の建設，整備に関する調査を国際協力事業団により実施することを決定した。

事業団は，首都高速道路公団常任参与，八木田功氏を団長とする５名からなる事前調査団を昭和５５年１２月３日から同年１２月１７日まで現地へ派遣した。

今回の事前調査は本格調査の対象となる，マニラ南部地域の道路網の現況を把握し，プロジェクトの内容について概略の検討を行い本格調査に際しての必要な情報を得ると同時に，調査のScope of Workについてフィリピン政府と協議を行うことを目的としたものである。

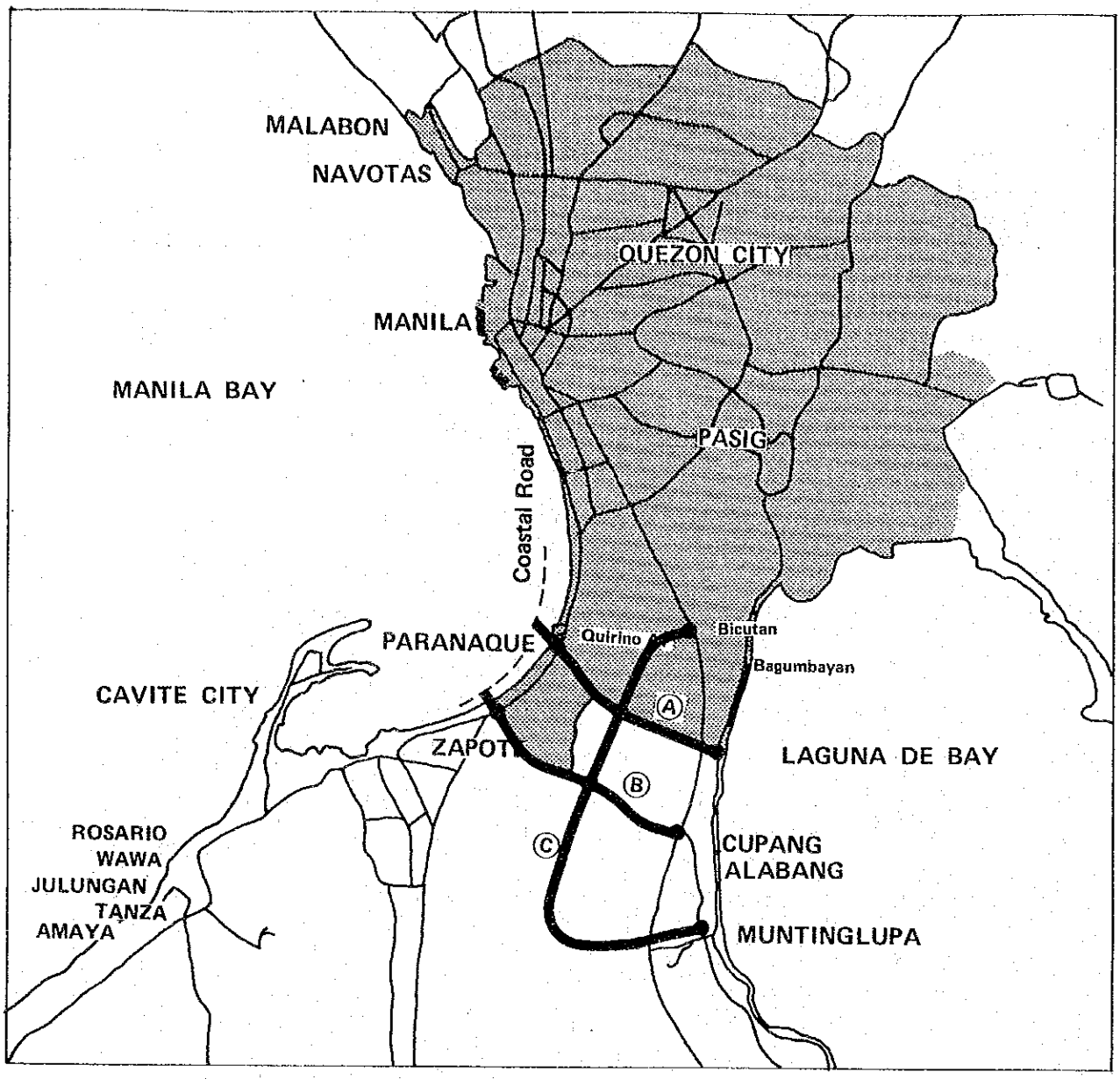
本調査報告書が，今後の本格調査の立案，実施に際して参考となることを期待するとともに調査にあたり，多大の御協力をいただいた，フィリピン政府，在マニラ日本大使館ならびに関係機関に厚くお礼申し上げる次第である。

昭和５５年１２月

国際協力事業団
理事　中澤弐仁

プロジェクト位置図

PROJECT LOCATION MAP



0 5 10 km

Scale : 1/250,000

N

METRO' MANILA

調 査 対 象 道 路

Ⓐ PARANAQUE–SUCAT RD.

Ⓑ ALABANG–ZAPOTE RD.

Ⓒ TAGUIG–LAS PINAS–MUNTINGLUPA LOOP RD.

目　　次

I　プロジェクトの背景

マニラ大都市圏の面積は約７００Km²，人口は現在約６００万人と推定される（マニラ市のみは約５００万人）。フィリピン全土が６００,０００Km²，人口が4,２００万人であるから人口の約１４％がこの地域に集中していることになる。１９７７年に作成された首都圏交通のマスタープラン“ＭＭＥＴＲＯＰＬＡＮ”によれば１９９０年までにさらに４００万人が増加して1,０００万に達すると予測している。そして増加分の４００万人のうちの約４０％が既存の市街地に住みつき，６０％は新たな市街地拡大が起こるとみている。

現在のところマニラの交通体系には，通勤電車のようなマストランジットはほとんど存在しない。そのためにバス，ジプニー乗用車によるピーク時の混雑は限界に達しており，交通混雑はジャカルタ，クアラルンプールよりもひどくなっている。

自動車保有台数は１９６０年約9万台であったが，１９７０年に３１万台に増加し，1980年現在約４５万台と推定される。人の移動は６０％がジプニー（17,000台），２０％がバス，国鉄１％，残りを乗用車に依存している。これまで，この深刻な都市交通問題を解決するための調査が多数行われており，その主なものをあげると次のとおりである。

① Urban Transportation Study in Manila Metropolitan Area (UTSMMA) OTCA 1973年。

② Manila Bay Metropolitan Region Strategic Plan. フィリピン政府　１９７５年

③ Metro Manila Tronsport, Land Use and De velopment Planning project (MMETROPLAN) 世銀　１９７５年

日本政府によって行なわれたＵＴＳＭＭＡは，６本の環状道路，１０本の放射状道路，６本の高架高速道路，南北通勤用電車，５本の地下鉄のネットワークが提言されている。これに対し，世銀の行なったＭＭＥＴＲＯＰＬＡＮはＵＴＳＭＭＡに種々の提案を加えて集体成したものであり，このマスタープランが現在のマニラの都市交通計画の基本となっている。

このような状況を背景に日本の技術協力によつて

① マニラＲ－１０道路　フィージビリティ調査（１９７３～１９７４）

② マニラ地下鉄１号線調査（１９７５～１９７６）

③ マニラＣ－３，Ｒ－４道路フィージビリティ調査（１９７７～１９７８）

④ マニラバターン道路フィージビリティ調査（１９７８～１９８０）

の調査を行なっている。また日本の借かん等によって建設も進捗しており，マニラ都心部の主要幹線道路網の建設と改良については概ね１９８５年迄に実施されることになっている。従つて，フィリピン政府は今後幹線道路網整備の重点を郊外道路網に置くという方針を打出

してきており，上記パターン道路調査もこの一環となっている。

これに引き続き，フィリピン政府はC－5，C－6 の未完部分の調査を日本政府に要請してきたが，日本政府は，このうち住宅開発，工業開発のポテンシャルが高く人口の伸びが大きい南部地域の道路網整備のF／Sを行なうこととなった。

Ⅱ　事前調査の目的

本件調査は，マニラ首都圏南部地区の３本の道路（既存のParanaque-sucat Rood, Alabaang－zapote Roadおよび新設のTaguis-Las Pinas-muntinglupa Loop Rood）の建設と整備にかかるフィージビリティスタディを実施するのに先立ち，本格調査の実施に必要な相手国政府との協議及び資料，情報を収集することを目的としたもので，具体的には次のとおりである。

(1)　先方政府よりの調査要請内容（T／R）について先方政府の考え方を確認する。

(2)　日本側の調査範囲（S／W (案)）について先方政府と協議し，了解をとりつける。

(3)　比側の受け入れ機関およびsteering committeeの組織，staffingの確認。

(4)　本調査に必要な資料の有無，入手可能性について調査する。

(5)　計画路線及びその周辺地域の現地踏査を行う。

(6)　以上を総合し，本格調査の調査仕様の概要を詰める。

Ⅲ　事前調査団の構成

団　　長 （総　　括）	八木田　　功	首都高速道路公団常任参与
団　　員 （交通需要）	松　原　重　昭	建設省近畿地方建設局 企画部都市調査課長
々 （構 造 物）	辻　　勝　成	建設省計画局総務課 環境管理官付課長補佐
々 （道路計画）	久保田　荘　一	建設省中部地方建設局 道路部道路計画第二課長
々 （業務調整）	美　馬　巨　人	国際協力事業団 社会開発協力部開発調査１課

Ⅳ 調 査 行 程

日 順	月 日	曜 日	行 程	調 査 内 容
1	12/3	水	東京９：３０ → マニラ１４：３０ JAL 745	
2	4	木		日本大使館，ＪＩＣＡ事務所，ＭＰＨ，ＮＥＤＡ表敬，打合せ
3	5	金		ＭＰＨと会議（Ｓ／Ｗ案，Ｔ／Ｒについて説明・協議）
4	6	土		団内打合せ
5	7	日		Ｆｒｅｅ
6	8	月	東京８：３０ → マニラ１２：０５ JAL 741	ＭＰＨにて打合せ，関連資料収集
7	9	火		現地調査（南部パッケージ）
8	１０	水		〃 （北部パッケージ）
9	１１	木		ＭＰＨと会議（Ｓ／Ｗの作成・協議）
１０	１２	金		関連資料収集
１１	１３	土		団内打合せ
１２	１４	日		原稿執筆・資料整理
１３	１５	月		Ｓ／Ｗ ・ Ｒ／Ｄ作成，Ｒ／Ｄの調印
１４	１６	火		日本大使館，ＪＩＣＡ事務所へ報告，Ｓ／Ｗの調印
１５	１７	水	マニラ１０：４５ → 東京１５：３０ NW4	

V　Scope of work（S/W）打合せ要約

1. S／Wの内容の追加，変更

(1) 調査対象地域について

事前調査団は，訪比前に大使館を通じて，今回の調査ではTerms of Reference（T／R）により提案された南北両調査対象地域のうち南地区を対象とする旨の回答を比側から受けとっていた。したがってS／Wも南地区のみを対象に作成した。ところが打合せの開始の際に比側から北地区も非常に重要かつ緊急を要するので是非両方を同時に進めてもらいたい旨の要請があった。

しかし，事前調査団がどちらか一方を選択し，残りは引き続き行うことを提案したところ，比側内で南北地区のどちらを優先させるべきかについて討議した結果北地区を引き続き調査することを条件に南地区が選定された。

(2) 計画対象道路網について

T／Rによって示された道路網が最終的なものであるかどうかの確認をしたところ南地区については，C－5，C－6 あるいはC．D．C．P．（Construction. & Development Coorporation of the PHILIPPINES）提案の高速道路網などを含めた幹線道路網の体系が明確になっておらず，今回の調査の前段として，ネットワークパターンを確定してもらいたいとの要請があった。

事前調査団も，全体のネットワークのパターンを確定せずに対象となっている3路線についてのフィージビリティスタディを進めることは出来ないとの判断に至った。

さらに，比側は補助幹線道路の一部をFS対象に加えることを提案したが，パターンの検討に留めることで同意した。

(3) ボーリングデータについて

S／Wでは，既存のボーリングデータの収集あるいは，比側によるボーリング調査を提案した。しかし既存のデータのみでは調査地域全体をカバーできておらず，比側によるボーリング調査は予算がなく不可能であるとのことであった。

現地踏査の限りでは，さほど問題になりそうな地質とは思われなかった。しかし既存データの存在しない空白地帯あるいは立体交差が想定される箇所について日本側でボーリングを行わざるを得ないと判断した。

2. 調査の詳細

(1) 土地利用計画について

交通計画のベースとなる土地利用計画については，MMETROPLANで示されたものをベースとすることとした。

(2) 交通量予測について

C－3，R－4調査では，C－3が全て完成した際の予測しかされておらず段階的に建設する場合の効果を明らかにする必要から建設計画と対応した交通量の予測をするとともに他の道路への影響も把握することとした。

(3) 環境影響評価について

環境影響評価は：National Environmental Protection Councilのガイドラインに従って行うこととした。

(4) 路線計画について

路線計画には，１９７８年に撮影された1／5,000 の空中写真を用いることとした。但し，写真はCultural Centerから購入しなければならない。また，代替路線についても，一応の設計を終ったあとで評価をし，ベスト路線を選定することとした。

(5) 設計基準及び縮尺について

設計基準及び縮尺については，フィリピン側の要請もあり，Manila－Bataan Coastal Road projectで用いられたものを基本とすることとした。

(6) 設計対象交差点について

以下の交差点を検討の対象とする。

i) Bicutan Interchange

ii) Paranaque－Sukat and Loop Road intersection

iii) Zapate－Alabang and Loop Road intersection

iv) Imelda Ave. Ext. and Paranaque－Sukat Road intersection

v) Zapote junction along Quirino Avenue

vi) Paranaque junction along Quirino Avenue

vii) South Road and Loop Road intersection

(7) 経済評価について

経済評価に用いる費用等の推計のための基礎的指標については，M.P.H.（P.P.D.O）が提供したものを用いることとした。

(8) Implementation Programについて

Implementation Program の作成にあたってはNEDA & OECF formatを用いることとした。

(9) スケジュールについて

調査の内容を追加せざるを得ないのでInception Reportの段階で改めて検討する必要があるが，比側はできるだけ早く終了することを望んでいる。

４月～５月にかけての日本側の体制については了解された。

(10) カウンターパートについて

比側のカウンターパートの人数，専門分野については，日本側の体制が明らかになるInception Reportの段階で確定することとした。

(11) 車について

日本からの調査チームに対して，比側は2台の車を提供することに同意した。

(12) 機材について

日本側が用意する必要のある機材については，比側からリストの形で提出されるものを持ち返って改めて検討することとした。

(13) カウンターパートの受入れについて

比側から少なくとも2名のカウンターパートを本格調査の前（5月～6月）に受入れて欲しいとの要請があった。

(14) カウンターパートの教育について

比側は，従前の同種の調査の際には，カウンターパートに対する教育が十分ではなかったとの反省から，今回の調査ではカウンターパートとの接触に十分な時間をさくようにと強く要請した。

(15) 比側のAdvisery Committeeメンバーについて

比側のAdvisery CommitteeはInter Agency Committee とはせず，下記のメンバーを主体とすることになった。

,Deputy minister	Mr. Rodorigez
,Assistant 〃	Mr. David
,Director of B.O.C	Mr. Gutierrez
,Director of P.P.D.O	Mr. Baranda
,Director of S.P.O	Mr. Cutai

(16) 日本側の担当者について

比側からの調査担当者のなかに環境アセスメントの専門家を含むように希望した。

SCOPE OF WORK

FOR

THE FESIBILITY STUDY OF THE METRO MANILA OUTER MAJOR ROADS PROJECT, SOUTHERN PACKAGE

AGREED

BETWEEN

JAPAN INTERNATIONAL COOPERATION AGENCY

AND

MINISTRY OF PUBLIC HIGHWAYS

DATED: DECEMBER 16, 1980

Isao Yagita

ISAO YAGITA
Leader
Japanese Preliminary Survey Team

JESUS S. HIPOLITO
Minister
Ministry of Public Highways

I. INTRODUCTION

1.1 In response to the request of the Government of the Philippines (hereinafter referred to as GOP) to the Government of Japan (hereinafter referred to as GOJ) for technical assistance in the feasibility study for the Metro Manila Outer Major Roads Project, Southern Package (hereinafter referred to as the Project), Japan International Cooperation Agency (hereinafter referred to as JICA) which is an official agency responsible for implementation of international cooperation programs of the GOJ, has decided to extend such technical assistance in accordance with laws and regulation in force in Japan.

