

6.2.5 Concept Plan of Mode Interchange Facilities for Cubao MIA

The mode interchange area facility integrates the needs of buses, jeepneys, private cars, and passengers in one convenient location. The proposal for Cubao in the long-term period can be considered as a sketch or concept plan. The scheme portrayed in Figure 6.13 and further articulated in Figures 6.14-6.17 are presented here to serve as a consolidated guide to public and private groups and individuals who may have anything to do about Cubao's future. As concept plans go, they are supposed to undergo further refinements before implementation. The proposed plan basically aims:

- to develop a pair of terminals both sides of EDSA to improve accessibility of public transport passengers and vehicles to Cubao area, and, at the same time, to remove the existing traffic bottlenecks along EDSA, Aurora Blvd., and at their intersection
- to encourage more intensive and efficient use of limited land in CBD areas
- to encourage expansion of commercial/business areas in Pinatubo area to meet future needs in a balanced manner

Other concepts supporting the plan are as follows:

- to minimize walking and facilitate interline and intermodal transfers, the two terminals are to be connected by an overpass and pedestrian deck or skyway
- ground level is mostly reserved for transportation activities while upper levels are for multi-storied commercial/business facilities

The scale of proposed development includes provision for parking or layover areas, queueing lanes, loading/unloading bays, administrative and rest rooms. Thus, on the Arayat-Pinatubo side, about 8,400 square meters will be required to accommodate present and future demands. The land use and size of facilities are estimated as shown in Table 6.3.

Table 6.3
Estimated Space Required
for Cubao MIA

	Araneta Centre Side (sq.m.)	Pinatubo side (sq.m.)	Total (sq.m.)
A. Terminal Space			
1) Jeepney Terminal ^{1/}	7,500	7,400	14,900
2) City Bus Terminal ^{2/}	2,700	3,300	6,000
3) Provincial Bus Terminal ^{3/}	2,100	—	2,100
4) Administration/Service Facilities	1,000	1,000	2,000
Sub-Total	13,300	11,700	25,000
B. Road Space	1,100	1,000	2,100
C. Building Space	—	1,500	1,500
D. Others ^{4/}	1,100	1,200	2,300
TOTAL	16,500	15,400	30,900

^{1/} Comprising unloading berth/loading berth/waiting space of 15/31/92 for Araneta Centre side and 14/29/85 for Pinatubo side.

^{2/} Comprising 14 bus bays each on both sides of EDSA.

^{3/} Comprising 6 berths.

^{4/} Medians, open spaces, etc.

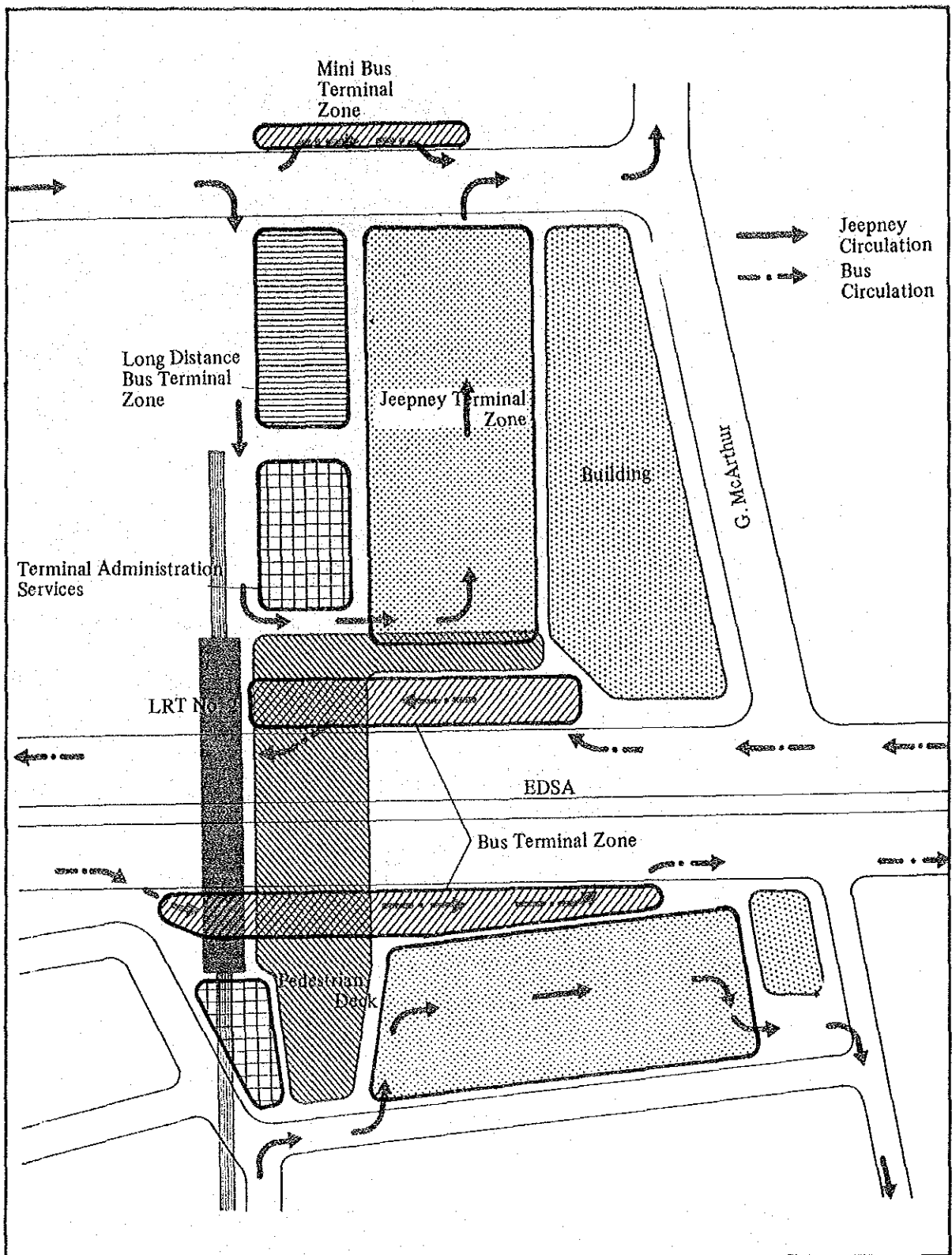


Figure 6.14
Zoning Plans of Mode Interchange
Facilities for Cubao MIA

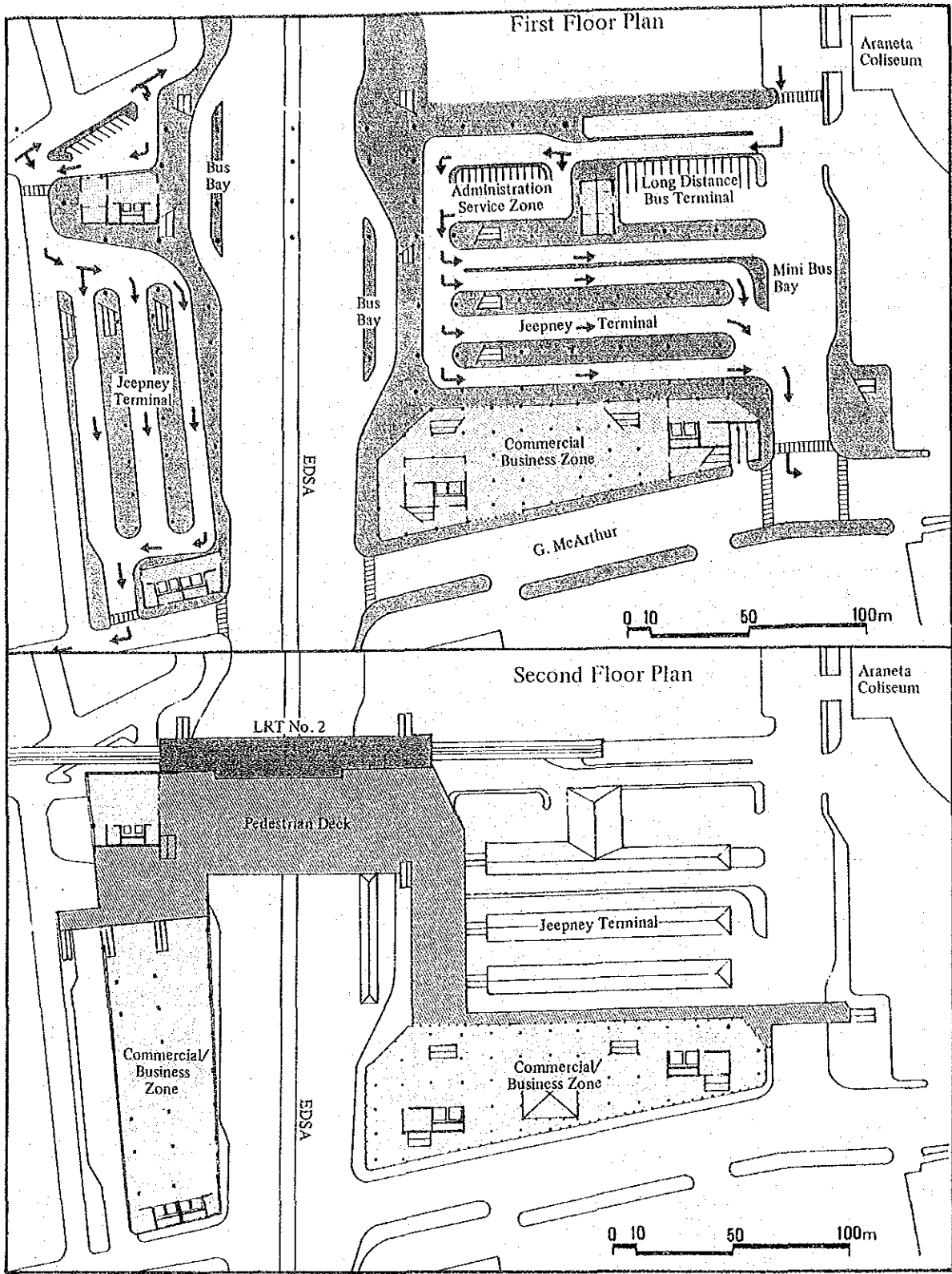
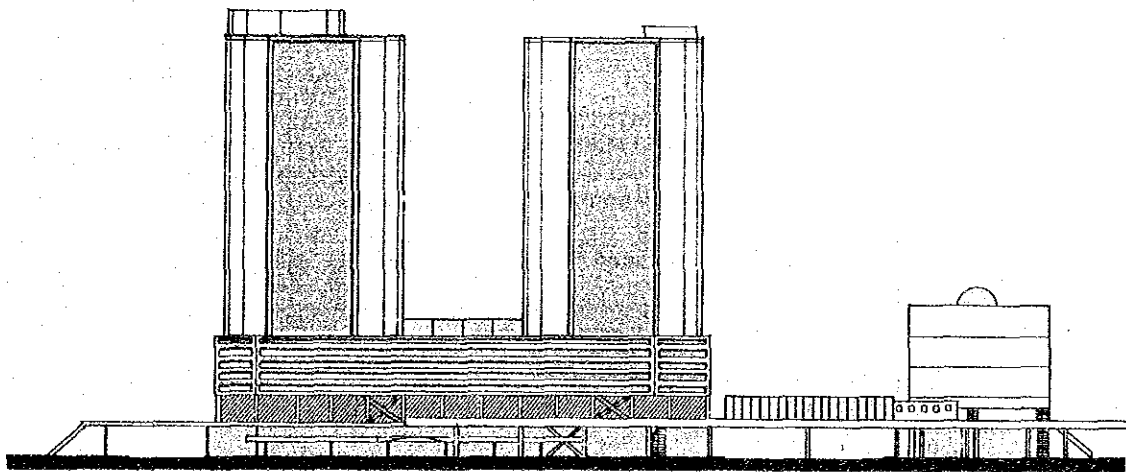
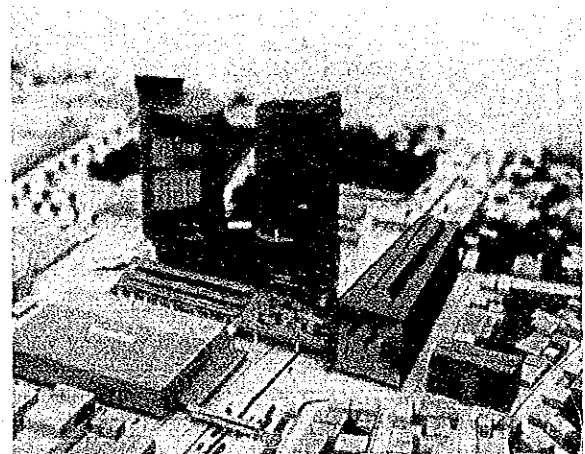
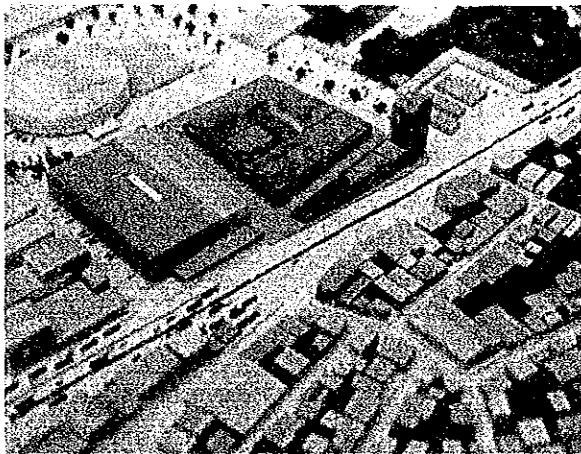
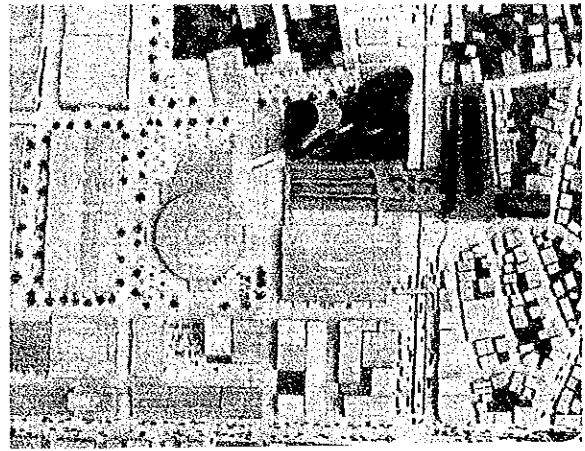
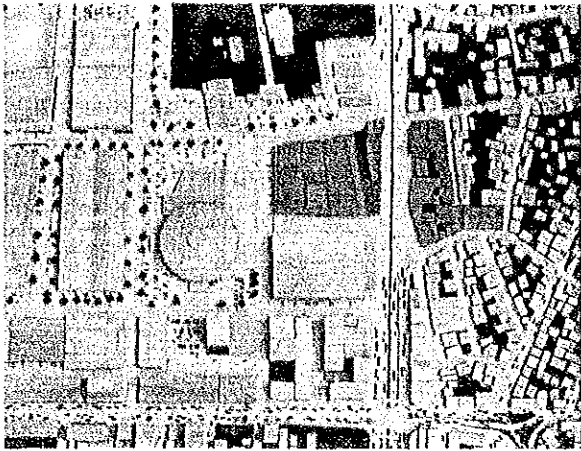


