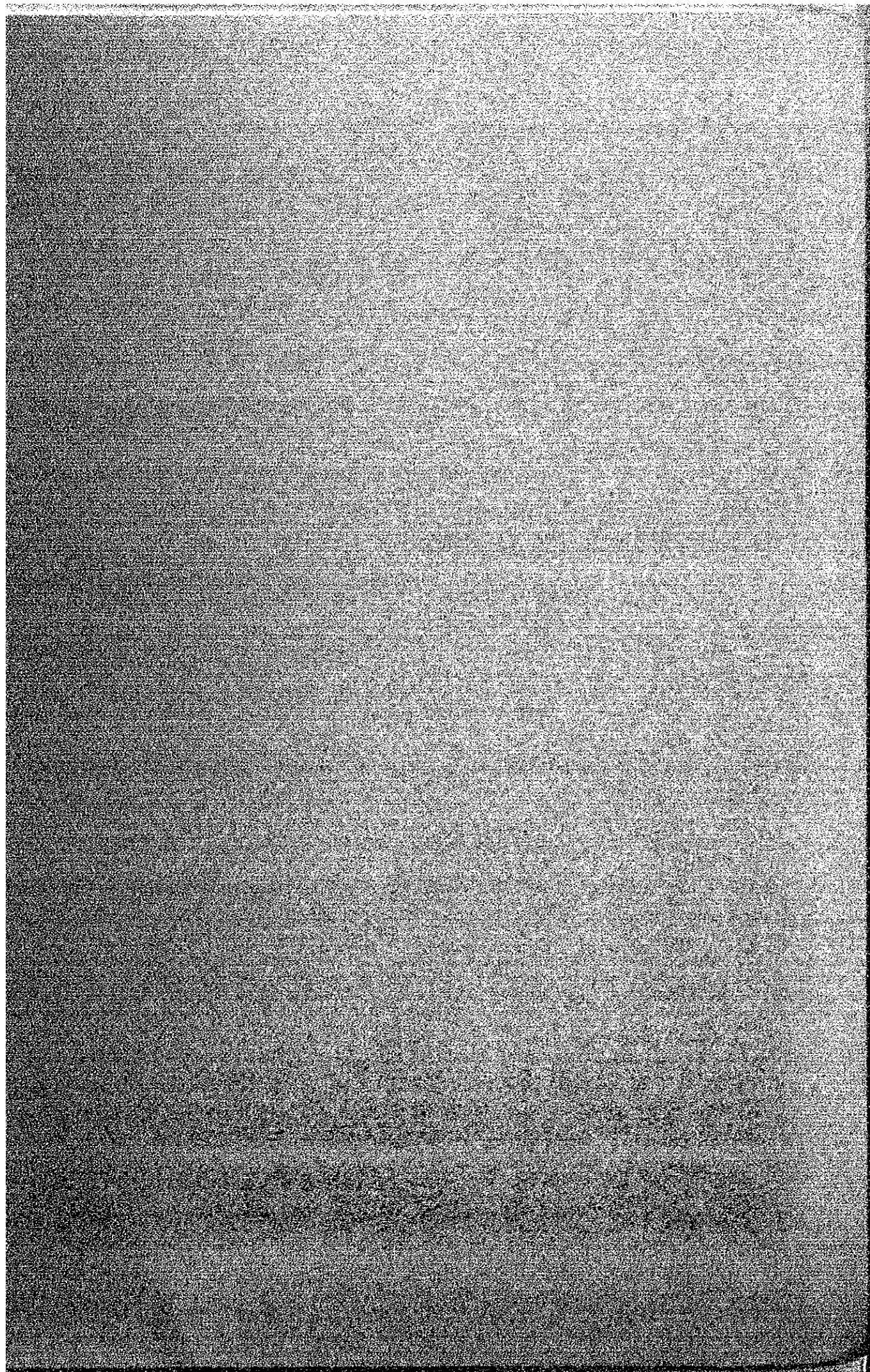


CHAPTER 12

CONCLUSION AND RECOMMENDATIONS



Chapter 12 CONCLUSION AND RECOMMENDATIONS

12.1 Importance of the Project

In recent years, the rapid population growth, the urban expansion, and locations of new enterprises registered remarkable growth in the southern part of Metro Manila. The development in the area is expected to continue in the future since the area is designated as one of the areas in which further urban development should be implemented systematically. The DIZ covers the southern part of the north-south plateau of the Metropolis, in which urbanization is expected further in the future, and the agricultural area which, being located at the southern mid-land of the DIZ, will be maintained to produce palem, sugar cane, etc., as it has in the past.

The following are the major public projects under construction and/or under study in the area. The Project Roads would play an important role to expedite the effects of these projects, resulting in the economic development of the DIZ.

- Cavite Friar Lands Water Resources Development
- Manila International Airport improvement
- The widening of Imelda Avenue from MIA to Paranaque-Sucac Road
- The widening of Zapote-Alabang Road
- Manila-Cavite Reclamation and the construction of Manila Cavite Coastal Road
- Metro Manila Expressway
- Industrial and Export Processing Zone in Rosario
- Resettlement projects in Carmona and Dasmarinas
- Commuter Service Project of the Philippine National Railways.

The main road network in the DIZ serves to connect the area with the central part of Metro Manila and connect the zones along Manila Bay with Laguna Lake. However, caused by the increasing traffic demand generated by the development of the Metropolis, the roads have been under strenuous need for the improvement.

The existing Paranaque-Sucac and Zapote-Alabang Roads, east-west connectors in this area, are congested with their traffic. There exist two trunk roads, Quirino Avenue and South Luzon Expressway, linking the north and the south. However, the traffic volume of the former road has already exceeded its capacity and part of the latter is reaching its full capacity. Likewise, traffic is increasing steadily in the area. The Project Roads will certainly alleviate the congested traffic on these roads. In addition, with provision of new trunk roads which is also urgently required, the Project Roads would contribute to the economic development of DIZ.