1.2 This study will be performed in close cooperation with GOP through the Ministry of Public Highways (hereinafter referred to as MPH) and JICA.

1.3 The present document sets forth the scope of work with regards to the above-mentioned study.

II. OBJECTIVE OF THE STUDY

This study will assess the technical and economic viability of the Project.

III. PROJECT ROADS

3.1 The Project will cover the following roads:

3.1.1 Parañaque-Sukat Road (Dr. A. Santos Avenue) from the proposed Manila-Cavite Coastal Road to the Manila South Expressway, about 7.70 kilometers in length.

3.1.2 Zapote-Alabang Section of the Manila South Road and its extension to the Manila-Cavite Coastal Road, about 10.50 kilometers.

3.1.3 Taguig-Las Piñas-Muntinlupa Loop Road, from the Bicutan Interchange, to cross the Parañaque-Sukat Road and the Zapote-Alabang section of the Manila South Road, and then a loop to pass thru the Suzana Heights Interchange in the Manila South Expressway Extension, and to end at the Manila South Road, about 21 kilometers.

IV. SCOPE OF THE STUDY

4.1 The study includes the following components:

a) data collection and analysis
b) traffic studies
c) selection of the route
d) environmental and social impact studies

e) design standards and preliminary engineering
f) cost estimation
g) economic evaluation
h) implementation program

4.2 The study shall consider the following relevant development studies and projects.

a) Urban Transport Study of the Metropolitan Manila Area;
b) Existing and planned Circumferential and Radial Roads;
c) R-10 Feasibility Study;
d) C-3 and R-4 and Related Roads Feasibility Study;
e) New Manila International Airport
f) Manila-Cavite Coastal Road and Reclamation Project;
g) Metro Manila Transport Cum Land Use and Development Plan;
h) Metro Manila Expressway; and
i) Metro Manila Urban Development Projects

4.3 In the conduct of the study, the following work items shall be undertaken.

4.3.1 Data collection and analysis

a) traffic data
b) social condition data
c) economic data
d) financial data
e) institutional data
f) administrative and managerial data
g) engineering data (ex. topographical, geological, hydrological, etc.)
h) other data necessary for the study

4.3.2 Traffic studies

a) review of population distribution and land use plan
b) supplementary traffic survey
c) analysis and estimation of the traffic demands
d) traffic assignment
e) traffic impact of project to other major roads in the area

4.3.3 Environmental and social impact studies in accordance with the National Environmental Protection Council (NEPC) guidelines.

a) environmental impacts

b) social impacts
c) economic impacts
d) other related impacts

4.3.4 Selection of the route

An alignment study will be undertaken for the purpose of selecting the best route among competitive routes on the basis of cost, functionality, social impact and environmental impact, among others.

4.3.5 Design standards and preliminary engineering

a) design standards
b) preliminary design
c) construction methods

4.3.6 Cost estimation

a) right-of-way acquisition cost
b) construction cost
c) mechanized maintenance cost

4.3.7 Economic evaluation

a) estimation of benefits
b) N.P.V., IRR, B/C
c) sensitivity analysis

4.3.8 Implementation program

An implementation program will be prepared based on the construction program and the financial studies.

V. STUDY SCHEDULE

The study will be executed in accordance with the attached tentative schedule.

VI. REPORT

JICA will prepare and submit the following reports to the GOP.

6.1 Twenty (20) copies of the inception report shall be submitted at the beginning of the study.

6.2 Twenty (20) copies of the interim report shall be submitted eight (8) months after the study.

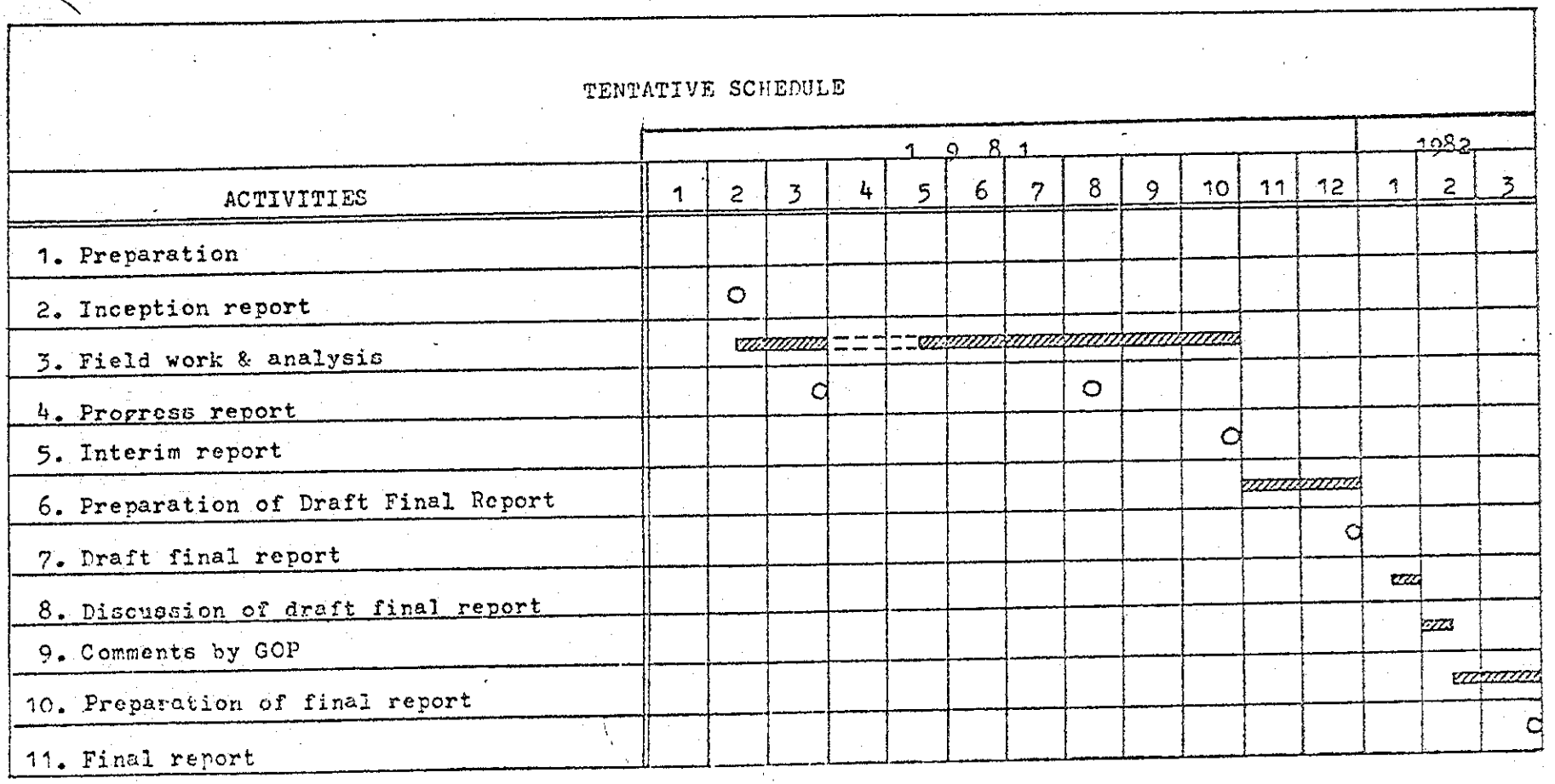
6.3 Twenty (20) copies of the draft final report shall be submitted not later than two (2) months after the submittal of the interim report. The GOP will submit to the JICA its comments within one (1) month after the receipt of the draft final report.

6.4 Fifty (50) copies of the final report shall be submitted within two (2) months after the receipt of the GOP's comments on the draft final report.

- N N D -

JFG/GZG/rdd

TENTATIVE SCHEDULE



RECORD OF DISCUSSIONS BETWEEN THE PHILIPPINE AND THE JAPANESE GROUPS ON THE TECHNICAL ASSISTANCE FOR THE FEASIBILITY STUDY OF THE METRO MANILA OUTER MAJOR ROADS PROJECT, SOUTHERN PACKAGE, MANILA, FROM DECEMBER 3, 1980 TO DECEMBER 16, 1980

I. The Japanese Mission headed by Mr. Isao Yagita, Executive Director, Metropolitan Expressway Public Cooperation and the Ministry of Public Highways represented by Mr. Juanito Cutay, Executive Director, Special Projects Office, in a series of conferences from December 3, to December 16, 1980, discussed the technical assistance to be extended by the Government of Japan to the Government of the Philippines for the feasibility study of the Metro Manila Outer Major Roads Project, Southern Package.

II. The Japanese Mission stated that the main purpose of their visit is to discuss the scope of work of the study with the Ministry of Public Highways. They would also gather information on the availability of data necessary for the study as well as conduct field inspection of the project site during their visit.

III. Using the scope of work prepared by the Japanese Mission for the study and the Terms of Reference proposed by the Philippine panel which are hereto attached as Annexes "1" and "2" respectively as the basic documents, the following is the summary of discussions and understanding:

A. Comparing the scope of work proposed by the Japanese panel with the terms of reference proposed by the Philippine side, the main differences are the following:

1) The Japanese Mission's proposal is to limit the feasibility study of the Metro Manila Outer Major Roads Project to either the Southern Package or the Northern Package, in view of the magnitude and different locations of the packages, depending on the recommendation of the Philippine Government.

The Philippine side, on the other hand, proposed that both the Southern and Northern Packages be studied simultaneously in view of its importance in the improvement of the traffic condition in Metro Manila Area and at the same time provide the much needed accesses to fast developing urban areas out-

side Epifanio delos Santcs Ave. (EDSA), also technically referred to as Circumferential Road 4 (C-4).

2) After evaluating the urgency of both packages, the Philippines side recommended the Southern Package, for the following reasons:

   a) The completion of the New Manila International Airport and the Manila-Cavite Coastal Road and Reclamation Project will worsen the traffic condition in the area south of Metro Manila.

   b) The area south of Metro Manila is getting faster urbanized than the northern area.

   c) There is more concentration of industries in the south and the improvement of accessibility of the area will induce establishment of more industries in the area which is in line with Government's policy of dispersing industries outside the 50-kilometer radius from metro Manila.

3) The Metro Manila Outer Major Ronds Project, Northern Package will be considered in the next JICA technical assistance.

B. The following are the agreements by both pands on the Scope of Work:

1) The feasibility study will utilize thc land use plan of Metro Manila developed in the MMETROPLAN Study with the necessary adjustments in accordance with the on-going land use survey of the Metro Manila Commission.

2) The design standards used for the Manila-Bataan Coastal Road Feasibility Study will be used for the project, subject to updating, if necessary.

3) The road network study will consider the present and future highway programs and plans of the Ministry of Public Highways including development of necessary access roads in order to maximize the effectiveness of the project.

4) Intersection improvement will include the following:

   a) Bicutan Interchange of the Manila South Expressway:

   b) Paranaque-Sucat and Loop Road intersection;

c) Zapote-Alabang and Loop road intersection;

d) Imelda Avenue Extension and Paranaque-Sucat road intersection

e) Zapote junction along the Manila South Road

f) Paranaque junction along the Manila South Road

g) Manila South Road and Loop Road intersection

5) The alignment study shall be carried out to a degree that changes will be minimal in the implementation of the project. All alternative schemes and stage constructions will be subjected to preliminary engineering and economic evaluation.

6) Based on the JICA Mission's field inspection and the availability of existing engineering data, supplemental soil investigation will be necessary for the study.

7) The study will follow the MPH methodology and standards in estimating the road users and road maintenance costs.

8) To maximize transfer of technology from the Japanese Study Team to the MPH counterpart, there would be periodic dialogues where each of the study groups will discuss problems encountered during the study and their solutions.

IV. The scope of undertakings of both Governments, as described in the Scope of Work, is agreeable in principle to both panels.

V. The Philippine side expressed appreciation to the Japanese Government in the dispatch of the Mission to the Philippines and for the friendly and cooperative attitude of the members of the Mission. It also expressed its optimism for the technical assistance to become a reality and looks forward to receiving the Study Mission that would be dispatched to conduct the actual study and the Northern Package to be subject of technical assistance in the JICA's next program.

VI. The Japanese panel expressed its appreciation for the cooperation and hospitality extended to them during stay in the Philippines.

Done at Manila, December 16, 1980.