Figure 6.15
 Ground Level Plan of Mode
 Interchange Facilities for
 Cubao MIA

Figure 6.16
Images of Mode Inter-
change Facilities for
Cubao MIA



Section/Elevation Plan of Mode
Interchange Facilities for
Cubao MIA

6.2.6 Summary of Recommended Actions

Table 6.4 gives a summary of the recommended actions over the different time periods for the improvement of Cubao MIA. It is emphasized that the improvement of an area requires a combination of different aspects. Physical inputs required to implement these tasks are summarized in Table 6.5. Total estimated cost is P341 million; P4 million for short-term, P35.5 million for mid-term and P301.8 million for long-term actions.

Table 6.4
Recommended Actions for the
Cubao Mode Interchange Area

ACTION AREAS	RECOMMENDED ACTIONS		
	SHORT TERM	MID-TERM	LONG TERM
A. REROUTING OF JEEPNEYS			
A-1 REROUTING OF EASTBOUND VIA AURORA BOULEVARD TERMINATING JEEPNEYS	●	→ ●	→
A-2 REROUTING OF WESTBOUND VIA AURORA BOULEVARD TERMINATING JEEPNEYS	NA STATUS QUO	●	→
A-3 REROUTING OF WESTBOUND VIA AURORA BOULEVARD AND E. RODRIGUEZ TERMINATING JEEPNEYS	NA STATUS QUO	●	→
A-4 REROUTING OF JEEPNEYS TERMINATING IN ARAYAT AREA.	●	→	→
A-5 REROUTING OF OTHER ARANETA CENTER BOUND JEEPNEYS	●	→	→
A-6 REROUTING OF PASSING-THROUGH JEEPNEYS	NR STATUS QUO	NR STATUS QUO	NR STATUS QUO
A-7 REROUTING OF NORTHBOUND JEEPNEY ROUTES	●	→	→
B. IMPROVEMENT OF BUS OPERATION ALONG EDSA	●	→ ●	→
C. STRENGTHENING OF EXTERNAL ACCES	●	→ ●	→ ●
D. IMPROVEMENT OF INTERNAL CIRCULATION OF ARANETA CENTER	NR STATUS QUO	→ ●	→
E. IMPROVEMENT OF PEDESTRIAN FACILITIES	●	→ ●	→
F. IMPROVEMENT OF AURORA BOULEVARD TRAFFIC MANAGEMENT	●	→ ●	→
G. DEVELOPMENT OF MODE INTERCHANGE FACILITIES	●	→ ●	→ ●
LEGEND			
● PROPOSALS AVAILABLE			
→ PROPOSALS REMAIN EFFECTIVE			
NA NOT AVAILABLE			
NR NOT RECOMMENDED			

Table 6.5
Summary of Project Costs Required
for Improvement/Development of Cubao MIA

Projects	Short-Term (P000)	Mid-Term (P000)	Long-Term (P000)	TOTAL
A. Rerouting of Jeepneys	2,132	15,684	--	17,816
1) Road Component	2,097	6,814	--	8,911
2) Traffic Management Component	35	7,488	--	7,523
3) Terminal Component	--	1,382	--	1,382
B. Improvement of Bus Operation along EDSA	157	684	--	841
1) Improvement of Bus Dispatching System	--	--	--	--
2) Improvement of Bus Bays	157	684	--	841
C. Strengthening of External Access	36	903	121,589	122,528
1) Oneway couple of New York and E. Garcia	36	--	--	36
2) Oneway couple of G. McArthur and P. Tuazon	--	903	--	903
3) Construction of Diliman Bridge	--	--	4,308	4,308
4) Widening of P. Tuazon	--	--	87,069	87,069
5) Construction of G. McArthur P. Tuazon Link	--	--	14,113	14,113
6) Construction of Mirasol G. McArthur Link	--	--	16,099	16,099
D. Improvement of Internal Circulation of Araneta Center	--	116	--	116
1) Traffic Signs	--	116	--	116
E. Improvement of Pedestrian Facilities	1,552	15,135	--	16,687
1) Widening of Sidewalks	730	--	--	730
2) Widening of staircases of Pedestrian Bridge in front of Farmers Plaza	494	--	--	494
3) Pedestrian Crossing Markings	328	73	--	401
4) Construction of New Pedestrian Bridges	--	3,600	--	3,600
5) Installation of Traffic Signal	--	832	--	832
6) Provision of Fence Along Aurora Blvd.	--	280	--	280
7) Construction of Pedestrian Skyways	--	10,350	--	10,350
F. Improvement of Aurora Blvd. Traffic Management	--	1,543	--	1,543
1) Improvement of Dispatching System	--	1,150	--	1,150
2) Improvement of Aurora Blvd.	--	393	--	393
3) Provision of Jeepney/Bus Bays	--	--	--	--
G. Development of Mode Interchange Facilities	113	1,409	124,892	126,414
1) Improvement of Center Ave. Terminal	90	--	--	90
2) Improvement of G. Araneta Terminal	23	--	--	23
3) Improvement of Arayat Terminal	--	1,409	--	1,409
4) Development of MIF on Pinatubo	--	--	32,162 ^{1/}	32,162
5) Development of MIF on Araneta Center	--	--	57,029 ^{1/}	57,029
6) Construction of Pedestrian Deck to link 4) and 5)	--	--	35,700	35,700
TOTAL	3,990	35,474	246,481	285,945

- 1/ Including P24.6 million for land acquisition and building compensation
2/ Including P49.4 million for land acquisition and building compensation

6.2.7 Financial Aspect – Cubao MIA

A gross analysis of the financial viability of the terminal operations, excluding commercial space, indicate that it would be marginally profitable. This is primarily because of the high value of land in such a central place as Cubao. From a private investor's viewpoint, the use of valuable land for transport terminal per se would mean uneconomical use or opportunity lost since alternative use would generate easily more revenue. Capital requirements i.e., asset employed net of land however, would be much less since only sheds, parking bays, markings, and some utilities need to be provided.

Consider, for example, the Arayat-Pinatubo block where 15,400 square meters of land would be needed for the expected 1,650 jeepneys and 1,000 buses per day. Revenues are estimated as follows:

a) From Jeepney users

- 1) Terminal Fee at P5.00/unit/day
- 2) Dispatcher Fee at P0.25/trip
- 3) Number of jeepneys – 1,650/day
- 4) Number of trips requiring dispatching service at 60% of total trips for queueing jeepneys, or 4,000 trips/day.

$$\begin{aligned} \text{Revenue} &= P5.00 \times 1,650 + P0.25 \times 4,000 \\ &= P9,250/\text{day} \end{aligned}$$

b) From Bus Users

- 1) Dispatcher Fee at P0.50/trip
- 2) Total frequencies = 8,100 trips/day

$$\text{Revenue} = P0.50 \times 8,100 = P4,050/\text{day}$$

- c) Total Revenue = P9,250 + P4,050 = P13,300/day
= P4.655 million per year at 350 days/year

On the cost side are the following:

- Cost of facilities directly necessary for terminal construction and operation including sheds, overpasses, medians, etc. = P24.9 million
- Annual rent for use of land at 5% of the market value of the land, or 5% of P16.8 million = P840,000/year
- Operating expenses (for utilities, labor, administration, and other recurring items) = P1,240,000/year

Table 6.6 gives the financial results under 3 conditions of debt-equity ratios. The common assumptions of the annualized profit picture are:

- Straight line depreciation for 20 years
- Loan equivalent to 20-year repayment period at 5 % interest rate
- No corporate income tax, assuming the terminal is operated by jeepney/bus association or cooperative

Table 6.6
Proforma Annual Income Statement of Cubao Terminal
on Pinatubo-Arayat Site

Financial Items	% of Own Capital		
	100%	50% ^{1/}	50% ^{2/}
Revenue (P/year)	4,655,000	4,655,000	4,655,000
Expenditure (P/year)			
- Depreciation	1,245,000	1,245,000	1,245,000
- Operating Costs	1,240,000	1,240,000	1,240,000
- Rent of Land	840,000	840,000	-
- Interest on Loan	0	373,500	373,500
Sub-Total	3,325,000	3,698,500	2,658,500
Profit (P/year)	1,330,000	956,500	1,996,500
Investment (terminal construction cost) (P)	24,900,000	24,900,000	24,900,000
Return on Investment	5.3%	3.8%	8.0%
Pay-back period (years)	18.9%	26.3%	12.5%

1/ 50% owners' equity and 50% loans.

2/ 50% owners' equity together with land owned and 50% loans.

Thus, it is not reasonable to expect the private sector to invest purely in a terminal business when returns are way below prevailing rates. The possibilities are:

- For government to own the land and lease it for almost nothing
- For the loan to be given at subsidized rate
- For the private developer to internalize the cost as part of a more profitable venture, say a commercial center, patronage depends on transport accessibility. In which case the air space over the terminal will be the profit generator. The optimum profit will then occur when the marginal returns due to increased accessibility equals the marginal cost of operating the terminal.

As to the third possibility, a conservative projection is shown in Table 6.7. Using a fixed rental income, the average return on equity is proven to be higher than that of the terminal alone. This projection does not include the upside potential of a rental income based on gross sales of the shops and establishments leasing the space, which is the practice in Araneta Center and in Makati Commercial Center. Nor is the residual value of the real estate property considered in the cash flow. What the exercise simply proves is the viability of integrating terminal activities with commercial operations. A detailed study to determine the contribution of accessibility to the sales generation of the commercial establishments is recommended.

Table 6.7
Proforma Annual Income Statement of Cubao
Mode Interchange Facility on Pinatubo-Arayat Site
(Terminal Cum Commercial Complex Case).

Financial Items	Case 1 Low Rent & 100% Equity	Case 2 Low Rent & 50% Equity	Case 3 High Rent & 100% Equity	Case 4 High Rent & 50% Equity
Revenues (P)				
– Space rentals ^{1/}	33,696,000	33,696,000	44,928,000	44,928,000
– Terminal fees	4,655,000	4,655,000	4,655,000	4,655,000
Total Revenues	38,351,000	38,351,000	49,583,000	49,583,000
Expenditures (P)				
– Operating costs	3,775,000	3,775,000	3,775,000	3,775,000
– Land rent	840,000	840,000	840,000	840,000
– Depreciation	12,475,000	12,475,000	12,475,000	12,475,000
– Realty tax	1,912,500	1,912,500	1,912,500	1,912,500
– Interest on Loan	0	12,475,000	0	12,475,000
Total Cost	19,002,500	31,477,500	19,002,500	31,477,500
Income Bef. Tax	19,348,500	6,873,500	30,580,500	18,105,500
Income Tax ^{2/}	6,771,975	2,405,725	10,703,175	6,336,925
Net Profit	12,576,525	4,467,775	19,877,325	11,768,575
Average ROE (%)	5.0	1.8	8.0	4.7

1/ Assumptions made are: total floor area of 39,000 m² of which rentable floor is 60% or 23,400 m² at 120/m²/month for low rent and 160/m²/month for high rent.

2/ 35% of income before tax.

6.2.8 Economic Aspect — Cubao MIA

It is generally conceded that the economic benefits of a public transport terminal will outweigh its cost. However, there is considerable methodological difficulty in estimating the value of such benefits. Precedents are hard to come by. A possible approach is to assume a priori that an off-street facility will siphon off vehicles which would otherwise be obstructing the roads and interfering in the normal flow of traffic. Hence, higher speeds and lower operating costs of vehicles plus passenger time savings can be ascribed to a terminal similar to a road undertaking.

Computer based network assignment analysis indicates that direct benefits due to reduction in vehicle operating costs and passenger travel time are:

- saving in vehicle operating cost: P150,000/day
- saving in passenger travel time: P135,000/day

Total: P285,000/day or P85.5 million/year.