Since future traffic volumes on C-Route linking the north and the south and A- and B-Routes linking the east and the west are forecasted

to increase rapidly, earlier possible provision of the three Project Roads is very important to meet the increasing traffic demand. To cope with the future traffic increase, provision of related trunk roads as well as the Project Roads are urgently needed, since it is clear that the overall development of Metro Manila will partly depend on the provision of trunk road network in this area.

A- and B-Routes will be provided as improvement of the existing Paranaque-Sucot Road and Zapote-Alabang Road. In the past few years, the development of the adjacent area as residential, industrial and commercial areas along these existing roads are remarkable, and it can be felt from the investigation that the number of houses and buildings has rapidly increased along the existing roads. Open spaces which are able to be seen along the existing roads at present will soon be taken up for use. From the standpoint of road right-of-way, the earliest possible land acquisition and succeeding implementation of the Project is recommended.

12.2 Overall Evaluation of the Alternative Plans

Alternative Plan 2 results in the most economically viable project. However, the Study Team took into due consideration other major features, such as land acquisition, environment, traffic conditions, related trunk road network, staged construction, intersections, etc., and made the overall evaluation of the alternative plans. The overall evaluation is outlined in Table 12.2-1 for comparison of the alternative plans. The following are merits and demerits of each plan.

12.2.1 Alternative Plan 2

The plan, which requires the lowest cost for the first stage construction, producing the highest IRR, will not improve B-Route for a while, giving rise to certain traffic congestion probably in the early 1990's.

Under this plan, land acquisition for the right-of-way of B-Route will be completed by 1987 in preparation for the widening in the second stage.

The related trunk road network is limited to the minimum under this plan, which proposes for the implementation of Imelda Avenue Extension and MME before 1994 and the southern part of C-5 and other associated roads beyond 1995. In the absence of C-5, a great volume of traffic would result in congestion at the Bicutan Interchange. Under this plan the Alabang Intersection with B-Route will remain unimproved until 1994.