Isao Yagita

ISAO YAGITA
Leader
Japanese Preliminary Survey Team
(Executive Director, Metropolitan Expressway Public Cooperation, GOJ)

JUANITO F. CUTAY

JUANITO F. CUTAY
Leader
MPH Advisory Committee
(Executive Director, Special Projects Office, Ministry of Public Highways, GOP)

(ANNEX - I)

DRAFT OF SCOPE OF WORK FOR THE FEASIBILITY STUDY OF THE METRO MANILA OUTER MAJOR ROADS (C-5) PROJECT

AGREED
BETWEEN

MINISTRY OF PUBLIC HIGHWAYS
AND
JAPAN INTERNATIONAL COOPERATION AGENCY

DATED :

ISAO YAGITA
Leader
Japanese preliminary Survey
Team

I. INTRODUCTION

1.1 IN respons to the request of the Government of the Philippines (hereinafter reffered to as GOP) to the Government of Japan for technical assistance to conduct a feasibility study for the circumferential road 5 (C-5) and related roads in southern area, Japan International cooperation Agency (hereinafter to JICA) which is an official agency responsible for implementation of international cooperation programs of the Government of Japan, has decided to extend such technical assistance in accordance with laws and regulation in force in Japan.

1.2 This study will be performed in close cooperation with GOP through Ministry of Public Highways (hereinafter reffered to MPH) and JICA.

1.3 The present document sets forth the scope of work with regard to the above-mentioned study.

II. OBJECTIVE OF THE STUDY

This study will assess the viability of the circumferential road 5 (C-5) and related roads in southern area.

III. PROJECT ROADS

3.1 The project will cover the following segment of the circumferential road 5 (C-5) and related roads.

3.1.1 Segment of Dr. A. Santos Avenue (also known as Parañaque-Sucat road) from the Manila South Expressway to Quirino Avenue, about 7.70 kilometers in length.

3.1.2. Segment of Manila South Road (also known as Alabang-Zapote Road) from Alabang Interchange of the Manila South Expressway to Zapote Junction, about 10.50 kilometers in length.

3.1.3 Taguig-Las Piñas-Muntinlupa Loop Road from Bicutan Interchange of the Manila South Expressway, then cutting across the Parañaque-Sucat Road and Zapote- Alabang Road with a total lengthof about 2o kilometers.

IV. SCOPE OF THE STUDY

4.1 The study includes the following components.

a) data collection and anaiysis
b) traffic studies
c) environmental and social impact studies
d) selection of the route
e) design standards and preliminary engineering
f) cost estimation
g) economic evaluation
h) implementation program

4.2 In the conduct of the study, the following work items shall be undertaken.

4.2.1 Data collection and analysis

a) traffic data
b) social condition data
c) economic data
d) financial data
e) institutional data
f) administrative and managerial data
g) engineering data (ex. topographical,geological,hydrogical etc.)
h) other data necessary for the study

4.2.2 Traffic studies

a) analysis and estimation of the traffic demand
b) traffic assignment
c) traffic surveys
d) review of population distribution and land use plan

4.2.3 Environmental and social impact studies

a) environmental impacts
b) social and economic impacts
c) other reiated impacts

4.2.4 Selection of the route

An investigation will be undertaken for the purpose of selscting the best route among some alternative routes.

4.2.5 Design standards and preliminary engineering

a) design standards
b) construction methods
c) preliminary design

4.2.6 Cost estimation

a) right-of-way acquisition cost
b) construction cost
c) maintenance cost

4.2.7 Economic evaluation

a) estimation of benefits
b) N.P.V., IRR, B/C
c) sensitivity analysis

4.2.8 Implementation program

An implementation program will be prepared based on the construction program and the financial studies.

V. STUDY SCHEDULE

The study will be executed in accordance with the attached tentative schedule.

VI. REPORT

JICA will prepare and submit the following reports to the GOP.

6.1 (20) copies of the inception report shall be submitted at the beginning of the study.

6.2 (20) copies of the interim report shall be submitted (8) months after the study.

6.3 (20) copies of the draft final report shall be submitted not later than (2) months after the submission of the interim report. The GOP will submit to the JICA its comments within (1)

VIII. UNDERTAKING OF THE GOVERNMENT OF JAPAN (GOP)

8.1 The Government, through JICA, will select a team of professional staff.

8.2 The government will provide some equipment and materials necessary for the conduct of the study.

8.3 The Government, through JICA, will accept Philippine counterpart personnel for training in Japan (if necessary).

8.4 The Government will aim at assisting the Philippine counter part personnel to further their skills to the extent possible through Japanese professional staff during the course of the study.

(1) months after the receipt of the draft final report.

6.4 (50) copies of the final report shall be submitted within (2) months after the receipt of the GOP's comments on the draft final report.

VII. UNDERTAKING OF THE GOVERNMENT OF THE PHILIPPINES

7.1 Coordination of the study will be provided by the Special Project Service (SPS) of the Ministry of Public Highways (MPH). The MPH will provide counterpart personnel.

7.2 MPH will secure all available relevant studies and data for the use of the study team.

7.3 MPH will undertake a preliminary parcellary survey for the right-of-way requirements of the study.

7.4 MPH will establish a local counterpart fund for the execution of the study.

7.5 Equipment and materials necessary for the study to be brought into the Philippines by the study team shall be exempted from taxes and duties in accordance with the applicable laws and reglations of the Philippines Government.

7.6 The Government will exempt the expatriate members of the study team from income tax and charges of any kind imposed on or in connection with the living allowances remitted from abroad, and will exempt the import and export duties imposed on their personal effects.

7.7 The Government will secure the necessary entry permits for the conduct of the field surveys by the study team.

7.8 The Government will assure the security of team members to the extent possible.

7.9 The Government will provide the study team the following:

a) appropriate number of local personnel as counterpart to the expartiate team members.

b) non-technical support personnel

c) office space, equipment and supplies for both local and expatriate team members.

d) vehicles with drivers for the study team.

VIII. UNDERTAKING OF THE GOVERNMENT OF JAPAN (GOP)

8.1 The Government, through JICA, will select a team of professional staff.

8.2 The government will provide some equipment and materials necessary for the conduct of the study.

8.3 The Government, through JICA, will accept Philippine counterpart personnel for training in Japan (if necessary).

8.4 The Government will aim at assisting the Philippine counter part personnel to further their skills to the extent possible through Japanese professional staff during the course of the study.

TENTATIVE SCHEDULE

ACTIVITIES	'81 1	2	3	4	5	6	7	8	9	10	11	12	82 1	2	3
1 Preparation															
2 Inception report		○													
3 Field work & analysis		▨	▨	▨	▨	▨	▨	▨	▨	▨					
4 Progress report			○					○							
5 Interim report										○					
6 Analysis in Japan											▨	▨			
7 Draft final report												○			
8 Discussion of draft final report													▨		
9 Coments by GOP														▨	
10 Making of final report														▨	▨
11 Final report															○

METRO MANILA OUTER MAJOR ROADS PACKAGE

I. PROJECT BACKGROUND

1.1 The choice of Metropolitan Manila as an area for intensive development activities, including transport, follows from the role of the area as the leading center of growth in the national economy. For Metropolitan Manila has been, and will continue to be, the main focus of human activities, generating social and economic benefits that have important multiplier effects over the rest of the country.

1.2 Metropolitan Manila is presently plagued by various environmental ills which might pose as a bottleneck in the continuance of its significant function. Among these problems are shortages in land and housing, employment, water supply and other utilities and traffic congestion.

1.3 The transport network that presently exist in Metro Manila is dominated by the major thoroughfares system which consist of nine (9) radial and three (3) loop roads characterized by non-homogenous sections. Complementing the road network is the PNR commuter train system which generally run along a north-south direction.

1.4 The present transport demand generated in Metro Manila amounts to about 11.4 million person trips per day. Over 99 percent of the daily public transport passenger trips are by means of buses and jeepneys, but rail services, taxis and tricycles are also significant passenger carriers.

1.5 The road development in Metro Manila were mainly based on the recommendations of the Urban Transport Study for Metro Manila Area (UTSMMA) 1973, which established a multi-modal transport system. The recommended major thoroughfare system is composed of ten (10) radials and six (6) loop roads (C-1 to C-6).

1.6 Due to the limited Government resources, the major thoroughfares plan are being implemented in stages, based on the recommendations of the World Bank-assisted Metro Manila Transport cum Land Use Planning Project (MMETROPLAN 1977) which established the short and long term development programs (up to year 1990) to respond the transport requirements of the metropolis within the context of a rational land use pattern.

1.7 The major roads within C-4 (or EDSA) are either completed, under construction or being programmed already for implementation.

1.8 A vital component not yet included in any program are various major roads outside C-4.

1.9 The major roads outside C-4 identified by MMETROPLAN for early implementation were consolidated for feasibility study.

1.10 The Government of the Philippines (GOP) has requested the Government of Japan (GOJ) for technical assistance for the conduct of the Feasibility Study for the said major roads under the "Metro Manila Outer Major Roads Package".

II. METRO MANILA OUTER MAJOR ROADS PACKAGE FEASIBILITY STUDY

2.1 Introduction

2.1.1 The Project (see attached Location Map) calls for the conduct of a feasibility study (hereinafter referred to as the Study) of the following segments of Metro Manila Major Roads network.

A. Nothern Package

a. Segment of C-5 from Manila North Expressway to Aurora Blvd. (R-6), about 15.00 kilometers in length.

b. Segment of Visayas Avenue from Elliptical Road to its proposed intersection with C-5, about 4.80 kilometers in length.

c. Segment of Mindanao Avenue from North Avenue to its proposed intersection with C-5, about 3.50 kilometers in length.

B. Sourthern Package

a. Segment of Dr. A. Santos Avenue (also known as Parañaque-Sucat Road) from the Manila South Expressway to Quirino Avenue, about 7.70 kilometers in length.

b. Segment of Manila South Road (also known as Alabang-Zapote Road) from Alabang Interchange of the Manila South Expressway to Zapote Junction, about 10.50 kilometers in length.

c. Taguig-Las Piñas-Muntinlupa Loop Road from Bicutan Interchange of the Manila South Expressway, then cutting across the Parañaque-Sucat Road and Zapote-

Alabang Road with a total length of about 20 kilometers.

2.1.2 The Project (part of the Metro Manila's conceptual major road network) is intended to provide the much needed accesses to fast-developing urban areas outside C-4 and to attract a portion of the traffic along existing roads in the area, which already have traffic congestions especially during peak hours. The major roads that are expected to be greatly improved after the construction phase of the Project are Quirino Highway and EDSA between Balintawak and Cubao in the north, and Quirino Avenue and the service roads of the Manila South Expressway in the south.

2.1.3 The effectiveness of the development projects in the outer area that has great dependence on the completion of the project roads are the Government Center, and the New Manila International Airport (MIA) Complex and the Manila-Cavite Coastal Road and Reclamation Project.

2.1.4 The project section of C-5 will have a total length of 15.00 kilometers and involve new construction of 10.80 kilometers and improvements/ widening of the existing Katipunan Avenue from Balara to Aurora Blvd. (R-6). Part of the right-of-way of the northern section of C-5 had already been acquired by the Government since it will utilize the same alignment of Republic Avenue leading to the new Government Center from the west. It will be a multi-lane divided highway with four (4) major intersections.

2.1.5 The missing segments of C-5 south of Aurora Blvd. is presently the subject of detailed engineering as part of the Eastern Major Roads Package in the program to alleviate the traffic situation now prevailing in the eastern sector of the metropolis.

2.1.6 The inclusion of Mindanao and Visayas Avenues in the Northern Package is to provide main north-south routes between Don Mariano Marcos Avenue (R-8) and the North Expressway. The project section of Mindanao Avenue will have a total length of 3.40 kilometers starting from its intersection with North Avenue in Quezon City and runs northward until it joins the proposed C-5. The project section of Visayas Avenue will have a total length of 3.40 kilometers starting from Elliptical Road and runs northward until it intersects the proposed C-5.

2.1.7 The project section of Parañaque-Sucat Road will have a total length of 7.70 kilometers starting from Quirino Avenue in Parañaque and follows Dr. A. Santos Avenue until it connects with the Manila South Expressway at the Sucat Interchange.

2.1.8 The project section of Alabang-Zapote Road will have a total length of 10.50 kilometers starting from Zapote Junction in Las Piñas to its intersection with the South Expressway in Alabang.

2.1.9 The project section of the Taguig-Las Piñas-Muntinlupa Loop Road from the Bicutan Interchange of the Manila South Expressway, then southward across Parañaque-Sucat and Zapote-Alabang Roads, then turns left to connect with the proposed Susana Heights Interchange of the South Expressway.

III. PURPOSE

3.1 The primary purpose of the Study is to determine the types of improvement, including the alignment and required number of lanes that would yield the most economic return, and based on the findings, to prepare pre-investment reports.

3.2 The Study is intended to be presented by GOP to international financing institutions for loan applications to finance the foreign construction costs of the project.

IV. SCOPE OF WORK

4.1 General

4.1.1 To attain the objectives, the Study shall undertake all components of a feasibility study such as traffic forecast, preliminary engineering, environmental impact, economic analysis and implementation schemes for possible financial assistance from international financing institutions.

4.1.2 The Study shall undertake all incidental works, including field surveys, computer work, map plotting and drafting if necessary.

4.1.3 The Study shall investigate:

a. Alternate locations, alignments road types, road cross-sections (number of lanes), structures, etc.

b. Possibility of stage construction of road segments, road types, road cross-sections and structures.

4.2 Relationship to Other Development Plans

a. Urban Transport Study of the Metropolitan Manila Area (UTSMMA, 1973)

b. R-10 Feasibility Study (1974)

c. Metro Manila Transport Cum Land Use Strategies (MMETROPLAN, 1977)

d. C-3, R-4 and Related Roads Feasibility Study (1978)

e. Manila-Bataan Coastal Road and Development Project (1980)

f. Lungsod Silangan Project

g. New Manila International Airport Complex

h. Manila Urban Development Projects

i. Existing and planned national and local highway programs

j. Manila-Cavite Coastal Road and Reclamation Project

4.3 Traffic Study

4.3.1 The Study shall be comprehensive and sufficient to meet all requirements of a feasibility study. It shall take into account the implications of the transport system of Metropolitan Manila on the Project Roads.

4.3.2 All available traffic data related to the Project Roads shall be reviewed and additional traffic surveys necessary to supplement available data shall be conducted.

4.3.3 The traffic forecast shall adopt the methodology used for the normal comprehensive detailed projection, consisting of the trip production, the trip generation and attraction, trip distribution, the modal split and the trip assignment. The specific models to be applied shall be determined upon recommendation of the consultant and the approval of the Ministry of Public Highways (MPH).

4.3.4 The Study shall include compilation and gathering of the necessary input data, forecast of the traffic demand and analysis of the traffic flow.

4.3.5 The report on the traffic study shall cover assumptions, methodologies, outcomes, findings, and recommendations, including maps, figures and illustrations.

4.4 Preliminary Engineering

4.4.1 The Study shall undertake all necessary field investigations, including topographic and subsurface soil exploration surveys for the preparation of preliminary engineering designs and determination of the principal quantities of work.

4.4.2 The Study shall conduct preliminary engineering works of all alternative plans and construction stages as deemed necessary.