A prima facie case for the economic viability of a mode interchange facility can therefore be made.

There are, of course, other benefits. Among these are the following intangibles:

- increase in the comfort and safety of commuters
- better control and scheduling of PU vehicles, which should in turn redound to better profit margin
- increase in the value of land due to higher accessibility
- higher volume of business transactions since more people can gain entry and transact.

Not only are the intangible benefits difficult to value, their effects are also complex and not identifiable to specific actions or measures. Thus, the rerouting of jeepneys may lead to improvements in two variables and deterioration in another. Different sectors will also experience them in different ways that only a qualitative assessment is possible. Table 6.8 provides an incidence matrix vis-a-vis the foregoing benefits and the following affected sectors:

- a) Transport providers, such as:
 - Drivers
 - Operators
- b) Transport users
 - Business
 - Passengers
- c) Local Residents/Neighborhoods
- d) Government as the regulator

Table 6.8
Economic Impact of Cubao MIA Development

TYPE OF ACTIONS / SYSTEM INVENTIONS	LINKAGE	CATEGORY OF BENEFITS/ CONSEQUENCES	PUBLIC TRANSPORTATION				OTHER ROAD USERS		LOCAL NEIGHBORHOODS	GOVERNMENT
			PROVIDERS		USERS		PEDESTRIANS	VEHICLES		
			DRIVERS	OPERATORS	PASSENGERS	BUSINESS				
REROUTING OF JEEPNEY		<ul style="list-style-type: none"> ● DIRECT SAVINGS IN THE FORM OF: <ul style="list-style-type: none"> - REDUCED VEHICLE OPERATING HOURS AND COST - REDUCED PASSENGER TIME 								
BETTER QUEUEING CONTROL OF BUSES ON EDSA			●	●	●	●	△	△	△	△
INCREASE CAPACITY OF EXTERNAL ACCESS										
IMPROVE INTERNAL CIRCULATION OF ARANETA		●	●	●	●	●	△	△	●	
IMPROVE PEDESTRIAN FACILITIES		●	●	△	△	-	-	-	●	
BETTER TRAFFIC MANAGEMENT AT AURORA		●	-	-	-	-	-	*	△	
DEVELOP AN INTEGRATED TERMINAL		●	△	△	-	-	-	-	●	△

LEGEND:

- SIGNIFICANTLY BENEFITED
- △ BENEFITED TO LESSER EXTENT
- NEUTRAL
- * IN SIGNIFICANTLY BENEFITED (COULD BE NEGATIVE)

6.2.9 Management Aspect – Cubao MIA

A. Implementing Responsibilities

Notwithstanding the prerogatives of government on transport and traffic, the situation in Cubao warrants a special management treatment. The main beneficiary of the proposals contained in this report is the Araneta Center which is owned and operated by Progressive Development Corporation – a private company. This being the case, responsibility and costs should be off-loaded from government as a matter of principle.

BOT can amend or modify the respective franchises or CPCs of jeepneys converging in Cubao in accordance with the schemes detailed by JUMSUT II. While compliance can and should be enforced by the Police, the more effective force in this regard is the Araneta Center's own traffic aides who can deny entry within the complex. They should therefore be deputized (with power to issue TCTs) but limited within the confines of Araneta Center. Because of the previous involvement of MMC-TOC on the Cubao public transport, it is recommended that it be tasked with the implementation of the PU rerouting proposals. Installation of supportive traffic devices (signs and markings) should be assumed by the Quezon City government or that of MMC-TOC.

Traffic signals and geometric treatments should be undertaken by TEAM/TCC. While it should also provide the associated medians, pedestrian barriers, sidewalks, crosswalks and pedestrian overpasses, TEAM should ask Progressive Development Corporation to absorb most, if not all, of these items. In fact, it has already consented to fund and implement the median barrier along Aurora Boulevard and to provide ROW for pedestrian overpasses.

Implementation of the road components falls squarely under the MPWH. Detailed engineering plans are now under preparation by URPO-MPWH.

B. Responsibility for Cubao MIA

Because of the pattern of passenger and vehicular movements, two sites – one on each side of EDSA – are desirable. Responsibility for these sites need not be under the same developer because of difference in ownership. The eastern side is part of the Araneta Center complex while the ideal site on the western side of EDSA of lots owned by several individuals – some of which are residential buildings.

It is not feasible for government to develop and manage the Cubao MIA for many cogent reasons, viz.:

- shortage of investible funds
- absence of a precedence in building a transport terminal under government stewardship
- no existing institution with special responsibility to undertake the project; creating a new one does not appear to be urgent given the prevailing climate in government

- sites are privately-owned; expropriation may not be legally feasible.

For the eastern side, the only choice is Araneta Center. Their plans for Cubao however, is not partial to public transport. Barring any shift, commercial and residential towers are envisioned in the block most suitable for public transport use. The two uses are not really incompatible – since the latter can be accommodated at the ground level and may even boost the attraction of the former. For Araneta to assume voluntarily the responsibility of evolving the eastern MIA, it must first perceive it as financially rewarding. This may be achieved through tax incentives and planning controls such as:

- tax credit for incremental investments on facilities designed for public transport use
- lower real estate tax for land devoted to MIA use proportional to the space allotted to PU vehicles
- substituting the parking space requirements of the building code for PU-terminal spaces, especially where commercial structures are concerned.

To induce or promote this type of development, it is recommended that MMC be the government instrumentality responsible for their realization.

C. Cubao as an LRT-Terminus

The possibility of Cubao becoming a terminus of LRT Line 2 is very high. Should this occur, it is recommended that its Cubao Station be developed incorporating the terminal requirements of other public transit modes. For this purpose, the Arayat block – bounded by Banahaw, Arayat, and EDSA – is most suitable. Under this scenario, the LRTA becomes the logical implementing vehicle. However, since no one is certain when line 2 would begin, a contingency plan for West-Cubao MIA is advisable. This calls for MMC taking the lead and using its land consolidation program as the vehicle for the realization of the Cubao MIA. Under this program, individual lot owners are encouraged to pool their resources (which is land) into a single corporation which then resubdivided or develop the combined property for the benefit of the owners. The same incentives mentioned above can be applied.

D. Implementation Walk-Throughs

A long-drawn out process of planning, negotiating, and bargaining is to be expected even before the Cubao MIA facility breaks ground. The minimum steps the project will go through are conceptual planning, approval, land acquisition detailed design, financial packaging, construction and finally, operation.

Initially, the implementor draws up a concept plan and purpose of redevelopment. At this stage, it would be impossible to clear all prerequisites and details for the project. Discussion with government and prospective investors should be undertaken to confirm and agree on the terms of development. The JUMSUT-developed proposal may be considered as the prefeasibility study for the project.

So as to secure government support and assistance for the development of a project with clearly public orientation, the imprimatur of concerned government authorities is indispensable. A detailed feasibility study may have to be prepared and endorsed. Negative impact such as relocation is a normal consequence of major urban redevelopment and thus has to be handled prudently. A series of public hearings may have to be employed to gain the public's sympathy.

The third step is land acquisition. The implementing body has to negotiate with numerous landowners, building owners, residents and tenants regarding the proposed project. Many meetings as may be deemed necessary have to be conducted. Prompt payment of claims will be crucial in convincing recalcitrants.

In conjunction with land acquisition, public housing may be needed nearby to accommodate low-income households uprooted by the project. Also, shops, offices, and other temporary facilities at this site may be necessary to engineer a smooth transition or staging.

To minimize cash outflow and facilitate agreement, the property yielded could be exchanged with an equivalent place or part of the building to be constructed.

As the other usage and occupants of the building are not specified at present, the layout and detailed plans are limited at present to the at-grade terminal and second floor pedestrian deck. The number of floors and types of establishments or goods to be offered should be decided on the basis of market research attendant to a commercial property venture. Since circumstances change during the life of the project, it should be expected that frequent changes of plans will occur as promotion proceed. Hence, the plan must be flexible and practical in both the physical and management sense. It is usually the practice that the detailed design is fixed only before tendering for construction.

It is also conceivable for the implementing agency to be the land-owner but not the building-owner. The latter may lease the site for a definite period of time. Similarly, the space in the building are to be leased to various tenants with the terminal as only another user. Since there are numerous jeepney operators, drivers and routes, it will be difficult for the implementor to administer the terminal itself. It is suggested that a jeepney drivers association or cooperative be tasked with the operation and management of this terminal under concessional lease with building or property developer.

6.3 RECTO MODE INTERCHANGE AREA

6.3.1 The Present Situation

A. Land Use and Socio-economic Characteristics

The Recto interchange area is a mixture of high density commercial area along the sides and medium density institutional area at the center. The two major thoroughfares, C. M. Recto and Rizal Avenue, are lined with rows of recreational and business establishments which cater to the middle-income groups and students (see Figure 6.17).

Recto Avenue is one of the busiest streets in downtown Manila. It is serviced by both jeepneys and buses which create the impetus for substantial transfer especially when the D. Jose LRT terminal becomes operational. The 6.5 hectares Old Bilibid Prison Compound is the logical focus of any major redevelopment in the area for its size and availability.

B. Road System and Traffic

The primary road network consists of C. M. Recto, A. Mendoza, Lerma, and España. C. M. Recto traverses from west to east; A. Mendoza is transverse to C. M. Recto, and Lerma and España extend to the northwest from A. Mendoza. The supporting road network is basically gridiron in pattern.

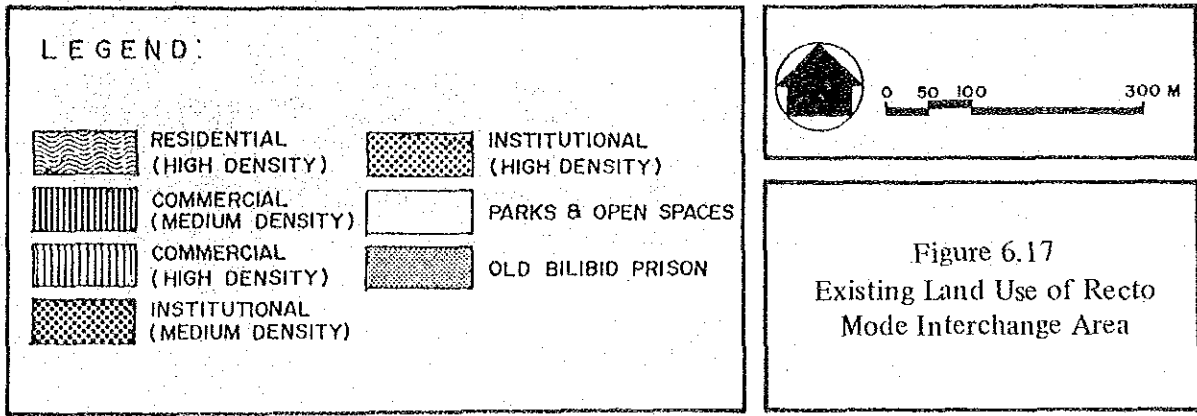
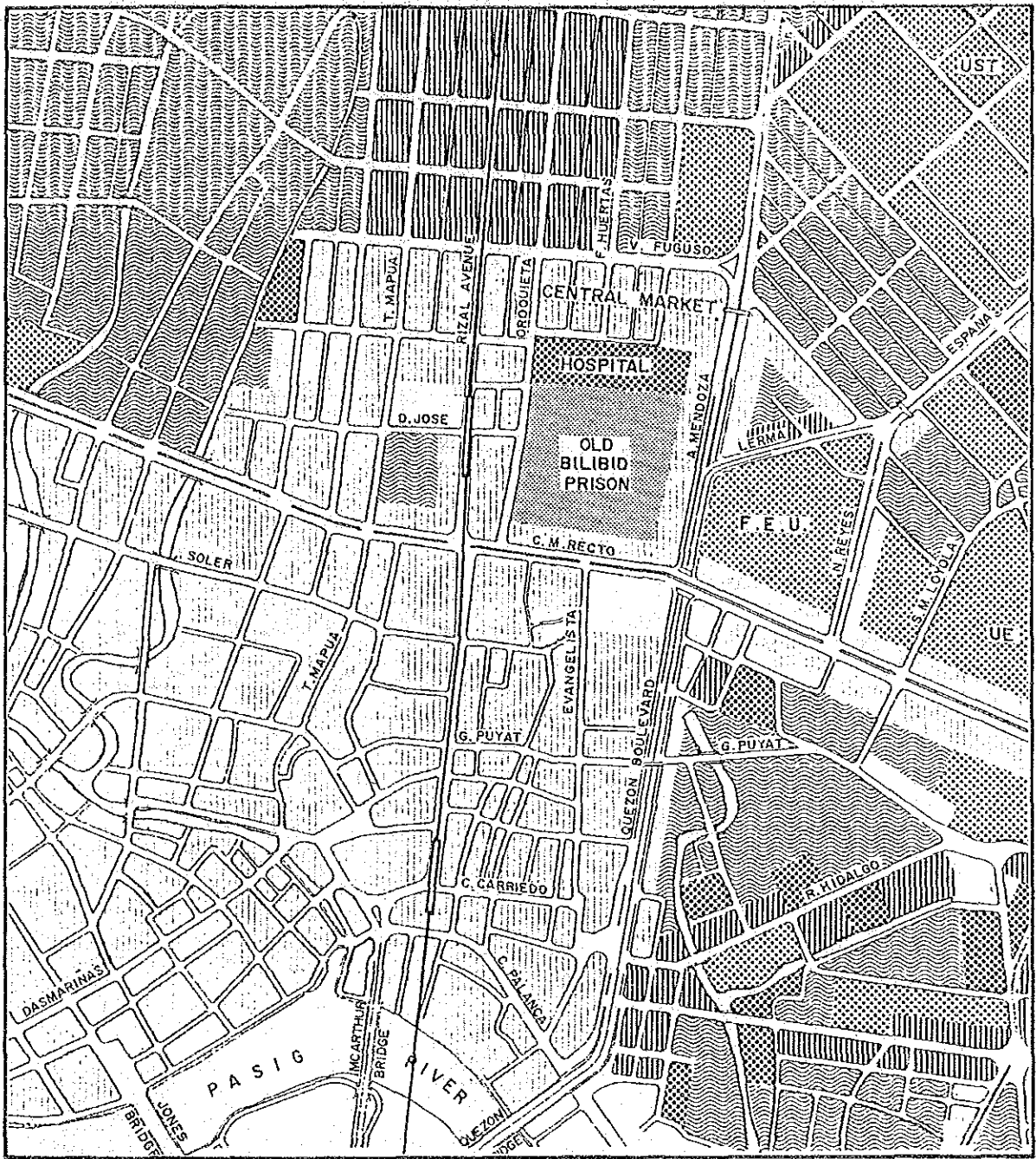
Traffic congestion along the service road of A. Mendoza are so serious that flow of through traffic is greatly impeded. The major causes attributed to the congestion are primarily the current practice of PUV operation and passenger/pedestrian activities in the area as pictured schematically in Figure 6.18.