12.2.2 Alternative Plan 1

On the contrary Plan 1 has such merits as to solve the problems encountered in Plan 2, and it produces the highest B/C ratio, but with the second highest initial investment

TABLE 12.2-1 COMPARATIVE OVERALL EVALUATION OF ALTERNATIVE PLANS

COMPARATIVE ITEM	ALTERNATIVE PLAN 1	ALTERNATIVE PLAN 2	ALTERNATIVE PLAN 3
ECONOMY			
B/C Ratio (i = 15%)	3.7	3.3	3.1
IRR (%)	39	40	37
Present Worth of Project Cost (1983-1994)(i = 15%) Initial Cost in 1981 prices	$\text{P} 402.6 \times 10^6$ $\text{P} 600.4 \times 10^6$	$\text{P} 334.2 \times 10^6$ $\text{P} 528.4 \times 10^6$	$\text{P} 386.9 \times 10^6$ $\text{P} 677.9 \times 10^6$
SOCIAL			
Land Acquisition	Since land acquisition will be carried out soon after the announcement for the right-of-way of A-Route and B-Route, the affected people can be evacuated at an early date.	Same as Plan 1	Same as Plan 1
Environment	With the traffic flow under the capacity of the roads, the traffic pollution will be below the standards.	B-Route will have excessive traffic volume till 1994, causing traffic congestion. Environmental conditions will be poor.	Same as Plan 1
TRAFFIC			
Traffic Capacity of the Roads	Along the Project Roads, through stages, traffic volume will not exceed the road capacity.	Much possibility of excessive traffic flows on B-Route to cause traffic congestion till 1994.	About same as Plan 1
Related Trunk Road Network	Proposes for the early implementation of Imelda Av. Ext. and the southern part of C-5, by which the users can choose toll roads or toll-free roads to and from Manila.	Same as Plan 1 for A-Route. Temporary widening of B-Route will be carried out in 1982-1983 but afterwards nothing will be done until the ultimate stage of B-Route in 1994. Without early implementation of C-5, the users will have to use a toll road.	Same as Plan 2
ENGINEERING			
Staged Construction	Both A-Route and B-Route will be implemented at the same time and at the same level. Balance between the two roads will be kept for the traffic flow and the services to the roadside residents.	Same as Plan 1 for A-Route. Temporary widening of B-Route will be carried out in 1982-1983 but afterwards nothing will be done until the second stage of B-Route in 1994. Balance in terms of services between A-Route and B-Route is big.	Same as Plan 1
Planning of Intersections	Intersections and grade separations can be synthetically planned according to the traffic demand on both A- and B-Routes through stages.	Alabang Intersection with B-Route will not have been improved until 1994, causing traffic congestion. In the absence of C-5, Bicitan interchange will not be able to manage a large traffic volume.	Too early to provide a grade separation for A- and C-Routes. Same as Plan 2 about Bicitan Interchange.

Note: * Prices do not include the cost for ultimate stage.

cost among the three. B-Route will have reasonable capacity to accommodate the increasing traffic through the stages, with less possibility of giving rise to adverse effects to the roadside residents. Land acquisition will be completed by 1987.

Under this plan the related trunk road network proposes the early implementation of Imelda Avenue Southern Extension and the southern part of C-5, both of which will compete with the planned toll roads, giving the choice of using toll road or toll-free road to the users.

As both A-Route and B-Route will be implemented at the same time and at the same level, the volume of traffic running on both routes will be balanced and the intersections and grade separations for the roads can be planned according to the traffic demand through stages.

12.2.3 Alternative Plan 3

The plan, which requires the highest initial investment cost but with both the lowest B/C ratio and IRR among the three, proposes full scale investment on C-Route. Under this plan, land acquisition, environmental effect and staged construction of the roads are in the same conditions as those under Plan 1, while the related trunk road network and traffic management at the Bicutan Interchange to C-5 have the same problems as under Plan 2.