4.4.3 The Study shall submit plans, alignments, profiles and cross-sections (including right-of-way limits) of the proposed constructions with the character and standard of the roads taking into consideration such factors as traffic, function and economics.

4.4.4 The Study shall undertake a survey of the land and improvements affected by the right-of-way of each alternative plans and shall estimate the cost of acquisition thereof.

4.4.5 The Study shall estimate construction cost and build up a contractor-type estimate for each major items of the construction cost.

4.4.6 The Study shall separately identify the components of foreign and local currencies (with taxes shown separately) for the proposed construction works. The foreign currency component shall include such items as equipment depreciation, materials and supplies with the Philippines as the net importer, wages of foreign personnel, overhead and profit of foreign firms, and interest and other financial charges payable abroad. The local currency components shall include right-of-way acquisition costs, local materials and supplies, local wages, taxes, etc. The cost estimates shall include identifiable contingency allowances for (i) quantities and (ii) price escalation from the date of the estimate to the completion of the works.

4.4.7 Preliminary engineering for these studies shall be carried out to a degree that will permit estimates of principal quantities of construction with an accuracy of plus or minus 20 percent of final quantities.

4.5 Environmental and Social Impact

Since the proposed roads will pass mostly through sections where there are already existing developments, a comprehensive environmental impact analysis must be undertaken as part of the Study incorporating therewith corresponding mitigation measures that are called for. The analysis shall consider the following factors:

4.5.1 The impact of the project, adverse as well as beneficial, on the residents of the surrounding areas with respect to traffic conditions, land values, employment, etc.

4.5.2 The consequences of having to relocate the various families affected in the acquisition of right-of-way.

4.5.3 The possible adverse effects and/or benefits during the construction period, and the effect on present activities in the vicinity of the project roads after completion.

4.5.4 The problems the surronding communities might be exposed due to expected increased of vehicular movement along the project roads.

4.6 Economic Analysis

An economic analysis shall conclude the Study, from which shall be drawn the recommendations on the viability of the project; on the most appropriate location, alignment, types of structures, construction methods, etc. to be adopted. The preceeding components of the Study shall be the basis in the preparation of the economic analysis which shall consider the following factors, among others:

4.6.1 Project Cost - All costs incidental to the construction, maintenance, administration, interest, etc. of the project roads shall be estimated. The same for the alternatives.

4.6.2 Benefits - To be quantified are benefits to be derived from the project due to reduction in vehicle operation costs and savings in travel time for both users and non-users of the project roads. Other benefits, such as reduction of traffic accidents, opportunity cost for vehicles and drivers and other indirect benefits need not be quantified but merely stated.

4.6.3 Benefit and Cost Comparison shall be made indidating the net present worth, benefit/cost ratio of the first year and the whole period of the economic life.

4.6.4 Sensitivity Analysis shall also be made relative to the traffic volume, project cost, discount rate and other development projects affecting the project roads.

4.6.5 The economic analysis shall be based on the timetable for the implementation proposed in the Study, including the investment and reimbursement programs for the project roads.

V. STUDY SCHEDULE

5.1 The attached tentative schedule shows the different activities and duration of the Study.

VI. REPORTS

6.1 Twenty (20) copies of the inception report shall be submitted at the beginning of the study.

6.2 Twanty (20) copies of the tentative draft final report shall be submitted five (5) months after the start of the Study.

6.3 Twenty (20) copies of the draft final report shall be submitted not later than two (2) months after the submission of the tentative draft final report. The GOP will submit to the Japanese International Cooperation Agency (JICA) its comments within one (1) month after the receipt of the draft final report.

6.4 Fifty (50) copies of the final report shall be submitted within two (2) months after the receipt of GOP's comments on the draft final report.

VII. UNDERTAKING OF THE GOVERNMENT OF THE PHILIPPINES

7.1 Coordination for the Study will be provided by the Special Project Service (SPS) of the Ministry of Public Highways (MPH). MPH will provide counterpart personnel.

7.2 MPH will secure all available relevant studies and data for the use of the study team.

7.3 MPH will provide local counterpart fund for the execution of the Study

7.4 Equipment and materials necessary for the Study to be brought into the Philippines by the study team shall

be exempted from taxes and duties in accordance with the applicable laws and regulations of the Philippine Government.

7.6 The Government will exempt the expatriate members of the Study team from income tax and charges of any kind imposed on living allowances remitted from abroad, and will exempt the import and export duties imposed on their personal effects.

7.7 The Government will secure the necessary entry permits for equipment and materials needed for the conduct of the field surveys by the study team.

7.8 The Government will assure the security of the study team members to the extent possible.

7.9 The Government will provide the study team the following:

a) appropriate number of local personnel as counterparts to the expatriate team members.

b) non-technical support personnel.

c) office space, equipment and supplies for both local and expatriate team members.

d) vehicles with drivers for the study team.

VIII. UNDERTAKING OF THE GOVERNMENT OF JAPAN (GOJ)

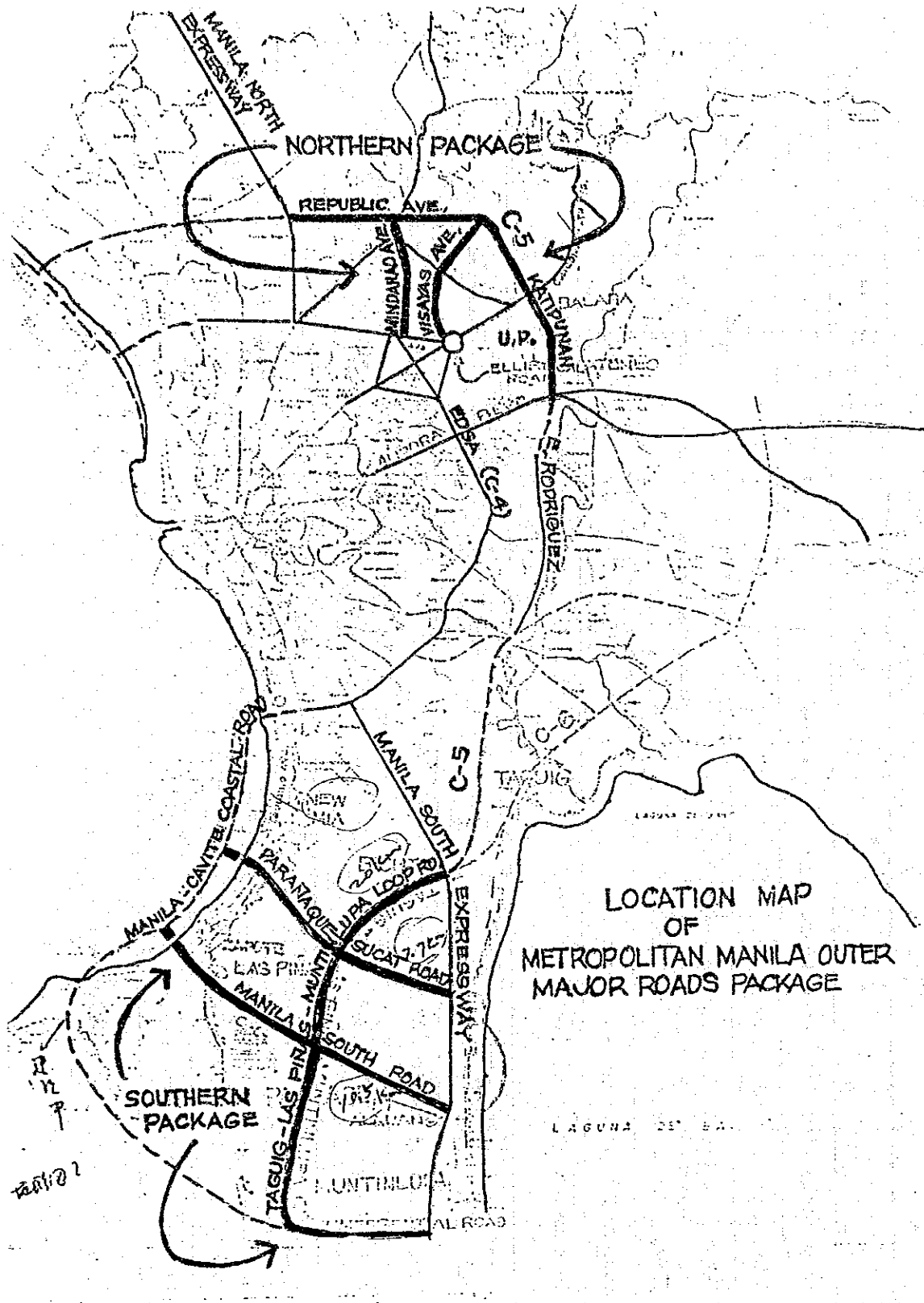
8.1 The Government, through JICA, will select a team of professional staff.

8.2 The Government will provide some equipment and materials necessary for the conduct of the Study.

8.3 The Government, through JICA, will accept Philippine counterpart personnel for training in Japan.

8.4 The Government will aim at assisting the Philippines counterpart personnel in furthering their skills to the extent possible through the Japanese professional staff during the course of the Study.

GZG/dmc


NORTHERN PACKAGE
SOUTHERN PACKAGE
MANILA NORTH EXPRESSWAY
REPUBLIC AVE.
MINDANAO AVE.
VISAYAS AVE.
C-5
KATIPUNAN
U.P.
EDSA (C-4)
E. RODRIGUEZ
MANILA SOUTH EXPRESSWAY
MANILA-CAVITE COASTAL ROAD
PARANAQUE-PUTATAN LOOP RD.
SUCAT ROAD
MANILA SOUTH ROAD
TAGUIG-LAS PIÑAS
LOCATION MAP
OF
METROPOLITAN MANILA OUTER
MAJOR ROADS PACKAGE

PENTATIVE SCHEDULE

	1	2	3	4	5	6	7	8	9	10	11
1. Preparation for intensive field work	▬										
2. Submission of inception report		●									
3. Intensive field work & date analysis for the preparation of tentative draft final report by the Study Team		▬	▬	▬	▬	▬	▬	▬			
4. Submission of progress report				●							
5. Submission of tentative draft final report						●					
6. Finalization and printing of draft final report in Japan							▬	▬			
7. Submission of draft final report										●	
8. Discussion of draft final report between two Gov'ts.										▬	
9. Comments on draft final report by the Government of the Philippines										▬	
10. Printing of final report in Japan										▬	▬
11. Submission of final report											●

N O T E : Possible supplementary study after discussion of the tentative final report.

ANNEX-3

Republic of the Philippines
Ministry of Public Highways
SPECIAL PROJECTS OFFICE
M a n i l a

December 11, 1980

METRO MANILA OUTER MAJOR ROADS (C-5) PROJECT

DATE : December 5, 1980

TIME : 10:30 A.M.

PLACE : MPH Minister's Conference Room

ATTENDANCE:

Minister JESUS S. HIPOLITO	-	MPH Minister
Director TEODORO T. GUTIERREZ	-	Director, BOC
Director Purdencio F. Baranda	-	Director, PPDO
Mr. TATSUO OGIWARA	-	PPDO
Director JUANITO F. CUTAY	-	Special Projects Office
Engr. EDGAR	-	Special Projects Office
Engr. GODOFREDO Z. GALANO	-	Special Projects Office
Mr. KATSUNARI TSUJI	-	Member, JICA Mission
Mr. SHIGEAKI MATSUBARA	-	-do-
Mr. SHOICHI KUBOTA	-	-do-
Mr. KYOJIN MIMA	-	-do-

The JICA Mission conferred with the Minister together with the Ministry of Public Highways personnel involved with the said project. The meeting was about the preference of undetaking the Fearibility Study of either the Southern Package or the Northern Package of the Metro Manila Outer Major Roads Project. The advantages and disadvantages of both packages were presented during the discussion. The distinct advantages of the Southern Package over the Northern Package are as follows:

1. The completion of the Manila International Airport and the Manila-Cavite Coastal Road Projects will worsen the present traffic condition in the area.

2. The area south of Metro Manila is more urbanized than the northern area.

3. Industries were concentrated in the south and the improvement of the accessibility of the area is in line with the Government's policy of relocating industries outside 50 kilometers radius of Metro Manila.

With these reasons the Minister agreed, provided that they will consider the Northern Package in the next JICA technical assistance.

The meeting also set the date of contract signing with regards to the Scope of Work of the Feasibility Study on December 16, 1980.

MINUTES BY:

ENYA A. BACANI
Adm. Officer II

METRO MANILA OUTER MAJOR ROADS (C-5) PROJECT

DATE : December 5, 1980

TIME : 2:00 P.M.

PLACE : SPECIAL PROJECTS OFFICE CONFERENCE ROOM, MP

ATTENDANCE:

Director JUANITO F. CUTAY	-	Special Projects Office
Engr. EDGARDO V. SEMILLA	-	-do-
Engr. GODOFREDO Z. GALANO	-	-do-
Mr. TATSUO OGIWARA	-	Project Planning Development Office
Mr. SHIGEAKI MATSUBARA	-	Member, JICA Mission
Mr. KATSUNARI TSUJI	-	Member, JICA Mission
Mr. SOUICHI KUBOTA	-	-do-
Mr. KYOJIN MIMA	-	-do-

MINUTES OF THE MEETING:

1. Scope of Work:
   Parties agreed that MPH will submit comments to JICA Mission on the Scope of Work to be discussed on December 11, 1980.

2. Aerial Photographs:
   1. Verify from government agency concerned if there is a new aerial photograph available.
   2. If not available, to ask permission for aerial photograph of the project.
   3. JICA will see if it can fund aerial photographs that is, if no photos are available.
   4. Information will be given to JICA Mission by December 11, 1980 if aerial photos are available on the Southern and Northern Packages with the following datas:
      a) Date of Photograph - 1977
      b) Scale of Photograph - 1:8000

3. Estimation of Traffic Demand
   During the study, information on future land use will mainly be based

on the MMETROPLAN STUDY with some adjustments from the ongoing land use survey of the Metro Manila Commission.

4. Design Standards:

   1. The Mission will adopt the same design standards used for Manila-Bataan Coastal Road Project.

   2. JICA Mission request that they be immediately furnished with latest Standards for design which may be upgraded by the Minister later on before leaving for Japan on December 17, 1980.

   3. Design Scale - Same Scale used for Manila Battan Coastal Road Project.

5. Study of Road Network:

   1. Section of C-5 from Bicutan to Pasig River will be considered as part of the future road network.

   2. JICA Mission request for large scale map of Metro Manila with the present and proposed major roads indicated.

6. Improvement of Intersections:

   1. Bicutan Intersection
   2. Paranaque - Sucat Loop Road Intersection
   3. Imelda Avenue Intersection (Quirino Avenue)
   4. Manila South Road Intersection. (Quirino Avenue)

7. Soil Data

   1. Soil data available - To be given during the study such as Imelda Avenue Project, reclamation projects, Paranaque-Sucat Road, Expressways, if available.