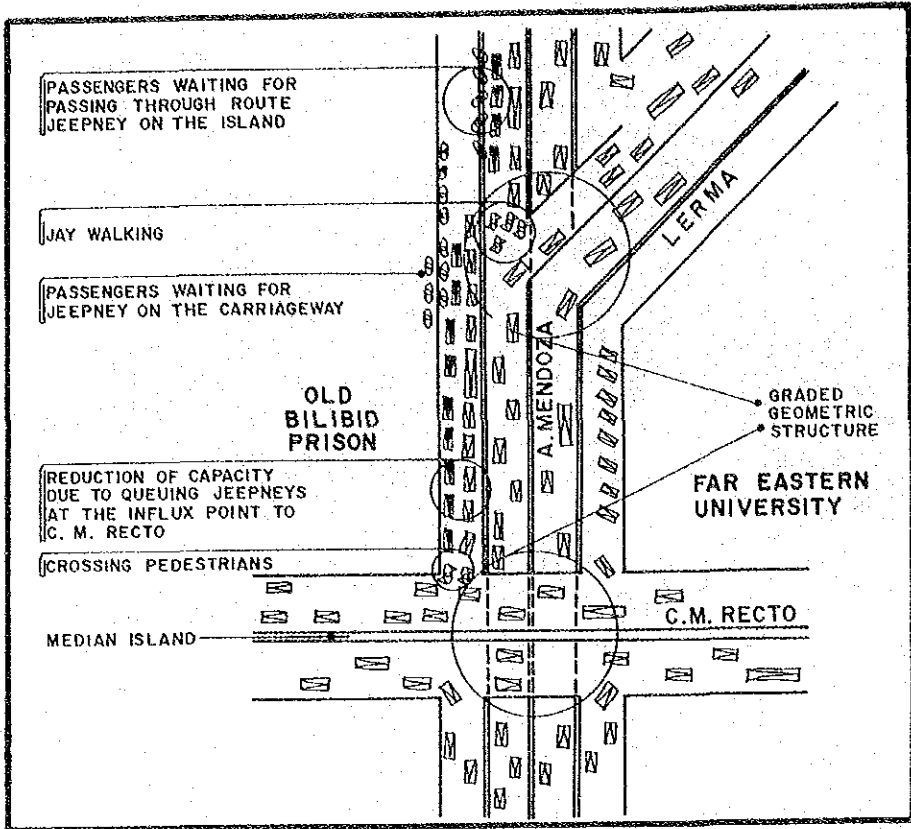
Traffic bottlenecks in the Recto area are also critical along C. M. Recto between Evangelista and Rizal Avenue. This is chiefly caused by left-turn traffic of jeepneys about 700 vehicles/hour during the evening peak; and the deleterious manual control of signals by traffic policemen at the major intersections. Due to the LRT construction along Rizal Avenue, the volume capacity ratio has decreased.

Regarding traffic management, one-way streets are designated, eight traffic signals are installed and loading/unloading left-turn prohibitions are imposed.

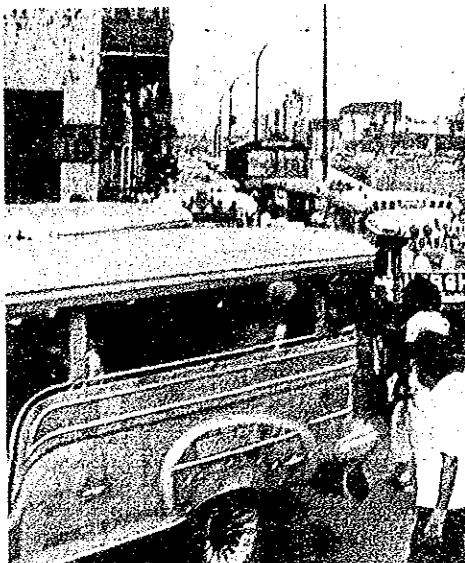
C. Public Transportation Aspects

A total of 333 jeepney and 37 bus routes operate in the Recto area. Many of them concentrate at the intersection of C. M. Recto and A. Mendoza but heavy jeepney traffic is also observed along C. M. Recto between Evangelista and Oroquieta, and along Lerma and Quezon Avenue. Rerouting plans were developed by JUMSUT I preparatory to the scheduled opening of the LRT.





Queuing Jeepneys and Crossing Pedestrians at the Influx Pt. to C.M. Recto



Passengers Waiting for Passing Through Route Jeepneys on the Island



Figure 6.18
Causes of Congestion along A. Mendoza Service Road

Four jeepney and two bus terminals are located in the Recto Mode Interchange Area (Recto MIA). These are found on roadway thus obstructing both vehicle and pedestrian traffic. The important loading/unloading sections are mostly on the major roads: C. M. Recto, Lerma, España, and A. Mendoza service road. Also within the Recto study area are 18 independent provincial bus terminals: 14 off-street and 4 on-road.

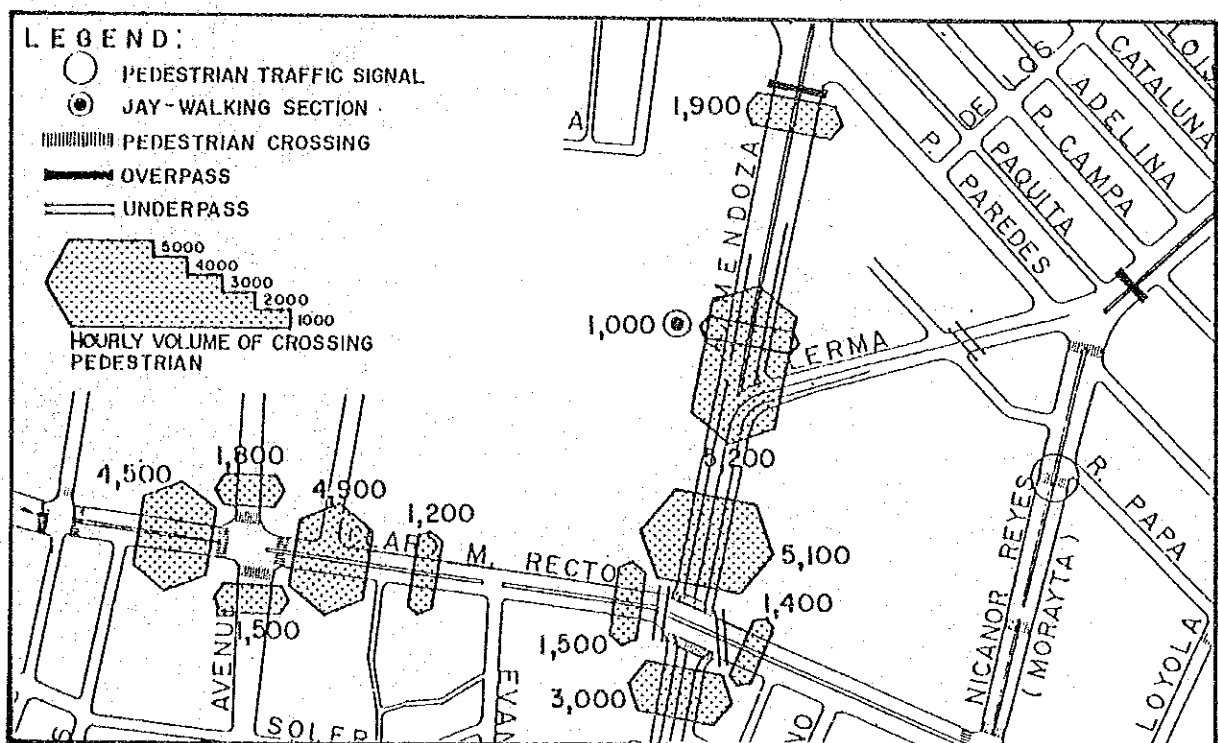
There are 490,000 passengers over 16 hours carried by public transport – with jeepneys outnumbering buses 7 to 1. Sixty-two (62%) percent of the total passengers terminate in the area, while the remaining transfer. Approximately 70% of transfer passengers are between jeepneys, while 24% between jeepney and bus.

Recto-related travel demands are of two types: one bound for Recto and other which passes it. Interchange between these passenger flows are currently hampered by the physical features of A. Mendoza which separate the terminals.

D. Pedestrian Facilities and Characteristics

Existing facilities consist of sidewalks, two pedestrian overpasses, three underpass, and at-grade pedestrian crossings. Commuters cross C. M. Recto/Quezon Boulevard and C. M. Recto/Rizal Avenue intersections at the rate of 11,000 and 13,000 per hour, respectively (see Figure 6.19).

Figure 6.19
Pedestrian Traffic Across the Major
Roads in Recto



6.3.2 Summary of the Problems

The Recto MIA lies in one of the most strategic sub-area of Metro Manila. It is almost the converging point of several radial roads and set amid large institutional and commercial establishments.

There is no pressing problem at Recto MIA. Its selection is primarily due to its centrality and being the only hope for resolving the traffic problems in the surrounding areas, aside from straddling two sections with considerable pedestrian traffic.

It is this pedestrian character that creates problems for Recto MIA. Passengers along A. Mendoza are disadvantaged by the grade separation of C.M. Recto and Quezon Blvd.

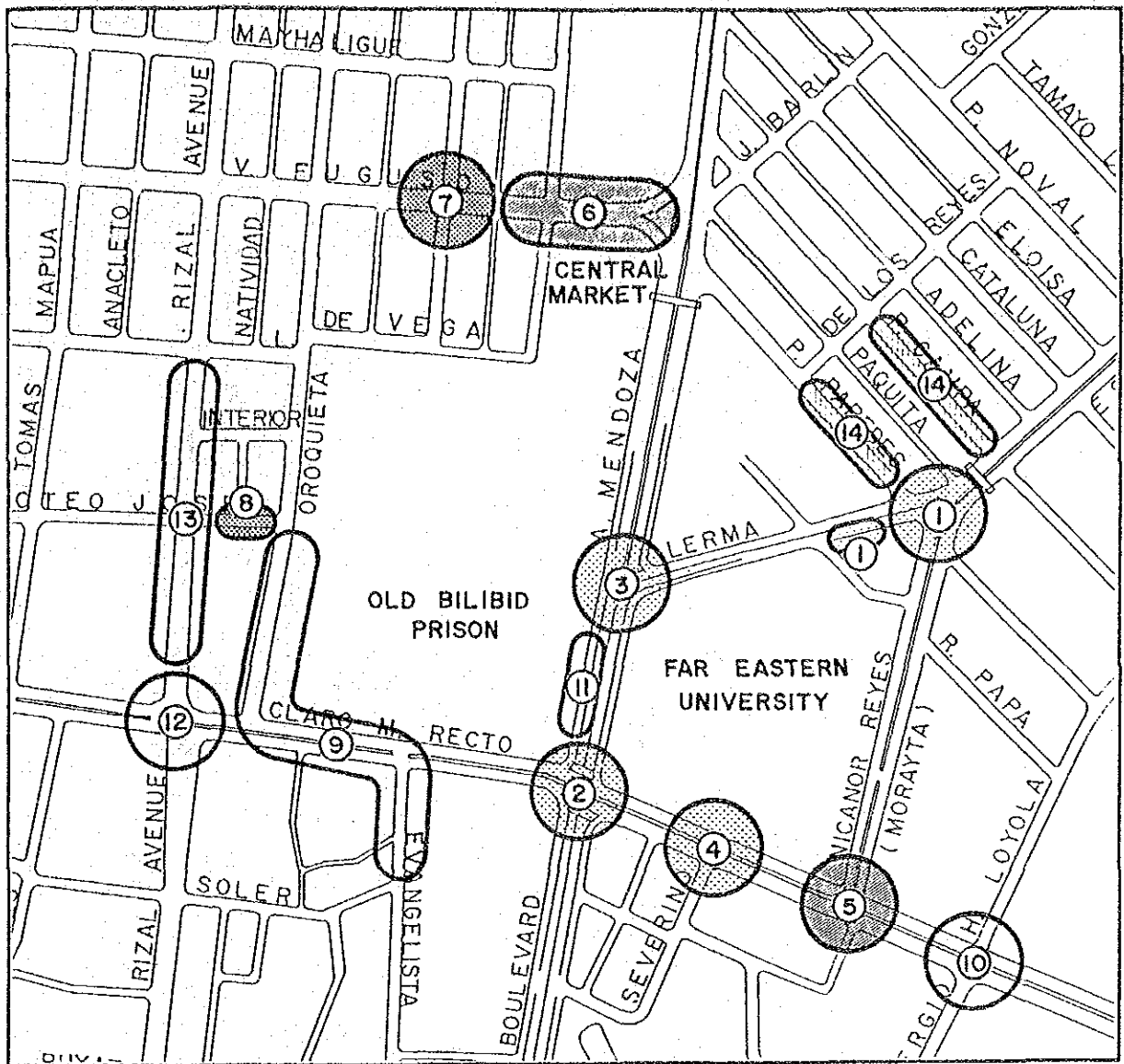
Pedestrian movements from Rizal Avenue to Quezon Blvd. will probably expand with the commencement of the LRT north line, thus exacerbating the vehicle-passenger interchange now occurring across several streets (see Figure 6-21).