12.3 Conclusion

From the above discussion on the overall evaluation of the three alternative plans, it is concluded that Alternative 2 is the most viable and realistic solution for the Project.

12.4 Recommendations

1. Earlier Implementation of the Project

The Project should be implemented as soon as possible because of its important function as discussed in the preceding section.

2. The Earliest Acquisition of Land for R.O.W.

Considering the urbanization in the area along the Project Roads, it is very important that the declaration of land acquisition for the future road right-of-way (minimum 35 m) should be made as soon as possible. The land for the road right-of-way should be acquired right after the approval for it is issued as the result of the public hearing. This work is very hard, but if it is delayed, more difficulty and problems will arise.

3. Early Funding

The loan negotiation with bilateral funding agencies and multi-national agencies should commence at the earliest appropriate date.

4. Provision of Related Trunk Roads

As discussed in the previous section, provision of the related trunk roads in the network is as important as that of the Project Roads. Among others C-5, a northern connector to and from the Bicutan Interchange is an important trunk road linking the southern part of MMA with the central and northern parts of MMA. Provision of a new road extending Imelda Avenue southward to Rosario is also very important for the same reason as mentioned above.

Considering the important function of these two roads, the Study Team strongly recommend that the feasibility studies for C-5, Imelda Avenue Extension as well as other related trunk roads should be carried out as soon as possible.

5. Coordination

The Project Roads will guide the regional development in accordance with the development policy of MMC. Close coordination between the Project implementation and the development policy should be maintained.

6. Provision of Service Lanes

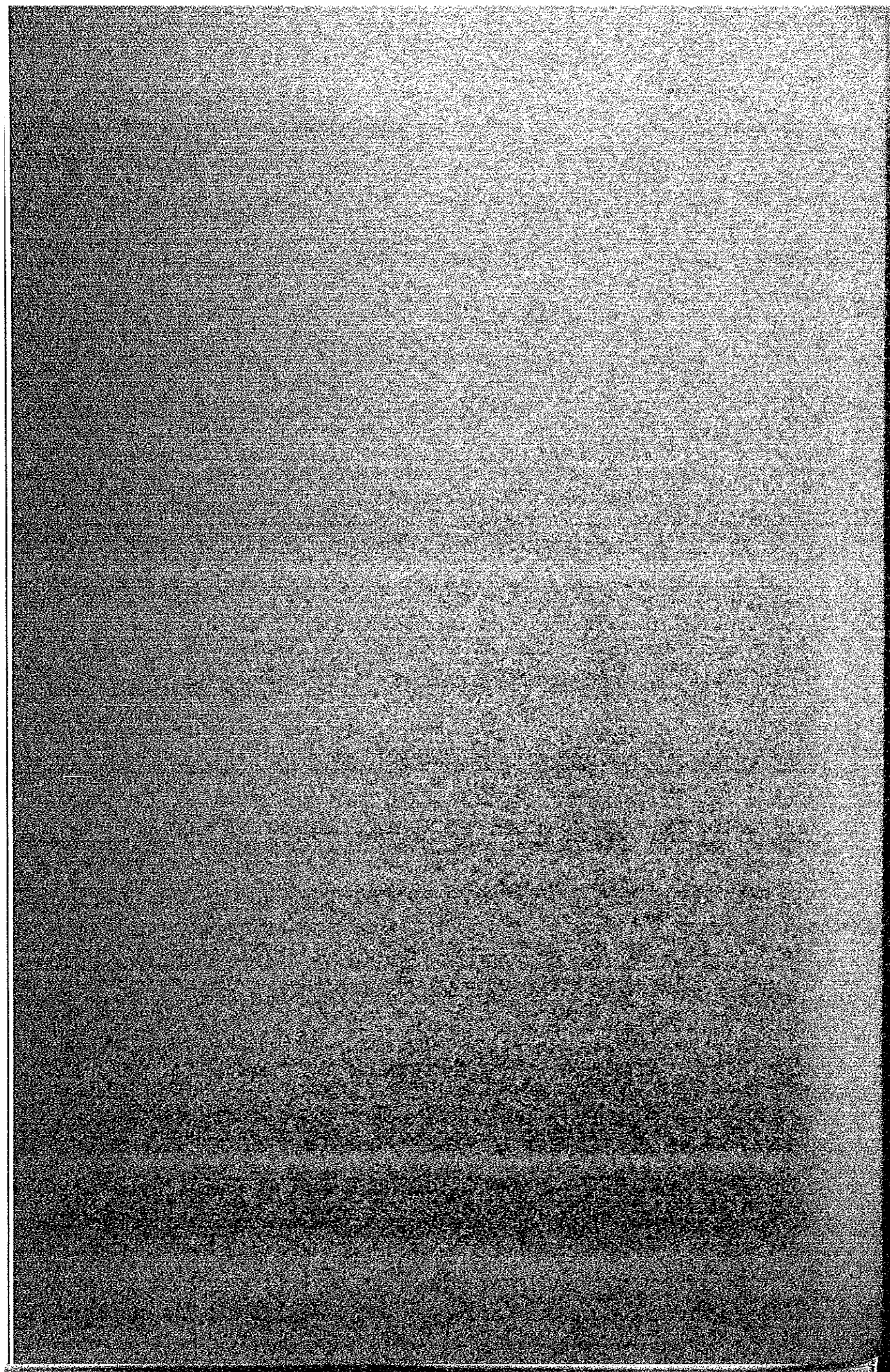
The Study Team observed that uncontrolled parking and stopping of jeepneys and buses on the roadside cause obstruction to the vehicles following them, thus reducing the road capacity around Metro Manila. Sometimes they are even seen stopping on inner lanes. Service lanes for the operation of buses and jeepneys should be provided in order to keep the through traffic smoothly flowing. However, strict regulations should be laid down so that all jeepneys and buses can stop only inside the service lanes, which is very important in order to control the large traffic volume.