8. Progress Reports - JICA will furnish about twenty (20) copies of Progress Reports to MPH.

9. No Inter-Agency Committee will be formed but will just convene with different government agencies from which necessary datas will be secured from them.

MINUTES BY:

ENYA A. BACANI
SPO

CONCURRED IN:

BY:

JUANITO F. CUTAY
Executive Director

BY:

MR. SHIGEAKI MATSUBARA
JICA Member

ANNEX-7 METRO MANILA OUTER MAJOR ROADS PROJECT, SOUTHERN PACKAGE

DATE : December 11, 1980

PLACE : Special Projects Office, Ministry of Public Highways

ATTENDANCE:

Exec. Dir. JUANITO F. CUTAY	-	Special Projects Office
Dir PRUDENCIO BARANDA	-	Project Planning & Development Office
Engr. EDGARDO SEMILLA	-	Special Project Office
Engr. GODOFREDO GALANO	-	-do-
Mr. TATSUO OGIHARA	-	Project Planning and Development Office
Mr. ISAO YOGITA	-	Team Leader, JICA Mission
Mr. KATSUNARI TSUJI	-	Member, JICA Mission
Mr. SHIGEAKI MATSUBARA	-	-do-
Mr. SOUICHI KUBOTA	-	-do-

RECORD OF DISCUSSION:

1. The Metro Manila Outer Major Roads Project, Northern Package will be given priority in the next JICA Technical Assistance.

2. Present and future land use plan of Metro Manila will mainly be based on the MMETROPLAN Study with some adjustments from the on-going land use survey of the Metro Manila Commission. The data will be furnished to the JICA Mission on February, the start of the Feasibility Study.

3. The design standards used for the Manila-Bataan Coastal Road Project will be used in the Study, subject to updating if necessary. The standards will be furnished to the JICA Mission before their return to Japan.

4. Aerial photographs within the study area is available.

5. Road network will include major and secondary roads.

6. Intersection improvements will include the following:

   a) Bicutan Interchange
   b) Paranaque-Sukat and Loop Road intersection
   c) Zapote-Alabang and Loop Road intersection
   d) Imelda Ave. Ext. and Parafiaque-Sucat Road intersection
   e) Zapote junction along Quirino Avenue
   f) Paranaque junction along Quirino Avenue
   g) South Road and Loop Road intersection

7. Soil data on on-going and completed highway projects in Metro Manila:

   a) Imelda Avenue Project
   b) Zapote-Alabang Road Project
   c) Paranaque Spillway
   d) Susana Heights Interchange along South Superhighway Ext.
   e) Manila-Cavite Coastal Road

   A map showing the location of soil borings and investigations will be furnished to the JICA Mission before the departure to Japan.

8. Recommended alignment will be followed in the implementation of the project. All alternative schemes and stage construction will be subjected to preliminary engineering and economic evaluation.

9. Implementation program will be in accordance with the NEDA & OECF format.

10. To maximize transfer of technology from Japanese experts to local counterpart there should be a constant dialogue between the study group during the study.

11. Furnish the JICA Mission a copy of the National Environmental Protection Council guidelines for the Environmental Impact Study.

12. Road users and maintenance costs will be furnished to the JICA Mission during the conduct of the feasibility study.

IMPLEMENTING ARRANGMENT ON THE TECHNICAL COOPERATION BETWEEN THE JAPAN INTERNATIONAL COOPERATION AGENCY AND THE MINISTRY OF PUBLIC HIGHWAYS FOR THE FEASIBILITY STUDY OF THE METRO MANILA OUTER MAJOR ROADS PROJECT (SOUTHERN PACKAGE)

AGREED

BETWEEN

JAPAN INTERNATIONAL COOPERATION AGENCY

AND

MINISTRY OF PUBLIC HIGHWAYS

DATED:

IMPLEMENTING ARRANGEMENT ON THE TECHNICAL COOPERATION BETWEEN THE JAPAN INTERNATIONAL COOPERATION AGENCY AND THE MINISTRY OF PUBLIC HIGHWAYS FOR THE FEASIBILITY STUDY OF THE METRO MINILA OUTER MAJOR ROADS PROJECT (SOUTHERN PACKAGE)

I. INTRODUCTION

In response to the request of the Government of the Republic of the Philippines, the Government of Japan despatched a preliminary survey team to the Philippines in December, 1980 prior to a feasibility study of the METRO MANILA OUTER MAJOR ROADS PROJECT (SOUTHERN PACKAGE) (hereinafter to be referred to "The Study").

Based on the report of the above survey team, the Government of Japan decided to undertake the Study in accordance with laws and regulations in force in Japan with regard to the technical assistance programs, and exchanged the Note Verbales on the Study with the Government of the Republic of the Philippines.

The Japan International Cooperation Agency (hereinafter to be referred as "JICA"), the official agency responsible for the implementation of the technical cooperation programs of the Government of Japan, will carry out the works necessary for the Study.

The Ministry of Public Highways (hereinafter to be referred as "MPH") shall serve as counterpart to the Japanese study teams and also as coordinating body to other related governmental and non-governmental organizations for the smooth implementation of the Study.

The present document sets forth the Implementing Arrangment agreed between JICA and MPH for the Study which is to be implemented by JICA in close collaboration with MPH and other agencies concerned.

II. IMPLEMENTATION OF THE STUDY

1. The JICA shall provide technical cooperation to the MPH for the implementation of the Feasibility Study of the Metro Manila Outer Major Roads Project (Southern Package).

2. The Study shall be implemented in accordance with the Scope of Work which was given in APPENDIX I.

3. The Study shall be undertaken in accordance with the Study Schedule (APPENDIX II) which was formulated on the basis of the Scope of Work.

III. DISPATCH OF JAPANESE STUDY TEAMS

The JICA shall, at its own expenses, dispatch Japanese study teams in accordance with the schedule mutually agreed upon by both JICA and MPH.

IV. PROVISION OF MACHINERY EQUIPMENT AND OTHER MATERIALS

The JICA shall, at its own expenses, provide machinery equipments and other materials which are necessary for the implementation of the Study.

V. TRAINING OF PHILIPPINE COUNTERPARTS

1. The Study is also aimed at assisting the Philippine counterpart personnel to further their skills to the extent possible through Japanese professional staff during the course of the study.

2. The JICA shall, at its own expenses, receive Philippine Government personnel for technical training in Japan in connection with the Study in accordance with the normal procedures under the Colombo Plan Technical Cooperation Scheme.

VI. MEASURES TO BE TAKEN BY THE GOVERNMENT OF THE PHILIPPINES

1. The Government of the Philippines, in accordance with the Note Verbals exchanged between the Government of the Philippines, shall be responsible for dealing with claims which may be brought by third parties against the Japanese survey team members, and shall hold them harmless in respect of claims or liabilities

arising in the ocurse of or other-wise connected with the discharge of their duties in the implementation of the Study, except when such claims or liabilities arise from the gross negligence or wilful misconduct of the above-mentioned individuals.

Should any question arise in connection with the foregoing, both Governments shall immediately consult with each other.

2. The MPH shall, at its own expenses, provide the following:

   1) Available data and information related to the Study.

   2) A Preliminary inventory survey of existing land uses within the study area.

   3) Counterparts of the Government of the Philippines consisting of a coordinator and engineers necessary for the Study.

   4) Credentials or Identification (ID) cards to the members of the Study team who shall be working in the Philippines for the execution of the Study.

   5) Suitable office space in the MPH office.

   6) Appropriate number of vehicles with drivers.

3. The MPH shall make the necessary arrangements for the following:

   1) Recommendation of local consultant firm for survey and boring if necessary.

   2) Secure permission for entry into private properties and restricted areas.

   3) Hiring of laborers as needed, but wages shall be chargeable against JICA funds alloted for the Study.

   4) Availability of medical facilities when needed but medical expenses shall be chargeable to JICA funds alloted for the Study.

4. The MPH shall make the necessary arrangements with proper agencies concerned:

   1) To ensure the safety of the study team.

   2) To provide the necessary facilities to the Japanese study

teams for the remittances as well as utilization of funds introduced into the Philippines from Japan in connection with the implementation of the Study.

3) To exempt the Japanese study team members from taxes, duties, fees and other charges on machinery, equipment and other materials brought into the Philippines for the conduct of the Study.

4) To secure clearance for the release of the aerial photography.

(APPENDIX I)

SCOPE OF WORK

FOR

THE FEASIBILITY STUDY OF THE METRO MANILA OUTER MAJOR ROADS PROJECT, SOUTHERN PACKAGE

I. OBJECTIVE OF THE STUDY

This study will assess the technical and economic viability of the Project.

II. PROJECT ROADS

2.1 The Project will cover the following roads:

2.1.1 Paranaque-Sukat Road (Dr. A. Santos Avenue) from the proposed Manila-Cavite Coastal Road to the Manila South Expressway, about 7.70 kilometers in length.

2.1.2 Zapote-Alabang Section of the Manila South Road and its extension to the Manila-Cavite Coastal Road, about 10.50 kilometers.

2.1.3 Taguig-Las Pinas-Muntinlupa Loop Road, from the Bicutan Interchange, to cross the Paranaque-Sukat Road and the Zapote-Alabang section of the Manila South Road, and then a loop to pass thru the Susana Heights Interchange in the Manila South Expressway Extension, and to end at the Manila South Road, about 21 kilometers.

III. SCOPE OF THE STUDY

3.1 The study includes the following components:

a) data collection and analysis
b) traffic studies
c) selection of the route
d) environmental and social impact studies
e) design standards and preliminary engineering
f) cost estimation
g) economic evaluation
h) implementation program

3.2 The study shall consider the following relevant development studies and projects.

a) Urban Transport Study of the Metropolitan Manila Area;
b) Existing and planned Circumferential and Radial Roads;
c) R-10 Feasibility Study;
d) C-3 and R-4 and Related Roads Feasibility Study;
e) New Manila International Airport;
f) Manila-Cavite Coastal Road and Reclamation Project;
g) Metro Manila Transport Cum Land Use and Development Plan;
h) Metro Manila Expressway; and
i) Metro Manila Urban Development Projects

3.3 In the conduct of the study, the following work items shall be undertaken.

3.3.1 Data collection and analysis

a) traffic data
b) social condition data
c) economic data
d) financial data
e) institutional data
f) administrative and managerial data
g) engineering data (ex. topographical, geological, hydrological, etc.)
h) other data necessary for the study

3.3.2 Traffic studies

a) review of population distribution and land use plan
b) supplementary traffic survey

c) analysis and estimation of the traffic demands
d) traffic assignment
e) traffic impact of project to other major roads in the area

3.3.3 Environmental and social impact studies in accordance with the National Environmental Protection Council (NEPC) guidelines.

a) environmental impacts
b) social impacts
c) economic impacts
d) other related impacts

3.3.4 Selection of the route

An alignment study will be undertaken for the purpose of selecting the best route among competitive routes on the basis of cost, functionality, social impact and environmental impact, among others.

3.3.5 Design standards and preliminary engineering

a) design standards
b) preliminary design
c) construction methods

3.3.6 Cost estimation

a) right-of-way acquisition cost
b) construction cost
c) mechanized maintenance cost

3.3.7 Economic evaluation

a) estimation of benefits
b) N.P.V., IRR, B/C
c) sensitivity analysis

3.3.8 Implementation program

An implementation program will be prepared based on the construction program and the financial studies.

IV. STUDY SCHEDULE

The study will be executed in accordance with the attached tentative schedule.

V. REPORT

JICA will prepare and submit the following reports to the GOP.

5.1 Twenty (20) copies of the inception report shall be submitted at the beginning of the study.

5.2 Twenty (20) copies of the interim report shall be submitted eight (8) months after the study.

5.3 Twenty (20) copies of the draft final report shall be submitted not later than two (2) months after the submittal of the interim report. The GOP will submit to the JICA its comments within one (1) month after the receipt of the draft final report.

5.4 Fifth (50) copies of the final report shall be submitted within two (2) months after the receipt of the GOP's comments on the draft final report.

- E N D -

JFC/GZG/rdd

TENTATIVE SCHEDULE

ACTIVITIES	1981												1982		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1. Preparation															
2. Inception report		O													
3. Field work & analysis															
4. Progress report			O					O							
5. Interim report										O					
6. Preparation of Draft Final Report															
7. Draft final report												O			
8. Discussion of draft final report															
9. Comments by GOP															
10. Preparation of final report															
11. Final report															O

Ⅵ 現地調査結果

1. 道路側の状況

(1) 現況道路の状況

調査対象道路の位置するMetro Manila の南部地域（以下調査地域という）の現況道路網は図－1に示すように，南北方向には主要幹線道路としてのManila South Expresswayが調査地域の東部を縦断している。この道路はCDCP(Construction & Development Coorporation of the Philippines)が建設した有料道路であり，償還すれば国に移管されることになっている。沿道利用の多い市街地部の標準的な幅員構成は図２－Aに示すように全幅２８.５ｍであり，６車線構成で片側に側道を有している。但し調査地域の南部においては写真－１に見られるように中央分離帯を広くとった４車線構成で側道もない。

また東西方向には幹線道路としてのPalanaque－Sucat RoadとZapote-Alabang Road の２本の道路が調査地域の中央部を横断している。

Palanaque－Sucat Road の標準的な幅員構成は図２－Bのように全幅１５ｍで，中央部6.７ｍ部分のみ舗装されており２車線として使用されている。（写真２）

Zapote－Alabang RoadはNational Highway(①)であり，標準的な幅員構成は図２－Cのように全幅２０ｍが道路幅員として確保されているが，中央部６ｍのみが舗装されており，２車線として使用されている。（写真３）

またこれらの東西方向の道路は立体交差のインターチェンジでManila South Express way と接続している。

(2) 計画道路の状況

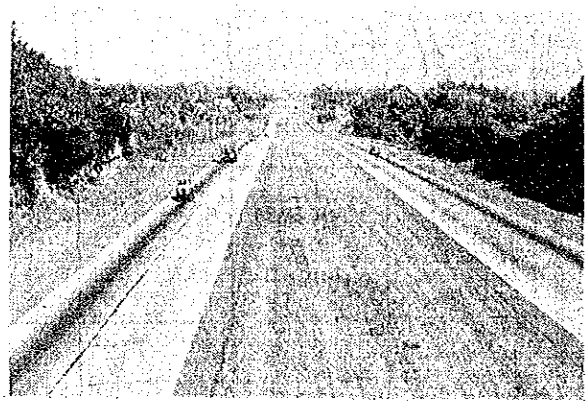
Metro Manila の人口急増を担う住居地域としての発展が調査地域に期待されているという背景のもとで，今回の調査対象計画道路としては図－１に示すように東西方向の２本の幹線道路の拡幅と環状道路としてのTaguig－Las Pinas－Muntinlupa Loop Road の新設の構想がある。