MMC is in the midst of undertaking the ambitious redevelopment of the Old Bilibid Area (OBA). A preliminary estimate places an additional 110,000 passengers on public transport and 25,000 private cars, per day, to be generated/induced by this bold urban project. This is graphically shown in Figure 6.22. It is more in anticipation of this redevelopment that made JUMSUT II examine the mode interchange possibilities of Recto.

Heavy Mixture of Vendors, Pedestrians, On-Road Parking Vehicles and Through Traffic Around V. Fuguso/Central Market

Mixture of Vehicles and Pedestrians at C.M. Recto/N. Reyes Intersection; Malfunctioning of Traffic Signal





LEGEND:

1. Heavy pedestrian traffic at grade of the Lerma/Reyes/España. Mixture of pedestrians and vehicles on the pedestrian crossing and sidewalks.
2. Pedestrians walking on carriageway even with pedestrian underpass at the C.M. Recto/A. Mendoza intersection.
3. Rampant jaywalking at the Lerma/A. Mendoza intersection.
4. No pedestrian crossing facilities along C.M. Recto between A. Mendoza and N. Reyes (220 m.).
5. Mixture of vehicles and pedestrians at C.M. Recto/N. Reyes. Malfunctioning traffic signals.
6. Danger caused by heavy mixture of vendors, tricycles, on-road parking, pedestrians, and through traffic around V. Fuguso/Central Market.
7. Inconvenience of jeepney passengers due to the trip short-cutting of the northbound U-turn route.
8. Inconvenience of mini-bus passengers because of the lack of terminal facilities.
9. Congestion from Evangelista to Oroquieta by jeepneys and busses.
10. Traffic congestion at C.M. Recto/Loyola due to jeepney loading/unloading near intersections.
11. Problematic service road of A. Mendoza.
12. Improper control of traffic flow at C.M. Recto/Rizal Avenue intersection.
13. Disorderly use of Rizal Avenue between C.M. Recto and R.D. Vega. Expected congestion at D. Jose station due to the LRT opening.
14. Lack of jeepney terminal space along P. Campa and P. Paredes.

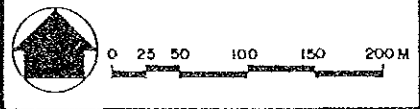
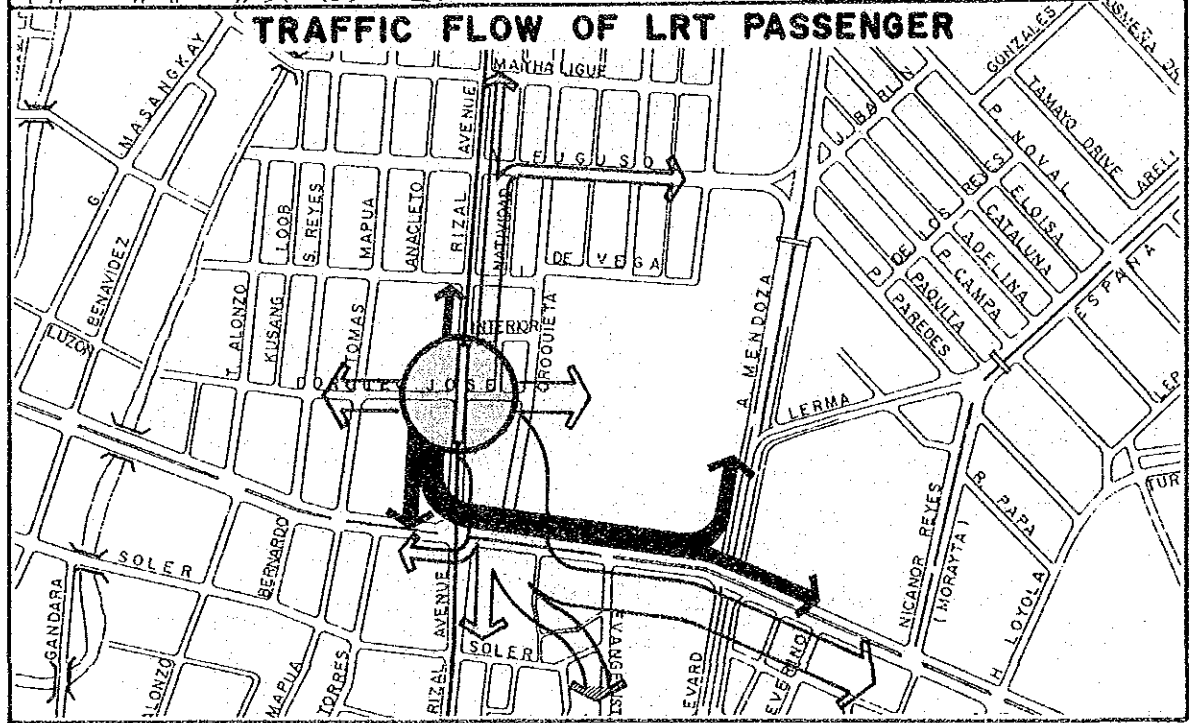
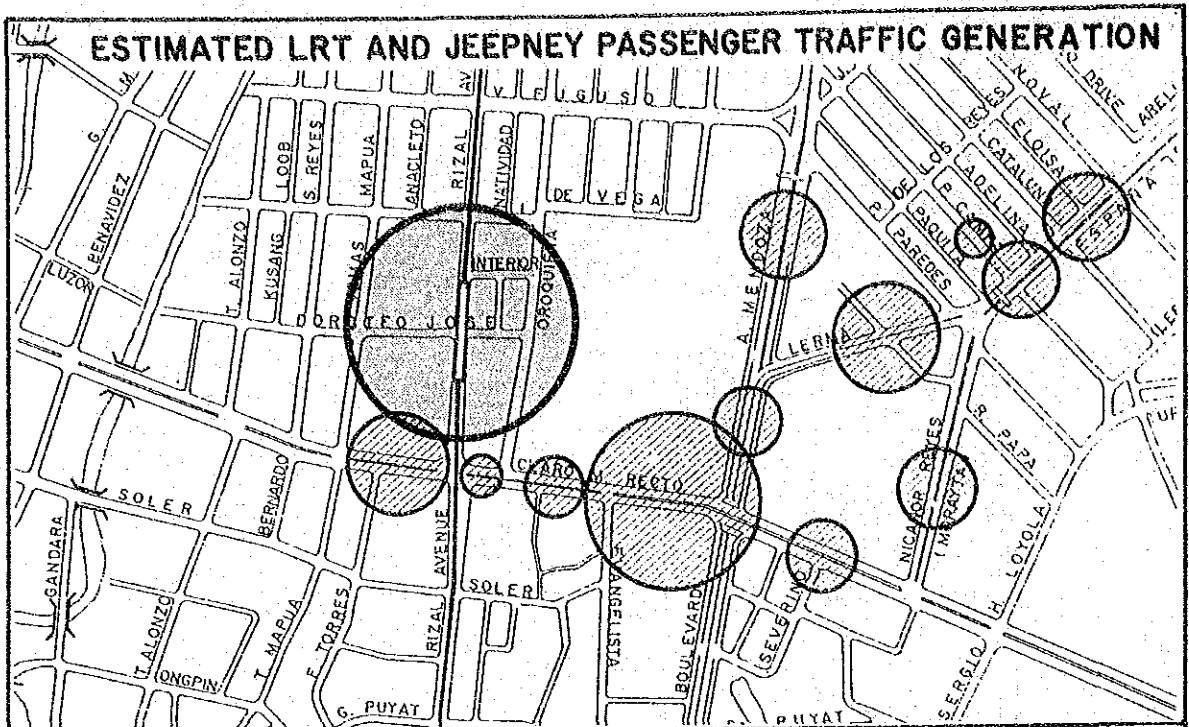


Figure 6.20
Location of Problems
Encountered in Recto Mode
Interchange Areas



LEGEND:

LRT PASSENER TRAFFIC

JEEPNEY PASSENER TRAFFIC

NON TRANSFER TRAFFIC

TRANSFER TRAFFIC

NO. OF B/A PASSENGERS

40,000
30,000
20,000
10,000

LRT PASSENER TRAFFIC

JEEPNEY PASSENER TRAFFIC


50,000
40,000
30,000
20,000
10,000

0 50 100 200m

Figure 6.21
Traffic Impact of LRT
Operation

FINAL STAGE PLAN OF OLD BILIBID AREA REDEVELOPMENT



 Pedestrian Deck

ESTIMATES TRAFFIC VOLUME AND FLOW GENERATING FROM REDEVELOPMENT OF OLD BILIBID AREA

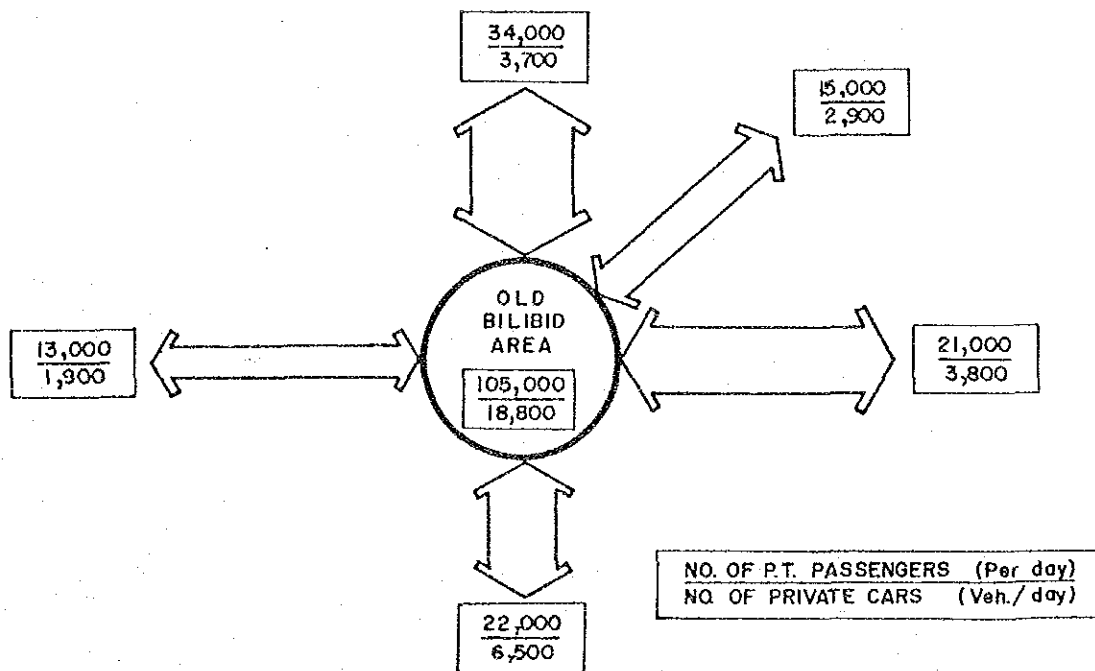


Figure 6.22
Impact of Old Bilibid Area Redevelopment

6.3.3 Plans and Proposals

Any plan for Recto can be made either in relation to the opening of the LRT operations or the urban development of the Old Bilibid Area.

Short and Mid-term: to seek solutions to existing traffic problems of the area and improve the public transport services.

Long-term: to define the kind of mode interchange facility suitable for the area in the light of new developments, i.e., LRT and OBA redevelopment.

Analysis of the present situation in Recto leads to the following proposals:

A. Jeepney Rerouting

Passing through jeepney routes along A. Mendoza and Lerma to be rerouted to A. Mendoza service road with associated improvement of pedestrian facilities, as a short to mid-term proposal (see Figure 6.23).

Most of the major jeepney routes will be accommodated into Old Bilibid Area to facilitate the interface among the different transfer modes such as jeepneys, buses, provincial buses and LRT.

B. Better Utilization of A. Mendoza Service Road

Control of passenger boarding and alighting in the carriageway and along the median-strip will relieve some of the problems along the service road of A. Mendoza (see Figure 6.24).

C. Improvement of Pedestrian Facilities

Proposals for improving pedestrian traffic flow are:

- To repave sidewalks that cater to the pedestrian flow between D. Jose LRT station and areas along Rizal Avenue, D. Jose and Oroquieta.
- Prohibit street vendors near the entrance of underpass at C. M. Recto/A. Mendoza intersection, to encourage the use of underpass.
- Construct pedestrian deck between D. Jose LRT station and the FEU side via Old Bilibid Area.