7. Traffic Count Survey

In recent years, the traffic growth in the DIZ was not registered well in the traffic count data of the MPWH. The traffic volume should be counted periodically on the roads so that the behavior of vehicular traffic can be monitored.

CHAPTER 13

IMPLEMENTATION PLAN



Chapter 13 IMPLEMENTATION PLAN

13.1 General

In the execution of the Project Roads, it is assumed that the Government will engage contractor(s) through international bidding. As this Project involves construction of high standard urban highways, it should preferably be executed by contractors who have experience in this type of project. The contractors should, therefore, be pre-qualified.

13.2 Construction Schedule

13.2.1 Working Days

In the Philippines, the usual working day is eight hours. However, at construction sites, the average actual working time is found to range from 8 to 10 hours.

Based on the rainfall and stormy days shown in Table 13.2-1, the actual number of working days per month is calculated as follows:

TABLE 13.2-1 ESTIMATED NUMBER OF WORKING DAYS IN A MONTH

Description	Dry Season	Rainy Season
	Jan. - Apr. (4 months)	May - Dec. (8 months)
Average number of rainy or stormy days	4 days/month	18 days/month
Number of Sundays	4 days/month	-
Number of holidays	3 days/month	6 days/month
Number of actual working days	20 days/month	14 days/month
Working efficiency per month	70% (20/30)	45% (14/30)

Therefore, the working efficiency throughout the year is assumed as follows:

$$\frac{192 \text{ days}}{360 \text{ days}} = 55\%$$

To increase productivity in the limited construction period, increasing the working time during the dry season is recommended.

13.2.2 Construction in Stage

The construction of the Project Roads requires large investment due to various design requirements. For this reason and to obtain maximum economic benefit, it is desirable to study the possibility for staged construction to meet the traffic demand instead of completing the final scheme in one

single stage. Each stage involves combination of construction of a new road, widening the carriageways and/or provision of grade separations from at-grade intersections.

13.2.3 Construction Period

The maximum possible total staged construction period of the Roads is estimated as two years.