これらの道路構想について，早急にフィージビリティ調査を実施し，計画道路としての位置づけを行い，Right of Way の確保を行おうとするものである。

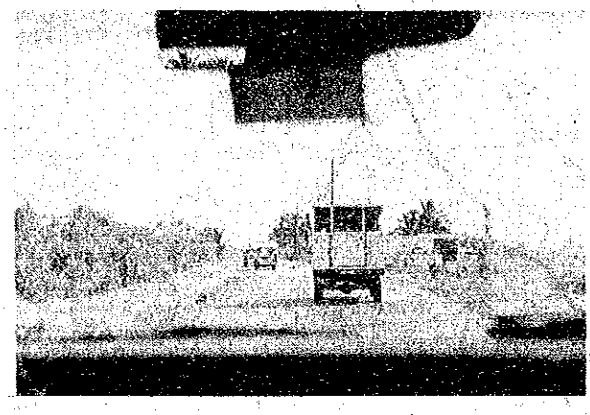
この他関連する主要な計画道路としては，図－１に示すようにManila Bayの埋立計画の中にManila－Cavite Coastal Road という湾岸道路が計画されており，今回の調査対象の２本の東西幹線もこの湾岸道路に接続するよう計画されている。この湾岸道路は埋立計画も含め現在ＣＤＣＰで見直し中とのことであるが，図２－Dに示すような幅員構成で計画されている。

Manila－Cavite Coastal Road & Reclamation Project の概略平面図を図3に示す。

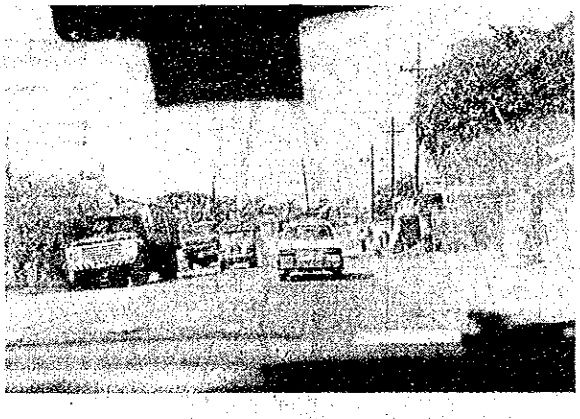
また図－1に示すC5，C6という環状道路は『UTSMMA』で図－4のように計画されているが，調査地域での具体の道路網としての位置づけは未定である。さらに同じく図－1に示すSouth SuperとNorth Superを接続するExpresswayがCDCPによって提案されており，これらの道路構想についても今回の調査において将来道路網の検討の中で考慮する必要がある。



写 真 1

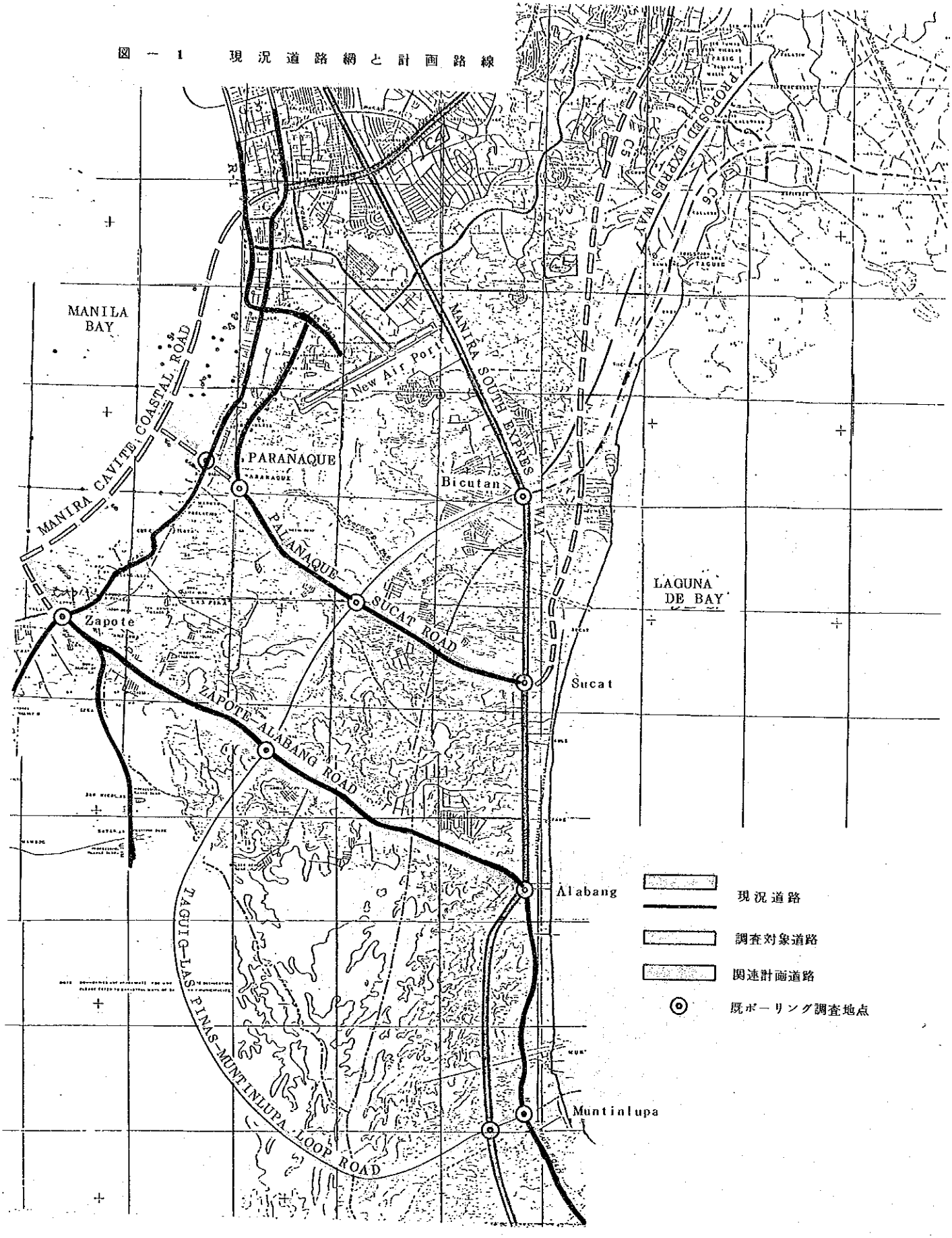


写 真 2



写 真 3

図 － 1　現況道路網と計画路線



SOUTH EXPRESS WAY

CROSS - SECTION

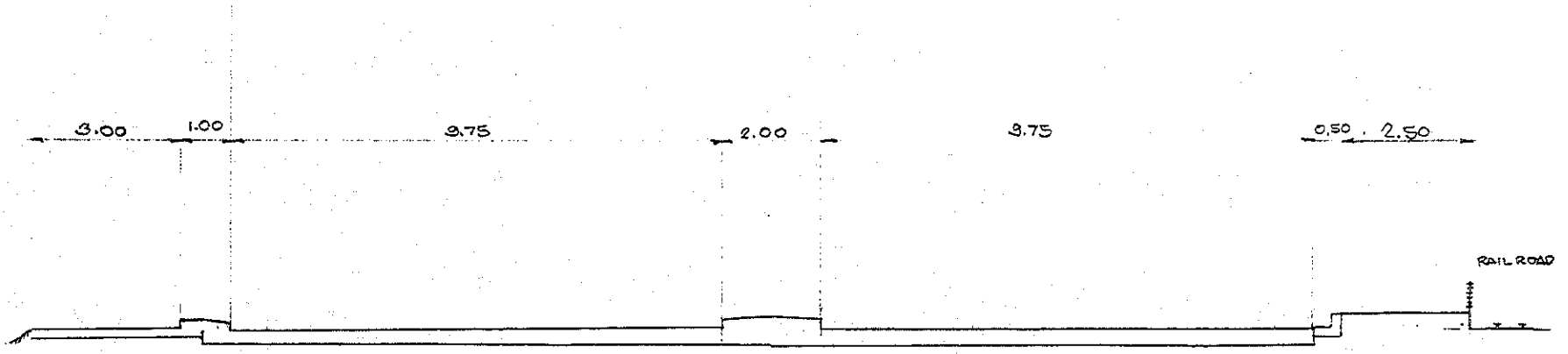


図 2 － A

PARAÑAQUE - SUCAT ROAD

CROSS - SECTION

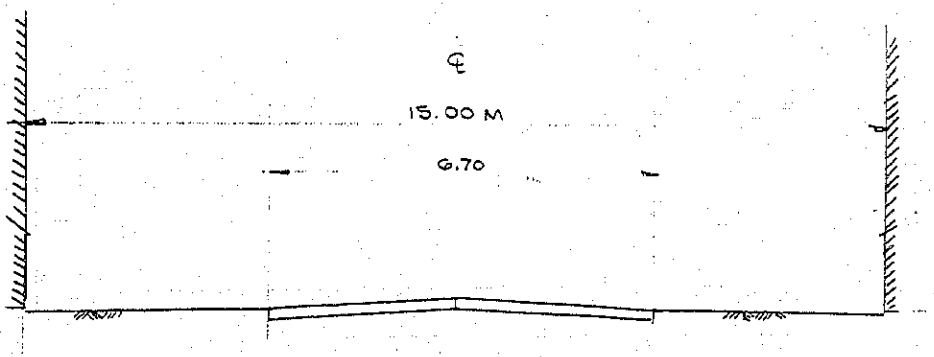


図 2 － B

ZAPOTE - ALABANG ROAD
CROSS - SECTION

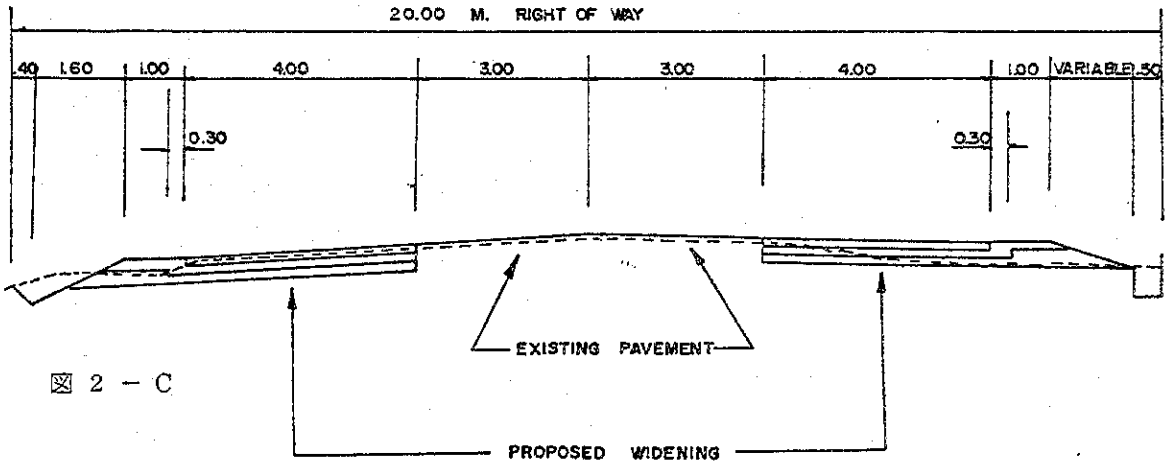
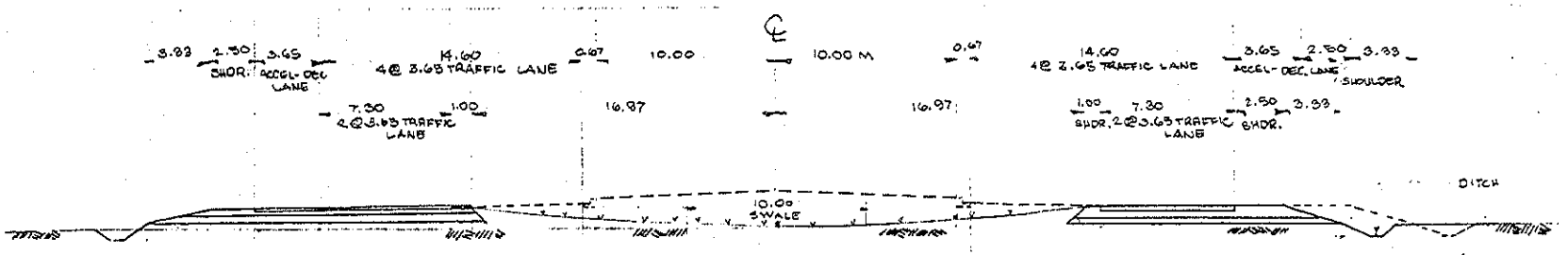
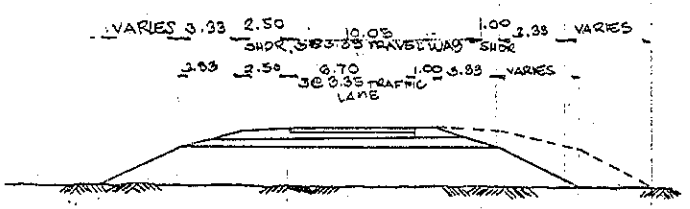