D. More Efficient use of Roads near D. Jose LRT Station

Changes in the utilization of the existing road space near LRT D. Jose Station will have to be planned and managed in consonance with the altered traffic composition once the LRT becomes operational with its consequent redistribution of pedestrian traffic flow. The change in pedestrian traffic flow will require the following countermeasures:

- Rehabilitation of sidewalks along Rizal Avenue, D. Jose and Oroquieta, to prevent spill-over into road space.
- Provision of bus/jeepney bays along Rizal Avenue and D. Jose, where feasible; else, control of loading and unloading to designated lanes (see Figures 6.25)
- Geometric improvements at intersections and installation of traffic signals (see Figures 6.25)
- Repaving of road surface

E. Development of Integrated Public Transport Terminals

Old Bilibid area will provide an ideal site for an integrated public transportation terminal wherein routes and major traffic flow via Rizal Avenue, A. Mendoza and Quezon Avenue are exchanged among different modes -- LRT, jeepney and bus. The terminal will establish a direct link for some PT modes and thus decrease traffic along A. Mendoza and Quezon Avenue due to the diversion of bus/jeepney routes (see Figures 6.26)

Existing Condition of Old Bilibid Prison

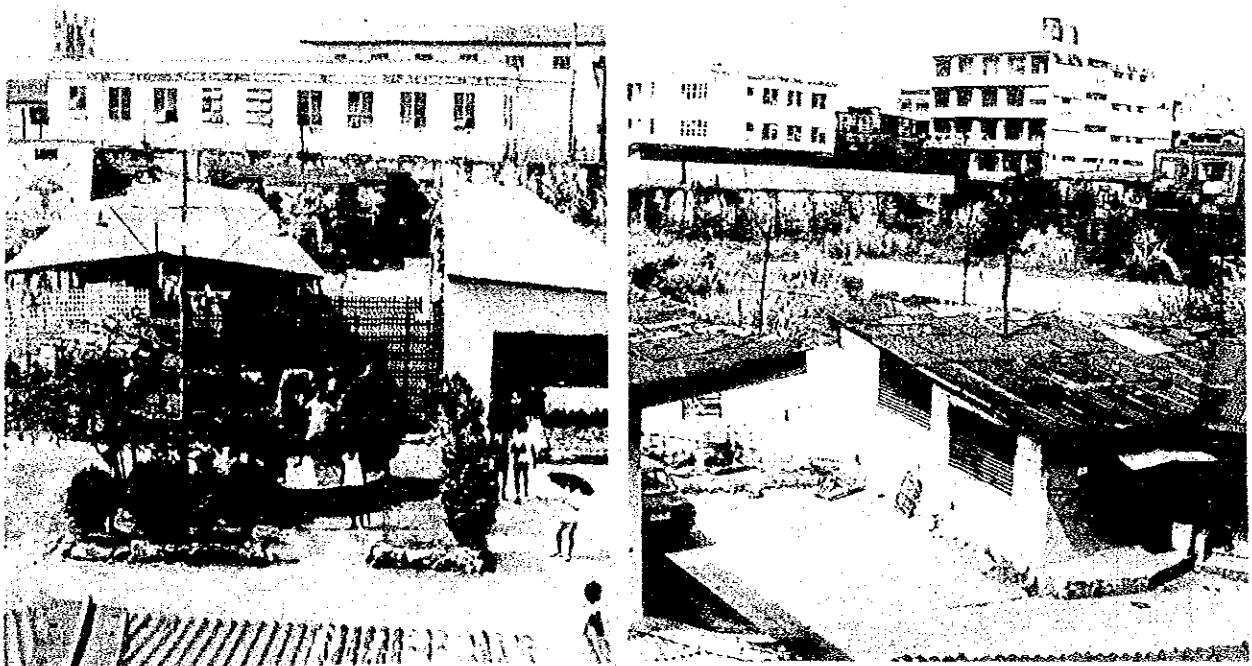
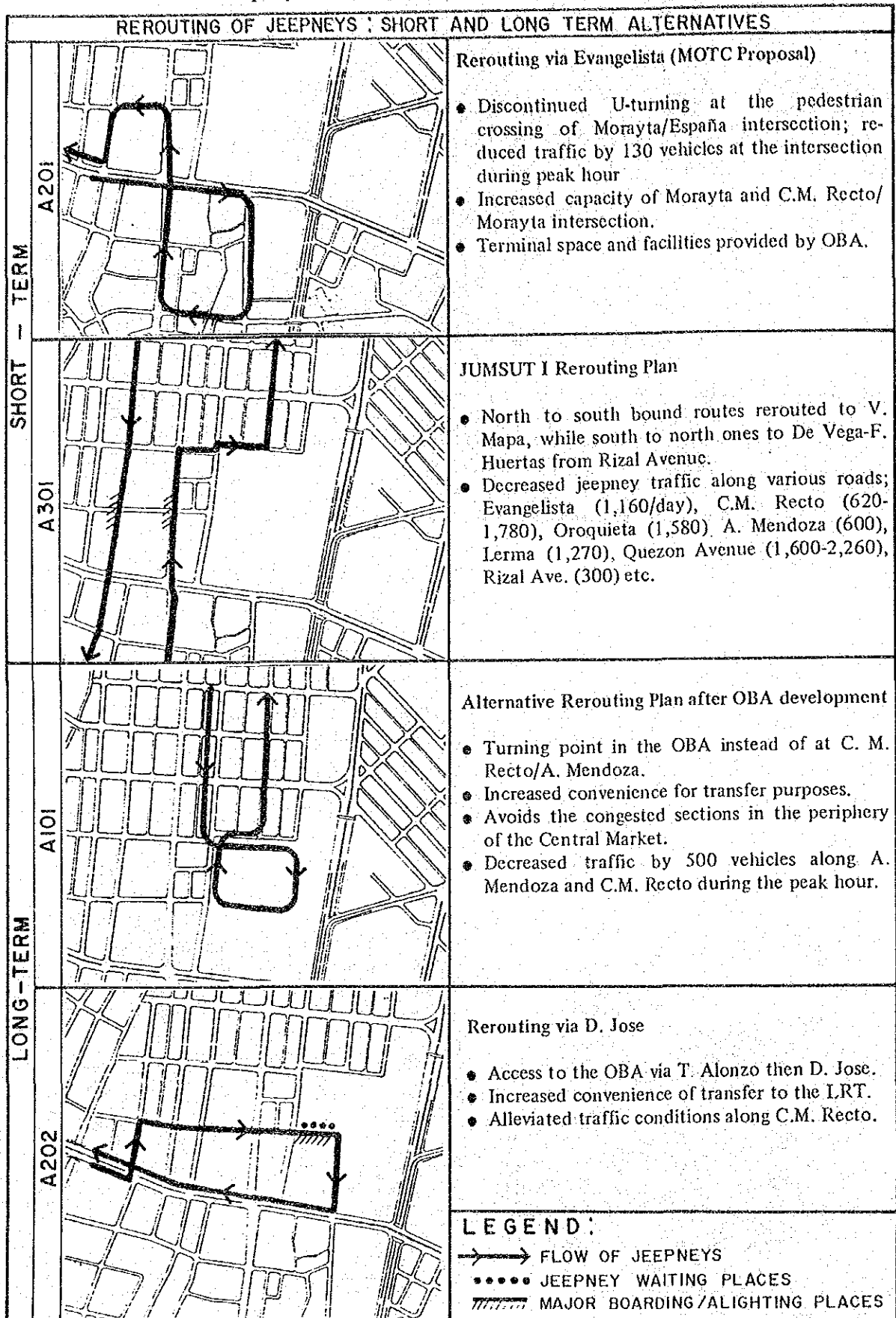