13.3 Funding and Disbursement

The impact of the disbursement of these plans on the budgetary allowance for highways in National Capital Region and Region IV-A was studied in Appendix Note 13.1. Plan 2 will result in less funding burden than others since a larger amount of investment is proposed in the latter stage.

13.4 Implementation Schedule

After careful study of the data collected during field investigations and of the construction cost estimates of the Roads, it was determined that in the initial stage the improvement of Paranaque-Sucat Road and the construction of the diversion of the western part of Zapote-Alabang Road be executed as one single construction package, and the construction of the northern portion of the Loop Road as another single package.

Before actual construction, it is necessary to carry out preparatory pre-construction work such as topographical survey, soil investigation, detailed engineering design, right-of-way survey, and financial preparation. The period required for such preparatory work is estimated to be about two years. The detailed engineering design for all stages of the Project will take about 24 months and, assuming that at the same time, financial negotiation is successful, right-of-way acquisition which takes four years since the land for the ultimate stage will be acquired can start. The contract for the first stage construction can be approved and awarded immediately after the detailed engineering work. Mobilization for construction can begin after the contract is awarded.

The public hearing to be held for the benefit of the people whose land and property are affected should be ahead of the detailed engineering work.

According to the staged construction schedule and cost estimates discussed in the foregoing sections, it is recommended that the Project be implemented in accordance with the implementation schedule as shown in Fig. 13.4-1. The Project cost is shown in Table 13.4-1 and the corresponding disbursement schedule of the Project financial cost in Table 13.4-2.