図 2 − C

MANILA - CAVITE COASTAL ROAD.
CROSS - SECTION



ULTIMATE STAGE



FIRST STAGE

図 2 − D

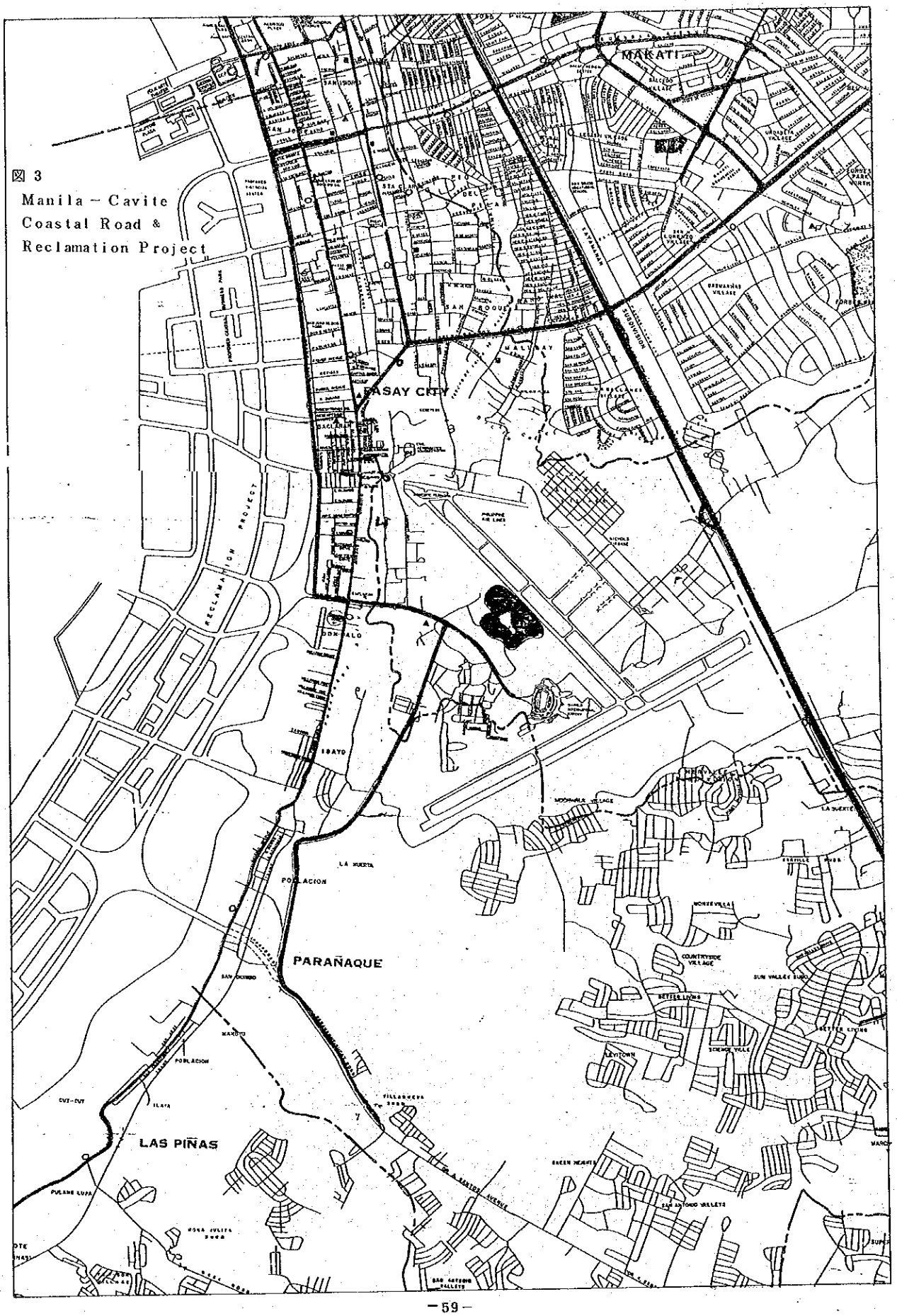
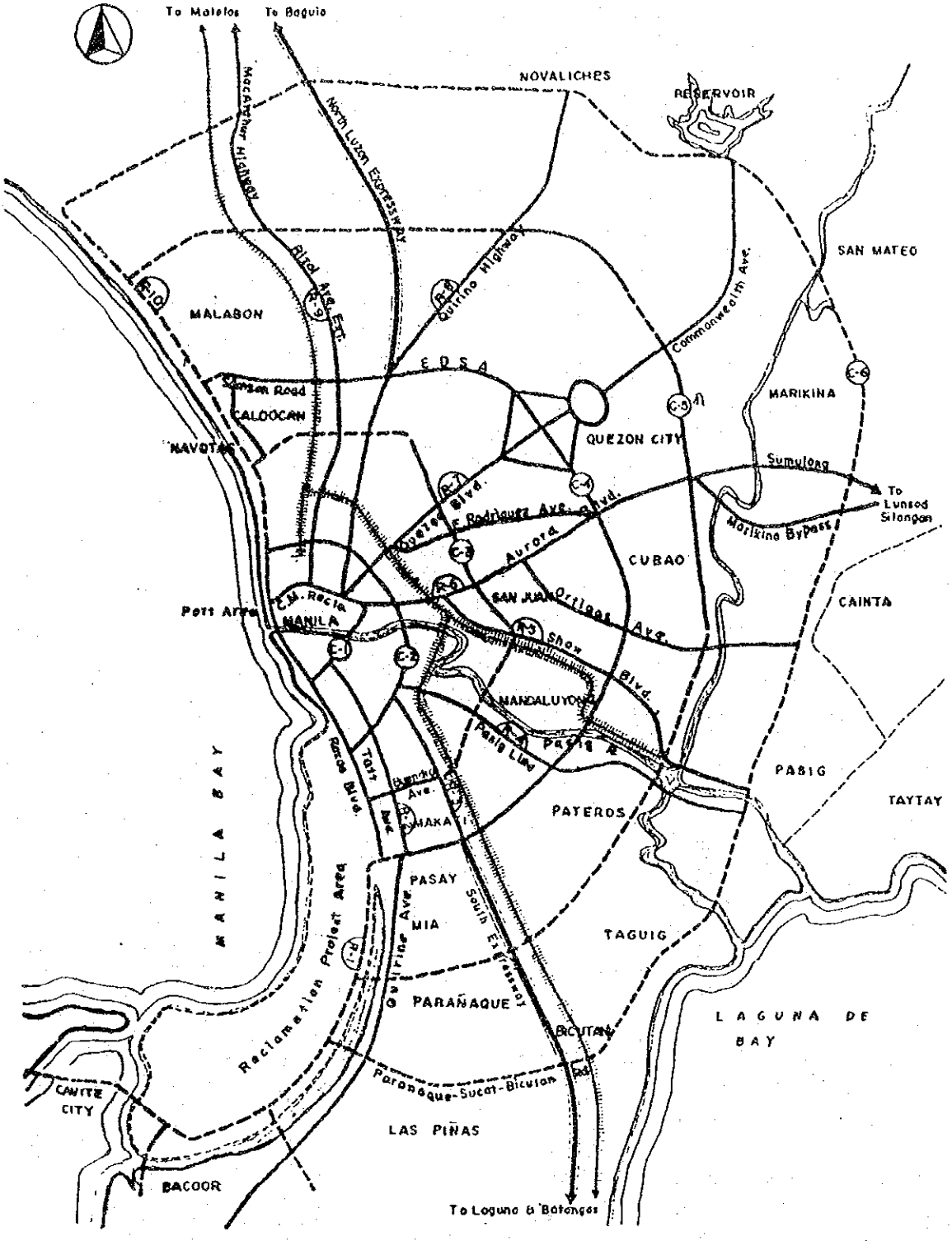


図 3
Manila – Cavite
Coastal Road &
Reclamation Project

図－4　METRO MANILA道路計画図

Figure 2-2
MAJOR ROAD AND COMMUTER RAIL NETWORK
METROPOLITAN MANILA AREA



2. 土地利用と関連開発計画の状況

(1) 土地利用の状況

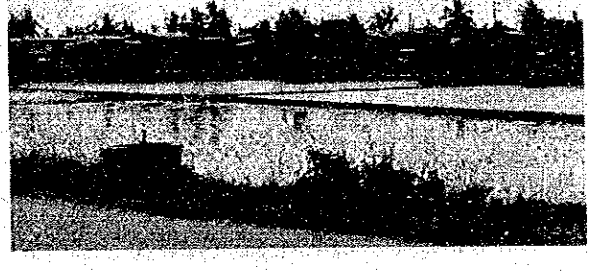
a. Metro Manila の５０㎞圏外に工場を分散させるという政府の方針があり，調査地域では主として住居地域としての利用が支配的であり，今後もその方向の地域開発が予想されるが，南北方向の主要幹線道路であるManila South Expresswayの沿線には相当数の企業（電気，自動車，食品等）が貼りついており土地利用の将来構想としては，この沿線に限り環境対策等に十分配慮すれば適正な工場立地も有効な政策ではないかと思われる。

b. Metro Manila の１９７５年策定の土地利用計画はMinistry of Human Settlement より販売されているが，現在MMETROPLANで示された土地利用計画をMetro Manila Commissionで見直し中であり，これらを十分配慮する必要がある。

c. 調査地域における宅地開発は図５に見られるように幹線道路にアクセス道路を介してVillage がぶらさがる形態であり，幹線道路の沿道には一般住宅はそれ程貼りついていないし，Village 内には通過道路が入り込まないように計画されている。

d. 計画道路の一つであるLoop RoadとManila South Expresswayが Muntinlupa 付近で交差する付近に『図６』に示すようなSusana Heights という宅地開発計画があり，建設中である。この計画の中の主要道路をLoop Road の一部として使うことをＭＰＨ側では検討している。この他Loop Road の計画線上には数多くのVillageがあり，完全にこれらを避けて道路を計画することは，非常にむずかしいと考えられるので環境対策等に十分配慮することが重要である。

e. 調査地域の西部に写真４に見られるようなFish pondや塩田がQuirino AuenueやParanaque－Sucat Road 沿いに広がっている。このような土地利用が今後とも残されるか或いは宅地化されるか，前記の土地利用計画等を参考として十分調査する必要があろう。



写 真 4

(2) 関連開発計画の状況

調査地域における関連開発計画については Ⅷ の「関係資料」に示されているＣＩＦ（Capital Investment Folio）にその概要が記載されているが，その中で主要なものとしては，

a. Manila International Airport

b. Manila－Cavite Reclamation Project

c. Paranaque Spillway

d. Laguna de Bay Development Project

があり，これらの開発計画について，今回の調査を進める上で十分配慮する必要がある。

3. 道路交通の状況

(1) 一般道路の状況

調査地域における主要道路の日交通量等のデーターはないが，現地調査の限りでは，西部の Quirino Avenue と東西道路へそれに接続する付近の人家連担地域において一般的な交通混雑がみられる他はそれ程の交通量もなく，現状では２車線で対処できる状態である。

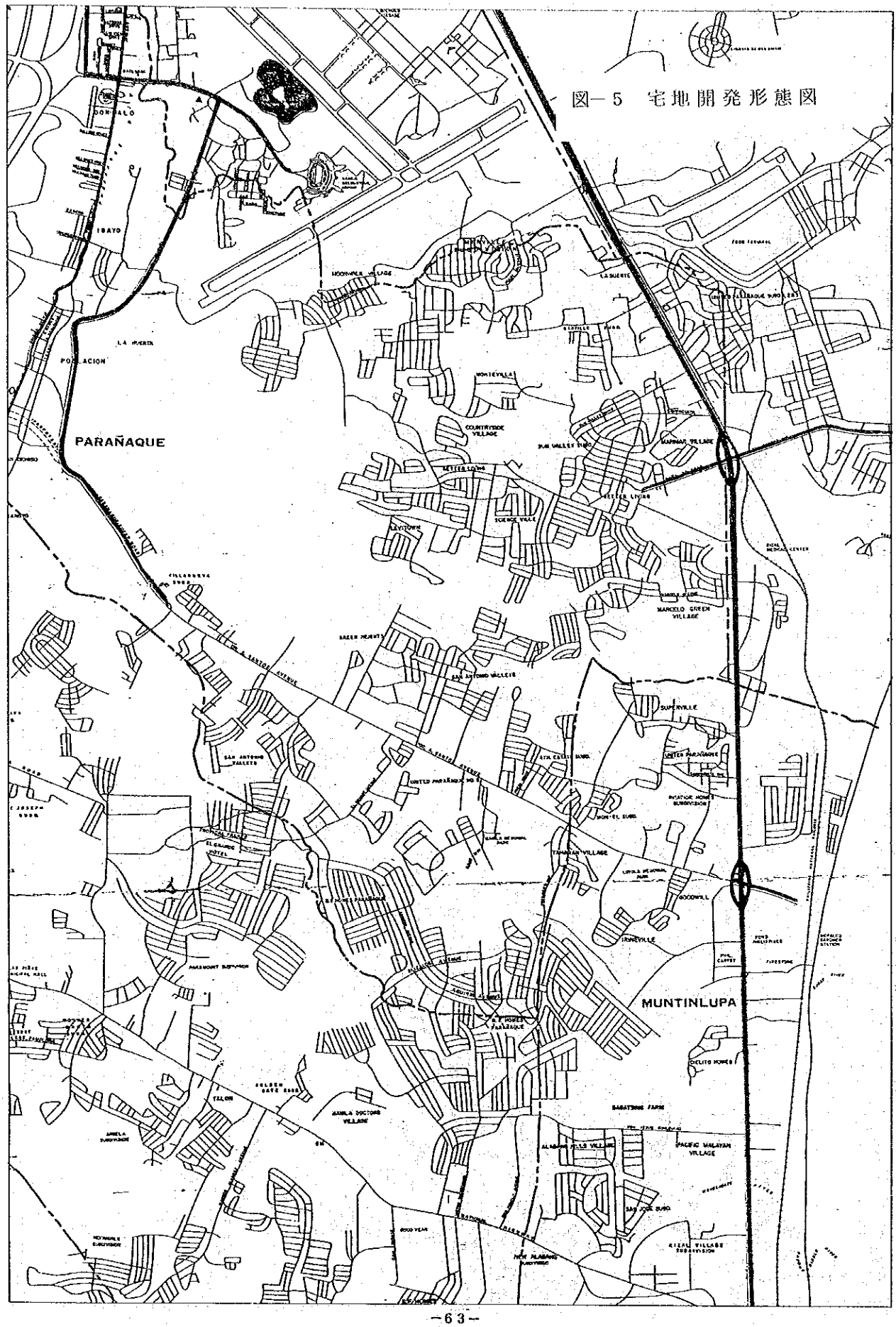
ただ人家連担地域においてはバスやジプニー（写真５）の利用が多く，特にジプニーは一応決った停留所があるが乗客が居ればどこにでも停るという状態で，その乗降により道路容量が著るしく低下していることによる交通混雑が各所でみられたが，これは道路計画をする上での特殊条件として何らかの配慮が必要である。