Figure 6.23

Jeepney Rerouting Plan for Recto MIA



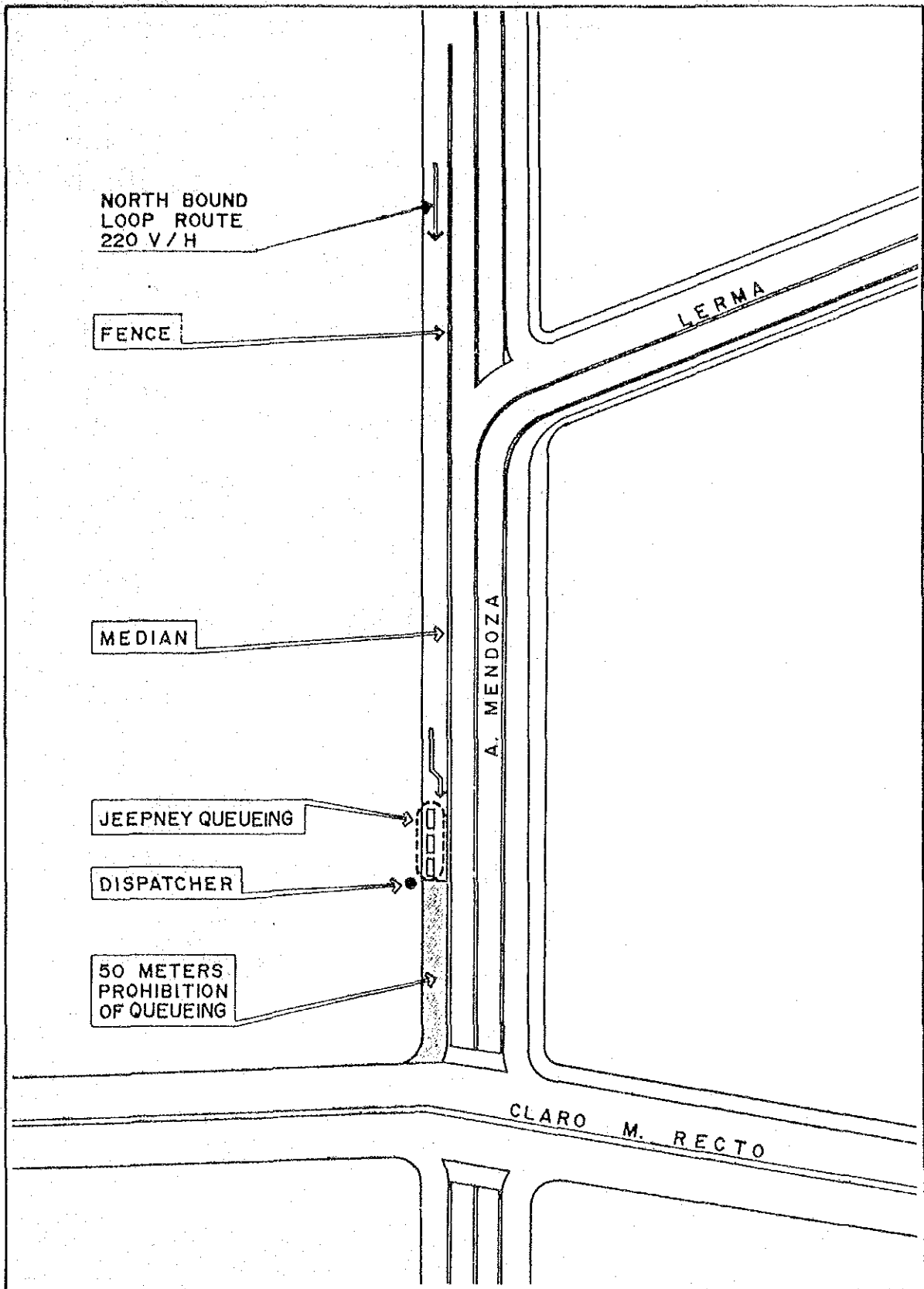


Figure 6.24
 Better Utilization of
 A. Mendoza Service Road

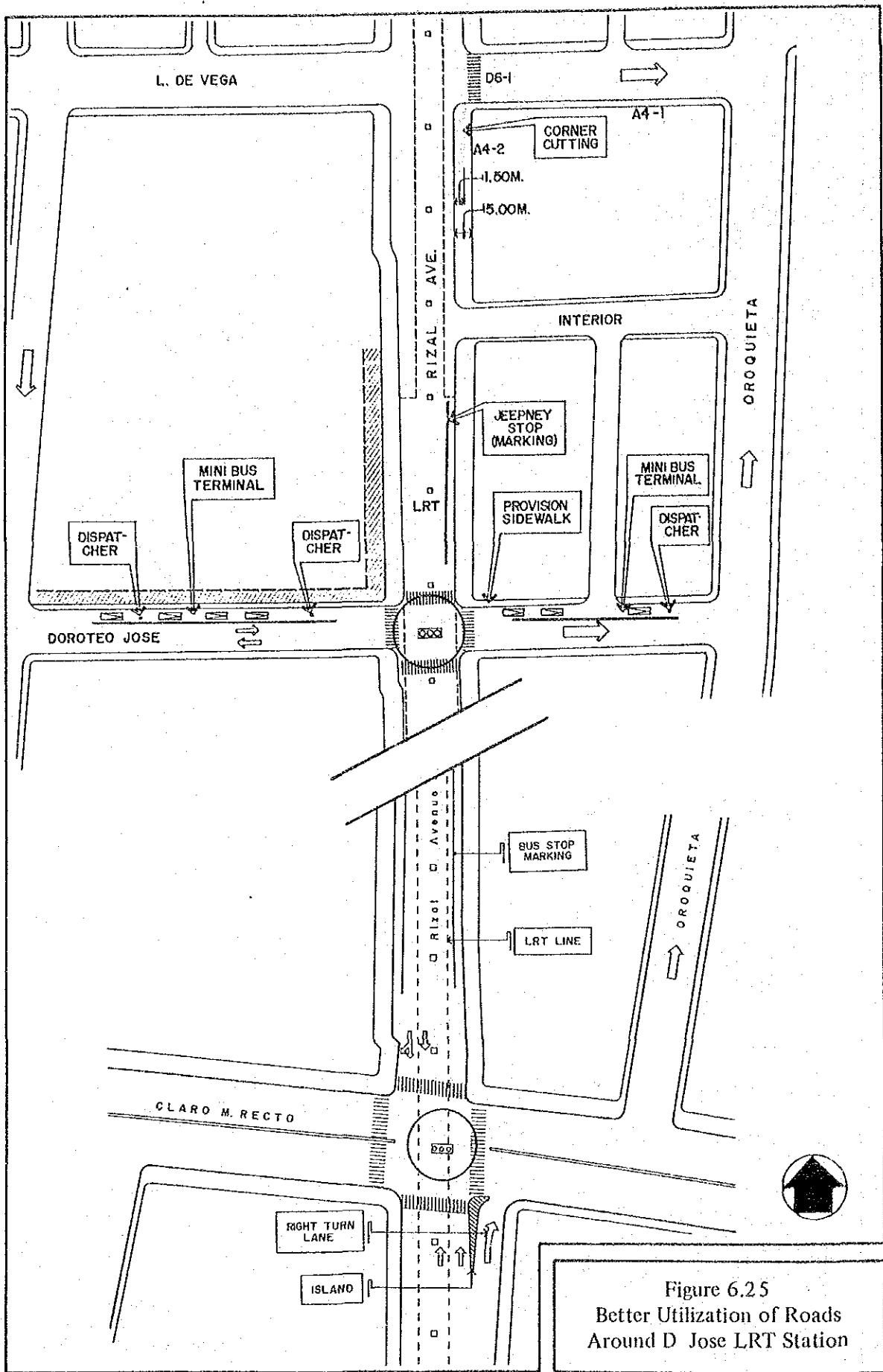
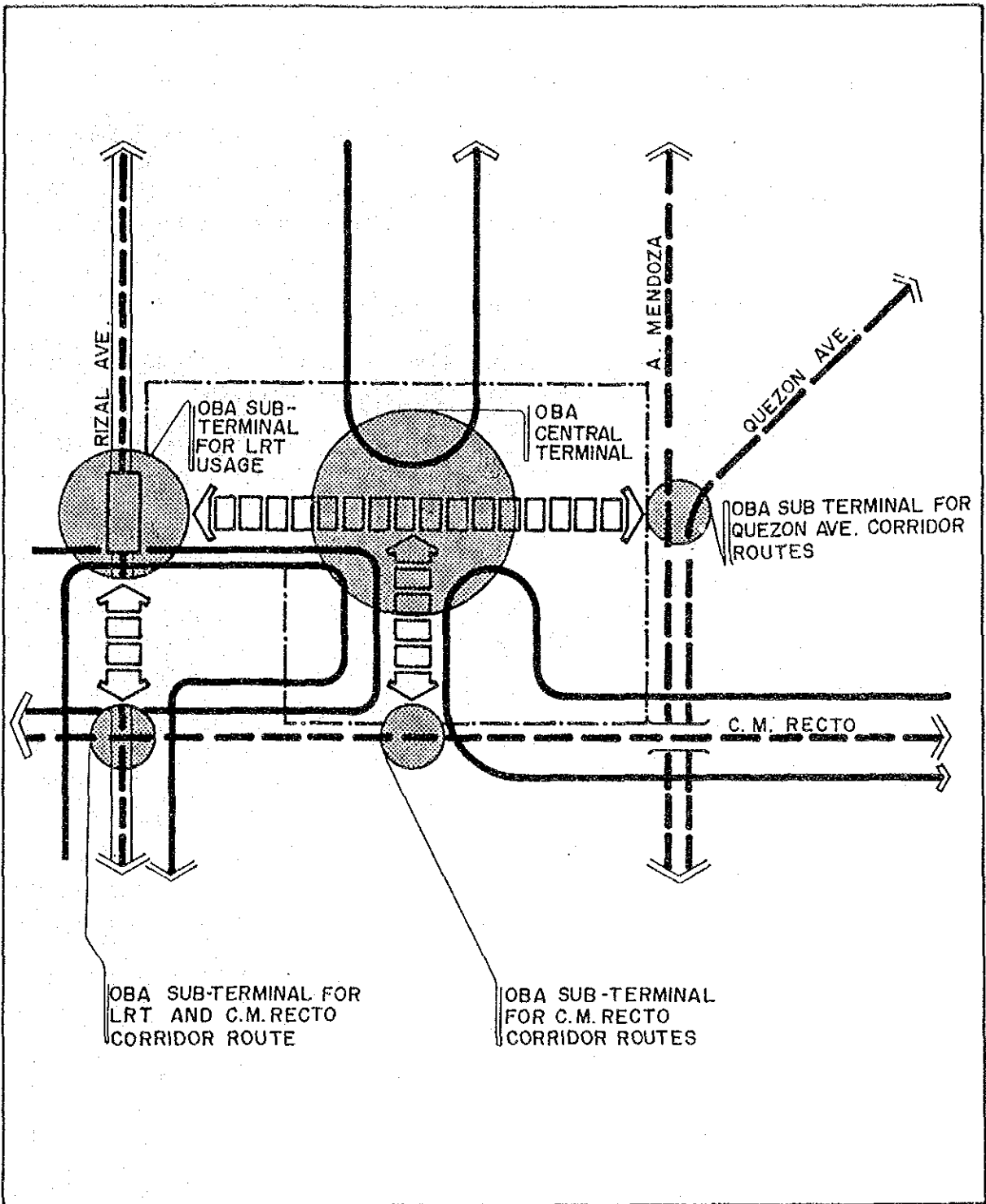


Figure 6.25
Better Utilization of Roads
Around D Jose LRT Station



LEGEND:





-  OBA REDEVELOPMENT AREA
-  TERMINATING ROUTE
-  PASSING THROUGH ROUTE
-  DIRECTION OF PEDESTRIAN FLOW

Figure 6.26
Proposed Concept for
Old Bilibid Area as
Public Transportation
Terminal

6.3.4 Concept Plan of Mode Interchange Facilities for Recto MIA

Based on the overall plan prepared for Recto by MMC, JUMSUT evaluated the transportation implications and requirements. The pattern of public transport movement is abstracted in Figure 6.29 which also suggests the design for the appropriate terminal. The concepts incorporated into the proposed plan are as follows:

- improvement of accessibility to Recto area, and simultaneously reduction of traffic bottlenecks along major roads.
- encouragement of more intensive and efficient use of limited land in the CBD, where poor accessibility is always a critical factor.
- provision of extensive pedestrian network to facilitate intermodal connections (LRT, bus, jeepney) as well as the link major traffic generating centres (University belt, market, commercial complexes).

At present, one major reason for the functional failure of the traditional urban centres is poor accessibility. The proposed concept of simultaneously developing the commercial/business complex and comprehensive transportation terminal would become a common solution to revive the existing urban centres or to develop new urban centres.

Figures 6.30 and 6.31 elaborate on this concept by translating the requirements into numbers and layouts of the loading/unloading bays, 14,600 square meters of land can accommodate the 9,500 jeepney trips and 1,730 bus trips, excluding provincial bus trips, to be diverted into the Recto terminal. Land use and size of facilities are summarized in Table 6.9.

Table 6.9
Estimated Terminal Space Required for Recto MIA

Use	Area (m ²)
A. Terminal Space	
1) Jeepney Terminal ^{1/}	9,000
2) City Bus Terminal ^{2/}	3,600
3) Administrative Facility	1,900
Sub-Total	14,600
E. Road Space	5,400
C. Others ^{3/}	500
Total	20,500

- 1/ Including 13 unloading and 37 loading berths and 109 lots for waiting jeepneys.
 2/ Including 2 unloading, 15 loading berths and 36 lots for waiting buses; excluding 3 unloading and 9 loading berths along C.M. Recto, and 3 unloading berths along Rizal Avenue.
 3/ Gas station.

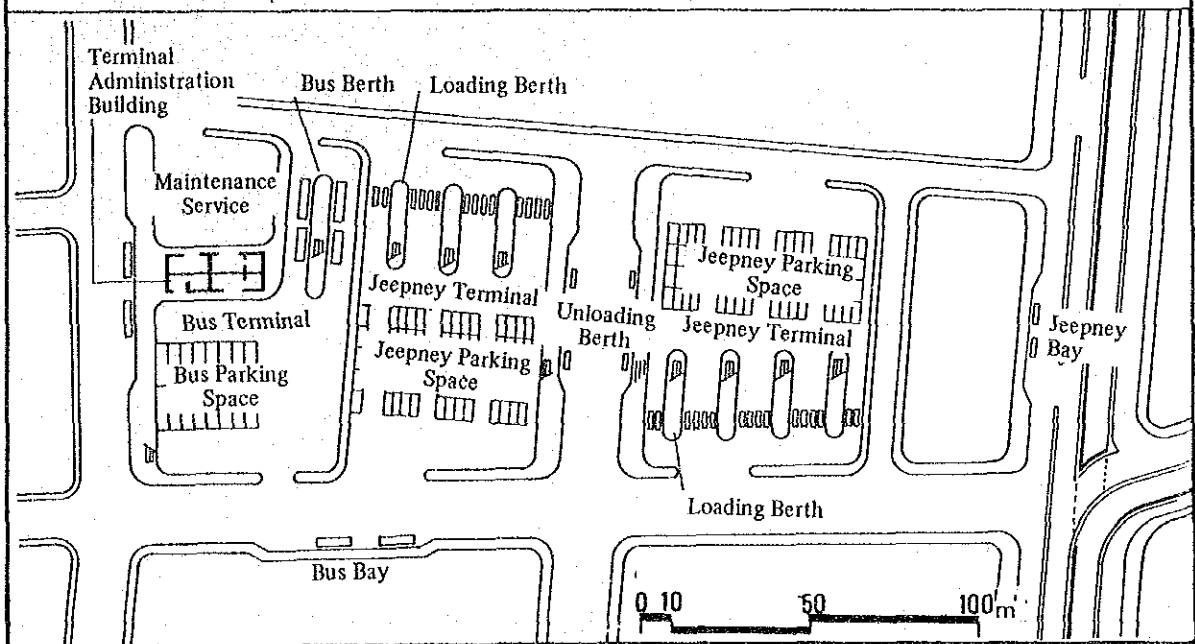
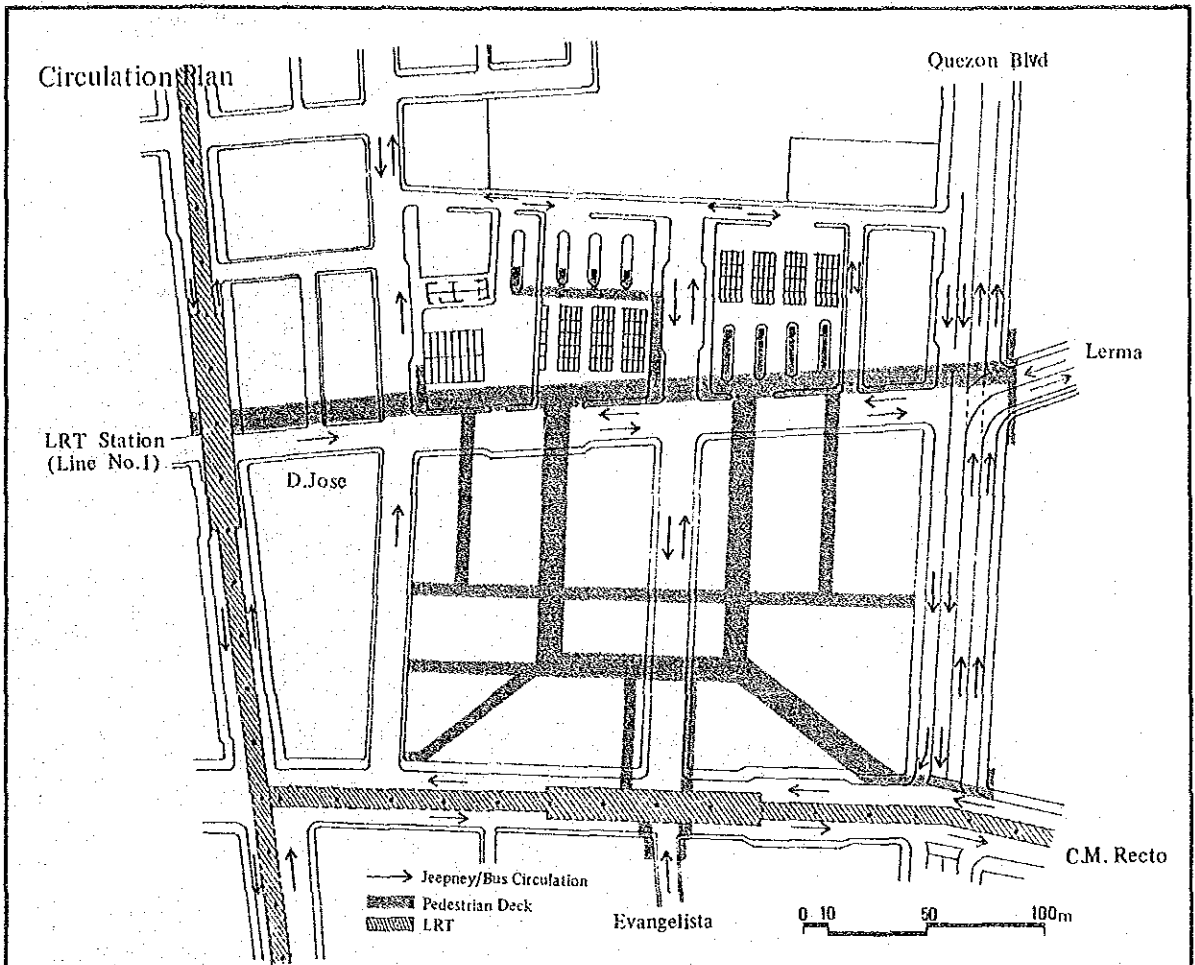