FIG. 13.4-1 RECOMMENDED IMPLEMENTATION SCHEDULE FOR THE PROJECT

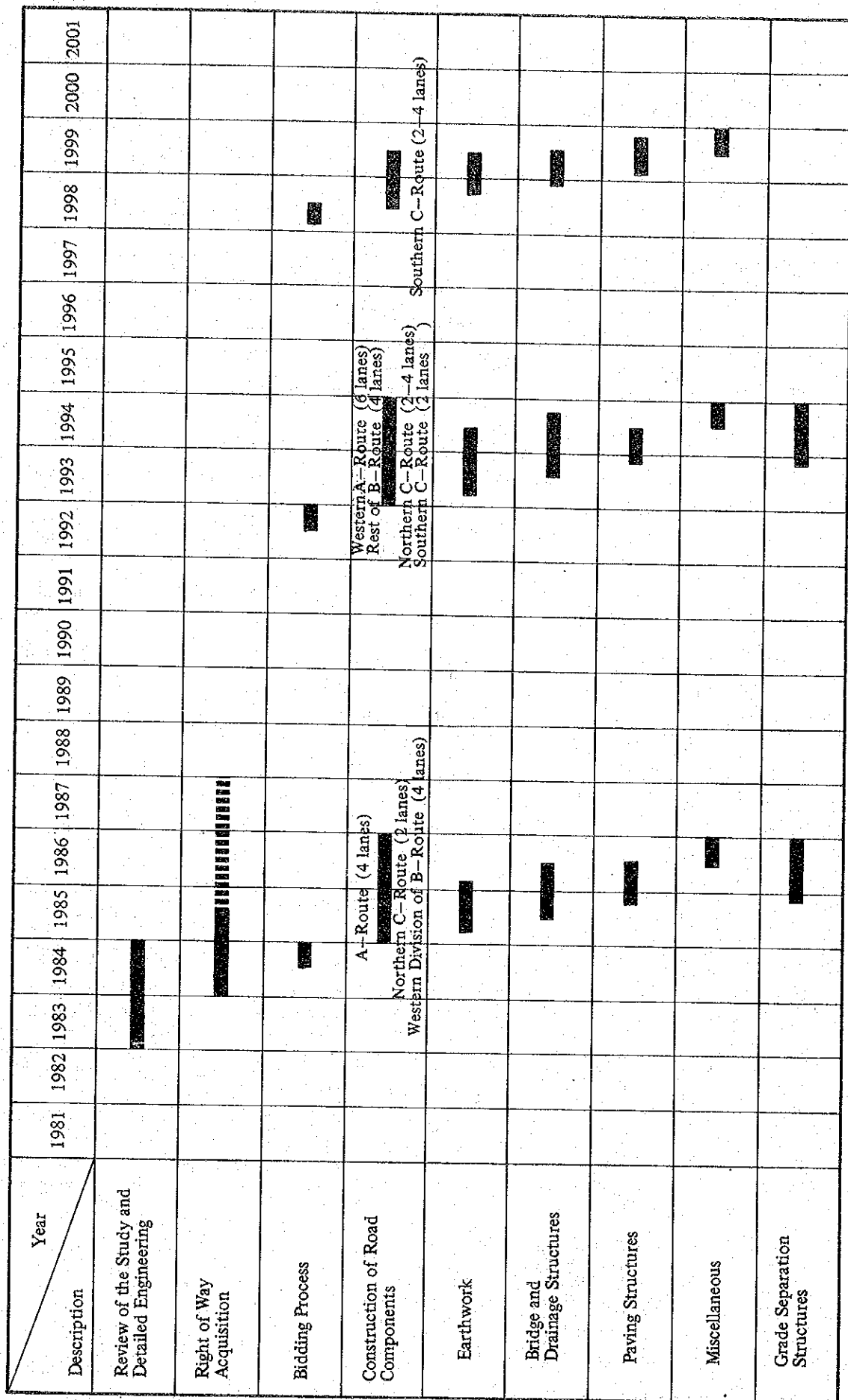


TABLE 13.4-1 IMPLEMENTATION COST OF THE PROJECT UNDER PLAN 2

(Pesos in Thousand, 1981 Prices)

STAGE	ITEM	FOREIGN CURRENCY	LOCAL CURRENCY	TOTAL	TAXES	GRAND TOTAL
1 (1983-86)	Construction	101,397	69,071	170,468	26,643	197,111
	Detailed Design	10,661	7,143	17,804	2,779	20,583
	Supervision	7,098	4,835	11,933	1,865	13,798
	Physical Contingencies	11,916	8,105	20,021	3,128	23,149
	Total	131,072	89,154	220,226	34,415	254,641
	Land Acquisition	—	273,709	273,709	—	273,709
	TOTAL	131,072	362,863	493,935	34,415	528,350
2 (1991-94)	Construction	120,946	82,043	202,989	31,731	234,720
	Detailed Design	—	—	—	—	—
	Supervision	8,466	5,743	14,209	2,221	16,430
	Physical Contingencies	12,941	8,779	21,720	3,395	25,115
	Total	142,353	96,565	238,918	37,347	276,265
	Land Acquisition	—	—	—	—	—
	TOTAL	142,358	96,565	238,918	37,347	276,265
Total	Construction	222,343	151,114	373,457	58,374	431,831
	Detailed Design	10,661	7,143	17,804	2,779	20,583
	Supervision	15,564	10,578	26,142	4,086	30,228
	Physical Contingencies	24,857	16,884	41,741	6,523	48,264
	Total	273,425	185,719	459,144	71,762	530,906
	Land Acquisition	—	273,709	273,709	—	273,709
	GRAND TOTAL	273,425 (34)	459,428 (57)	732,853 (91)	71,762 (9)	804,615 (100)

TABLE 13.4-2 DISBURSEMENT SCHEDULE OF THE PROJECT COST UNDER PLAN 2

(Pesos in Thousand, 1981 Prices)

Item	1983	1984	1985	1986	1987	Total 1993	1994	Total	G. TOTAL
Detailed Design	11,321	11,320				22,641	—	—	22,641
ROW Acquisition		68,427	68,427	68,427	68,428	273,709	—	—	273,709
Supervision and Construction			92,800	139,200		232,000	138,132	138,132	276,265
Total	11,321	79,747	161,227	207,627	68,428	528,350	138,132	138,132	804,615