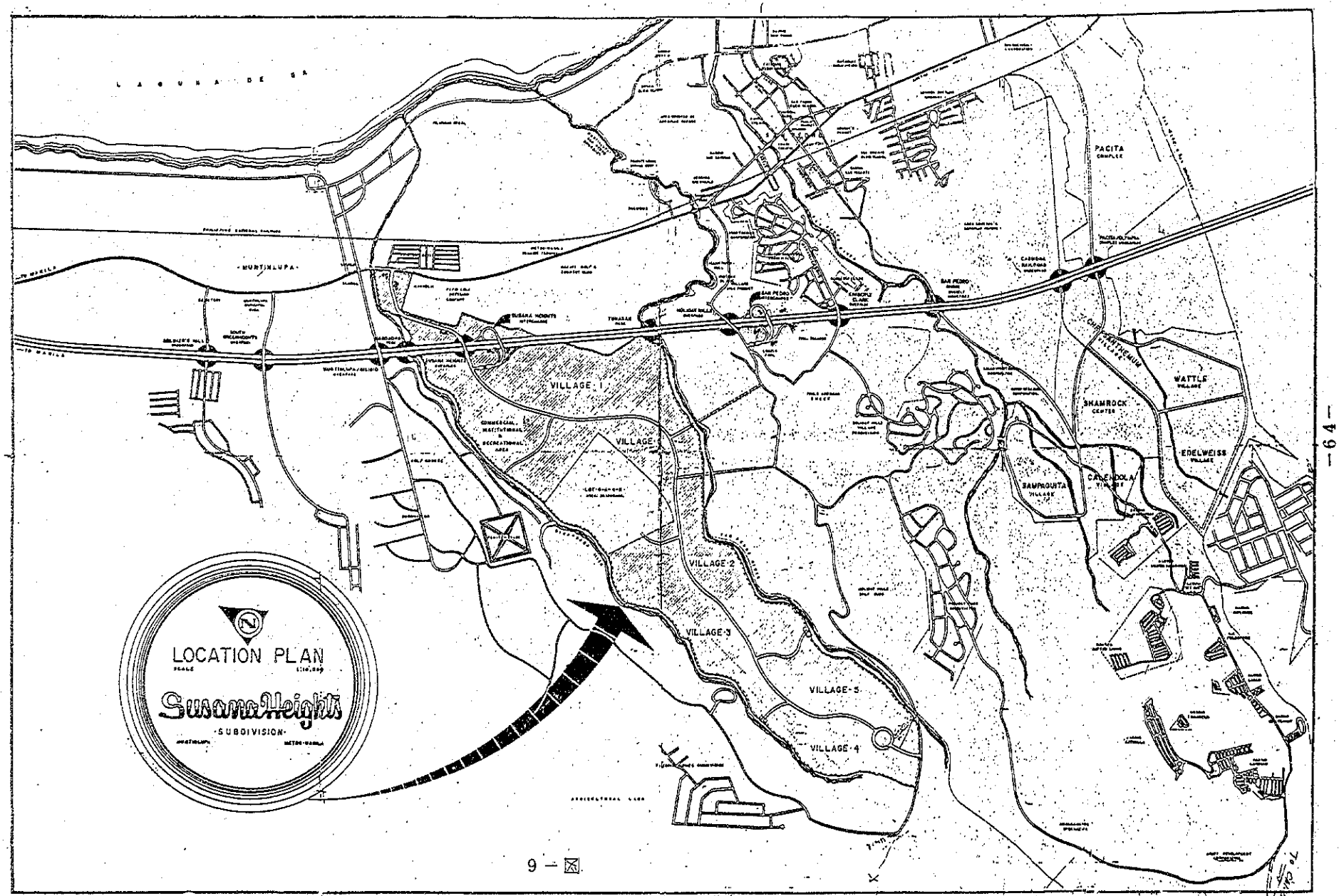
(2) 高速道路の状況

Manila South Expressway の交通状況としては，Metro Manila の中心部から Alabang I.C までは割合交通量もあるが，それ以南はそれ程交通量はない。また側道は地域内道路として有効に利用されている。

写 真 5

図－5　宅地開発形態図




LAGUNA DE BA
MUNTINLUPA
PACITA
VILLAGE 1
VILLAGE 2
VILLAGE 3
VILLAGE 4
VILLAGE 5
WATTLE
SHAMROCK
EDELWEISS
SAMPAGUITA
LOCATION PLAN
Susana Heights
SUBDIVISION

4. そ の 他

(1) 調査地域の地質，土質条件は概む丘陸地域で，既存の資料から概略を類推する限り，ほとんど問題になることはないと思われるが，西部のFish pond 付近の道路計画に際しては既存のボーリング資料（図1に既存のボーリング地点を示す）を利用する他，今回の調査の中でも新たに必要な箇所においてボーリング等を行い，道路構造について十分配慮する必要がある。

(2) Metvo Manila を対象として，現在ＭＯＴＣでバス網の見直し計画が検討されている他Home Interview 調査が進められており，これらの調査がまとまれば今回の調査にも大いに参考となると思われるが，現在の調査スケジュールでは残念ながらこの結果は利用できないと思われる。

(3) MMETRO PLANの中でLRT（Light Rail Transit）の計画が報告されている。現在Metro Manila における旅客輸送は大部分が自動車の利用であり，このＬＲＴの導入により，長期的な見通しとして，旅客輸送の機関分担が改善されることが期待される。

Ⅶ　本格調査への提言

1. 過去の調査との関係について

本調査の遂行にあたっては，マニラ都市圏で行なわれた過去の交通調査（UTSMMA．地下鉄１号線調査，MMETRO PLAN，C−3，R−4，R−10等々）の成果を踏えること。特に，南地区におけるC−5，C−6の位置付けについてはいくつかの変遷を見ているので，その間の事情を把握する必要がある。またフィージビリティ・スタディの内容についてはマニラパターン道路調査及びC−3調査を参考とすることにならざるを得ないのでレポートに記載されていない部分も含めて事前に十分把握しておかねばならない。

2. 交通量予測について

M.O.T.Cによる Home Interview によるパーソントリップ調査は１２月に実査を終り３月までに粗集計がでることになっている。抽出率が2.5％と前回の１％を上回っているので，スケジュールさえ合えば，本P.T調査結果を予測のベースとすべきである。しかしながら粗集計が出るようになってから将来ＯＤ表の作成までには，相当の費用と時間を要し，本調査での利用は断念せざるを得ない。

そこで，実際にはMMETROPLANで用いられた現況及び将来のO.D表を基本とせざるを得ない。ただしMOT.Cではバスの調査のためにより細かい zone での現況ＯＤの推計を１２月を目途に進めており，これを利用することも考えられる。

また，新しいP.T.調査については，スケジュール的に間に合う範囲で，結果を吟味し，将来推計に利用すべきである。

いずれにしても，将来指標についてはMMETROPLANを目安とすることになる。

3. 路線選定について

比側は，C−3に関する公聴会の経験から路線の選定に強い関心をもっている。複数の代替路線についての評価項目別の評価を行うことはできても最適案の選定は総会評価の分野にない比側の考え方が主体とならざるを得ない。したがって路線選定にあたっては，あらかじめ，どのような評価項目にウエイトがおかれるのかを十分に把握したうえで，最適案への絞り込みが分りやすく説明できるような代替ルート群をセットすべきである。

4. カウンターパートの教育について

本調査の目的の１つとして，カウンターパートに対する技術移転があり，その為に現地での作業を主体とすることになっている。過去にも同様な方式での調査がなされたが実際

には，調査担当者が忙しい為に，十分な教育が行なわれなかったこともあったようである。

そこで，本調査の担当者に対しては，例えば2週間に1回，カウンターパートとのミーティングを持つことといったなんらかの義務付けを行なっておくことが望ましい。

Ⅷ 関 係 資 料

1. 比国側の組織

本件調査の比国側担当省庁は，Ministry of Public Highways（MPH）であり，その担当部局は，Special Project Service（SPS）である。

MPHの組織は下図のとおりである。なお，現在のところSPSのヘッドは，Bureau of Construction（BOC）のヘッドが兼任している。

2. 資　　料

本件F／Sに必要であり，かつ使用可能と思われる資料は次のとおりである。

1. Aerial Photograph

a. Metro Manila 全域について，1978年12月撮影の1／5,000航空写真が存在する。

b. また，Metro Manila をはずれる南部地区については，1976年撮影の1／15,000航空写真が存在する。

c. これらは，Cultural Ceuter of the Philippines（CCOP）より販売されている。（見積りあり）

2. Topographical Map

a. Metro Manila 全域の道路網図，ゾーン図等には1／25,000 地形図（Metro Manila－North Sheet，South Sheet）が使用できる。

Philippine Coast & Geodetic Survey より市販されている。

b. 今回の事前調査では，計画，構想段階にある道路を記入した1／25,000図をMPHより提供された。

c. またPhilippine Motorist's Road Map（1977年第7版）が，Petrophil Corporationより出されている。これには，マニラ湾の埋立計画が記載されている。

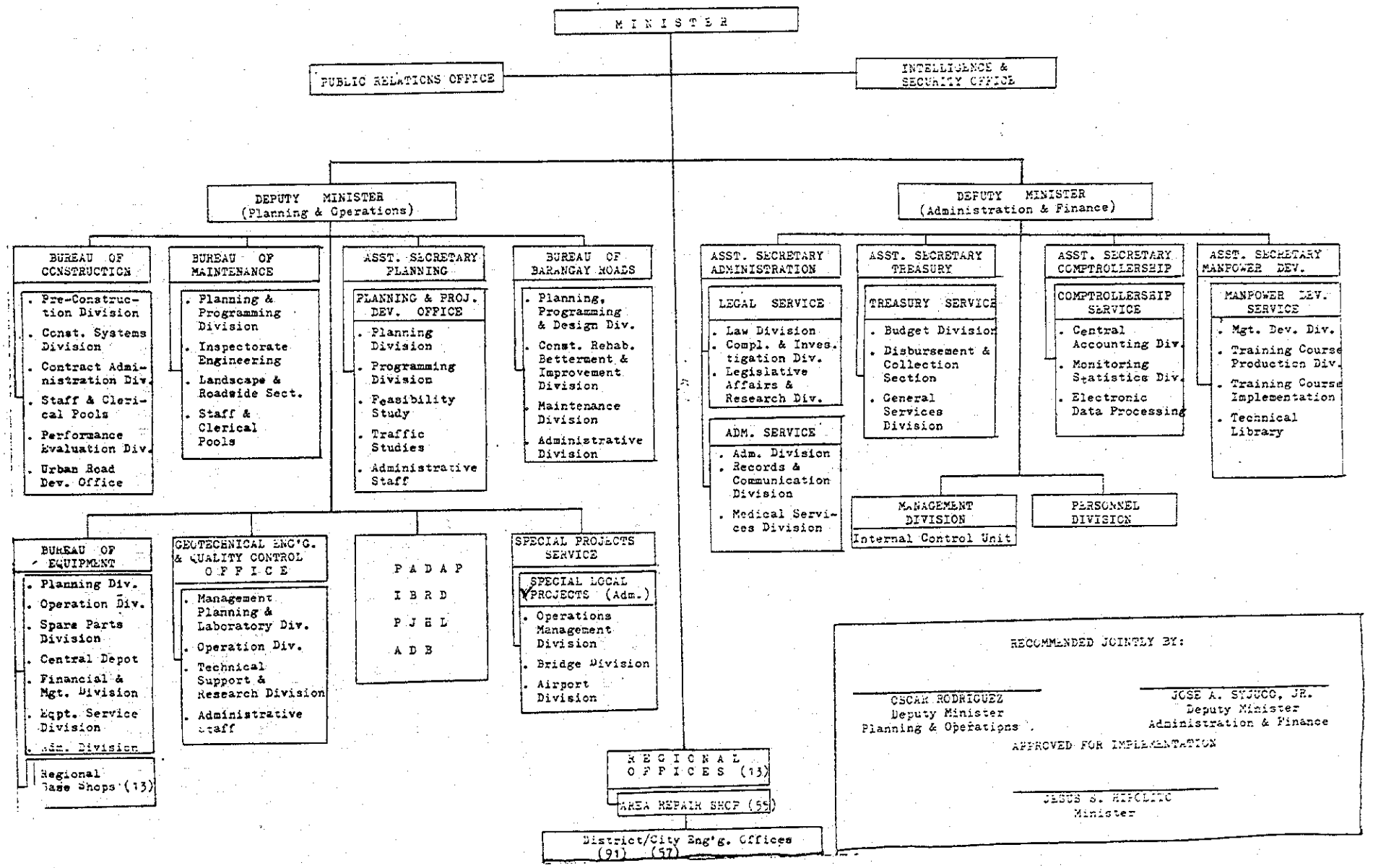
3. OD－Tables

a. OECFのメトロマニラバス改善計画に関連して，Ministry of Transport & Communication（MOTC）により，交通計画の検討が進められており，この中で，MMETROPLANのP.T. OD－Tables を補正する作業が行われている。この作業は81年1月末に完了予定なので，現況OD表として使用可能と思われる。

b. なお並行して行われているHome Interview Surveyの結果は本件F／Sには間に合わないと思われる。

c. MMETROPLAN－Vol. 1,2はMPHの中のPlauning & Project Development

MINISTRY OF PUBLIC HIGHWAYS
ORGANIZATION CHART



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APPROVED FOR IMPLEMENTATION

JESUS S. HIPOLITO
Minister

Office（PPDO）にも保管されている。

4. Environmental Law

a. 環境関係の法令を集大成したPhilippine Environmental Lawが，National Environmental Protection Councilより出されている。

b. 環境影響評価書の例としては，Detailed Engineering Services for the Improvewent and Widening of Imelda Marcos Avenue , Metro Manila , Environmeutal Impact Statement Report（EIS），1980年，MPHがある。

c. aについては，PPDO，bについては，SPSに保管されている。

5. Development Plans

a. Metro Manila に関係する開返計画をまとめた冊子がOffice of the Commisioner for Planningより，80年10月に出されている。以下のとおり

① The Capital Investment Folio.

② Project of National Agencies in Metro Manila

② the Capital Investment Folio

③ Manual on Capital Investment Folioいずれともppdoにも保管されている。

b. スタディエリアの中で行われている民間のVillage開発の例として，SPSより，Susana Heights造成計画図が提供された。

c. マニラ湾の埋立計画である，Manila－General Development Plan(MCCRRP. 1977年)は，現在Construction & Develspment Csrporation of the Philippines（CDCP)によって一部修正中である。

現計画図（1／10.000，1／25,000）はSPSにも保管されている。

d. 南北を高速道路によって連絡する計画として，1980年6月に，CDCPより，F／S Proposed Metro Manila Expresswoy Bicutan－Marikina－Meycauayan Final Report (Drawing Vol , Appendix Vol)が報告されている。SPSにも保管されている。

6. Soil Data

南部地区で行われている各種Projectsに関連してボーリング調査が行われている。ボーリング位置は，2－bの1／25,000図にプロットされている。

7. National Census

5年毎に行われており，最新は1980年調査である。現在集計中であるが基本集計は終了している模様。

ＮＥＤＡのBureau of Census and Statistics(ＢＣＳ)が担当。

8. ＮＥＤＡ－ＯＥＣＦ Form

Implementation Programのまとめ方については，１９８０年にＭＰＨが作成したImplementation Program Report of the Metro Manila Major Roads Project, Package Ⅰが参考になる。

9. Land Use Plan

１９７５年策定の土地利用計画は，Ministry of Human Settlement(ＭＨＳ)より販売されている。