Figure 6.27
 Development Concept/
 Circulation Plan for
 Recto MIA

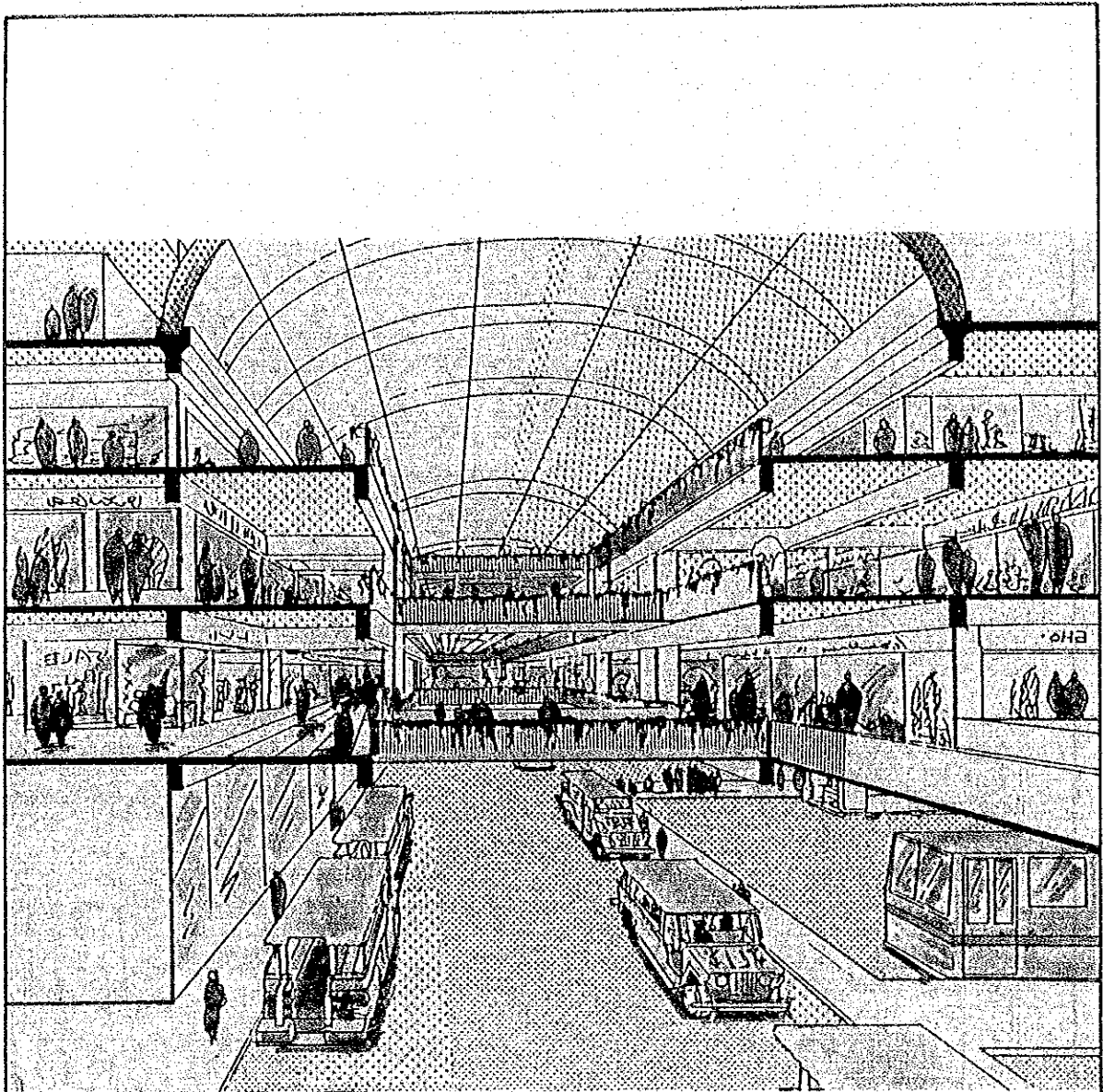


Figure 6.28
View of Proposed Recto
Mode Interchange Area

6.3.5 Summary of Recommended Actions

Summary of recommended actions for the improvement of public transportation of Recto MIA is given in Table 6.10 over the different time phases for implementation. Gross estimates of the financial implications of the various proposals toward a Recto MIA are shown in Table 6.11. Except for some minor roadworks and sidewalk improvements, the bulk of the cost is the terminal itself.

Table 6.10
Recommended Actions for the Recto
Mode Interchange Area

OBJECT	RECOMMENDED ACTIONS		
	SHORT-TERM ^{1/}	MID - TERM	LONG-TERM ^{2/}
A. REROUTING OF JEEPNEYS			
A-1 NORTHBOUND TERMINATING JEEPNEYS	NA	NA	●
A-2 WESTBOUND TERMINATING JEEPNEYS (MORAYTA)	●		●
A-3 PASSING THROUGH JEEPNEYS VIA RIZAL AVENUE	●	→	→
B. BETTER UTILIZATION OF A. MENDOZA SERVICE ROAD	●	→	→
C. IMPROVEMENT OF PEDESTRIAN FACILITIES	●	→ ●	→
D. EFFECTIVE UTILIZATION OF THE ROAD NEAR THE LRT D. JOSE STATION	●	→	
E. CIRCULATION PLAN FOR THE OLD BILIBID AREA AS A PUBLIC TRANSPORT TERMINAL			●
<p>LEGEND</p> <p>● SPECIFIC PROPOSAL WITH THE NUMBERED OPTION IS RECOMMENDED.</p> <p>NA NOT AVAILABLE OR NO SCOPE FOR ACTION.</p> <p>→ PROPOSALS FROM PREVIOUS PHASE STILL VALID</p> <p>^{1/} SHORT-TERM ACTIONS - IMPLEMENTATION TIMED WITH THE OPENING OF LRT.</p> <p>^{2/} LONG-TERM ACTIONS - IMPLEMENTATION SYNCHRONIZED WITH OBA.</p>			

Table 6.11
Summary of Project Costs Required
for Improvement/Development of Recto MIA

Projects	Short-Term (P000)	Mid-Term (P000)	Long-Term (P000)	TOTAL
A. Rerouting of Jeepneys	2,601	1,664	--	4,265
1) Improvement of Oroquieta	1,934	--	--	1,934
2) Improvement of L. De Vega	649	--	--	649
3) Channelization at Rizal	18	--	--	18
4) Installation of Traffic Signals	--	1,664	--	1,664
B. Better Utilization of A. Mendoza Service Road	110	--	--	110
1) Provision of Pedestrian Fence	106	--	--	106
2) Specification of Queuing Place at Recto Intersection	4	--	--	4
C. Improvement of Pedestrian Facilities	697	866	20,400	21,963
1) Improvement of the following:		--	--	
a) Espana/Morayta Intersection		--	--	
b) C.M. Recto/Loyola Intersection		--	--	
c) C.M. Recto/Morayta Intersection	697	--	--	697
d) Central Median of C.M. Recto		--	--	
e) A. Mendoza/Fugoso Intersection		--	--	
2) Removal of On-Road Vendors by Enforcement	--	--	--	--
3) Proper Guidance to Acquire Additional Pedestrian Space	--	--	--	--
4) Improvement of C.M. Recto/Evangelista Intersection	--	866	--	866
5) Construction of Pedestrian Deck at A. Mendoza/Lerma Intersection	--	--	20,400	20,400
D. Improved Utilization of Roads Around D. Jose LRT Station	683	2,647	--	3,330
E. Development of public transport terminal in Old Bilibid Area	--	--	28,265	28,265
TOTAL	4,091	5,177	48,665	57,93

6.3.6 Financial Aspect -- Recto MIA

Similar to the results of financial analysis on Cubao, a Recto terminal is marginally profitable (see Table 6.12). The rates of return are not very attractive — registering even lower than the interest on domestic savings bank deposit. It is, however, not reasonable to view the terminal project as a separate profit center. Its main contribution to the Old Bilibid redevelopment extends beyond the direct revenues of terminal operations; the sales generation of the commercial establishments would be boosted by its presence.

The potential revenue of the terminal is calculated as follows:

a) Jeepney:

- 1) Terminal fee at P5.00/day
- 2) Dispatcher fee at P0.25/trip
- 3) Number of jeepneys = 1,360
- 4) Frequency = 9,500/day where 40% require dispatching

b) Bus:

- 1) Terminal fee at P2.00/trip
- 2) Number of trips = 1,730/day

c) Revenue = $P5.00 \times 1,360 + P0.25 \times 9,500 \times 0.40 + 1,730 \times 2$
= $6,800 + 950 + 3,460 = 11,210/\text{day}$
= $P3,924,000/\text{year}$

On the cost side are the following estimates:

- Construction cost of terminal = P28,265,000
- Operating and maintenance cost = P1,600,000/year
- Rent on land 5% of market value of P800,000/year
- Straight line depreciation for 20 years
- Loan to 20-year equivalent to 20-year repayment period at 5% interest rate

Table 6.12
Proforma Annual Income Statement for Recto MIA

Item	% of Own Capital		
	100%	50% ^{1/}	50% with Free Rent ^{2/}
Revenue (P/year)	P 3,923,500	3,923,500	3,923,500
Expenditures (P/year)			
– Depreciation	1,413,250	1,413,250	1,413,250
– Operating Cost	1,100,000	1,100,000	1,100,000
– Rent on Land	800,000	800,000	–
– Interest on Loan	–	424,000	424,000
Sub-Total	3,313,250	3,737,250	2,937,250
Profit (P/year)	610,250	186,250	986,250
Investment (terminal construction cost)	28,265,000	28,265,000	28,265,000
Return on Investment ^{3/}	2.2%	0.7%	3.5%

1/ 50% owners' equity and 50% loans.

2/ 50% owners' equity together with land owned and 50% loans.

3/ Computed for cash items only (i.e., without depreciation) with assumption of profit being constant.

6.3.7 Economic Aspect – Recto MIA

Economic benefits expected from the proposed development of Recto MIA are summarized in Table 6.13. Significant portions of the benefits which accrue from improved accessibility of vehicles, improvement of pedestrian network, and flow and development of integrated off-road terminal are:

- savings in the form of reduced vehicle operating cost and passenger time
- increase in safety and comfort
- increase in development potentials of the area.

Traffic movements which directly relates to the Recto MIA include:

- jeepneys and buses which will use the proposed terminal at Recto MIA; 7,600 per day at present demand level
- public transport passengers (boarding and alighting); 490,000 per day
- generated traffic from OBA development when completed; 105,000 public transportation passengers and 18,800 passengers cars per day.

The economic benefit due to the 3 minutes/trip savings for the first group, i.e., bus and jeepney would amount to P15,048/day or P4.5 million/year. While that due to the additional one-minute saving from the improved pedestrian network for the public transport passengers would be P29,400/day or P8.8 million/year. Further, when the benefits from the generated traffic of the OBA project reaches a sufficient level annually, these could very well justify the project economically.

Table 6.13
Economic Impact of Recto MIA Development

TYPE OF ACTIONS / SYSTEM INVENTIONS	LINKAGE	CATEGORY OF BENEFITS/ CONSEQUENCES	PUBLIC TRANSPORTATION				OTHER ROAD USERS		LOCAL NEIGHBORHOODS	GOVERNMENT
			PROVIDERS		USERS		PEDESTRIANS	VEHICLES		
			DRIVERS	OPERATORS	PASSENGERS	BUSINESS				
REROUTING OF JEEPNEY		● DIRECT SAVINGS IN THE FORM OF: - REDUCED VEHICLE OPERATING HOURS AND COST - REDUCED PASSENGER TIME	●	●	●	●	△	△	△	△
BETTER QUEUEING CONTROL OF BUSES ALONG A. MENDOZA										
IMPROVE INTERNAL CIRCULATION OF RECTO AREA		● INCREASE IN COMFORT AND SAFETY	●	●	●	●	●	△	△	●
IMPROVE PEDESTRIAN FACILITIES		● BETTER CONTROL OF PUBLIC UTILITY VEHICLE SCHEDULES	△	●	△	△	-	-	-	●
BETTER TRAFFIC MANAGEMENT NEAR D. JOSE STATION		● INCREASE IN THE VALUE OF LAND	-	-	-	-	-	-	*	●
DEVELOP AN INTEGRATED TERMINAL		● HIGHER VOLUME OF BUSINESS TRANSACTIONS	△	△	-	-	-	-	●	△

LEGEND:

- SIGNIFICANTLY BENEFITED
- △ BENEFITED TO LESSER EXTENT
- NEUTRAL
- * IN SIGNIFICANTLY BENEFITED (COULD BE NEGATIVE)

6.3.7 Management Aspects – Recto MIA

A. Implementing Responsibilities

Following the institutional delineation of responsibilities, the rerouting plans should be implemented by BOT and subsequently enforced by the Police. In the medium-term period, once the off-street terminal facility has been completed, all the affected routes should be made to stop (or use) at the Recto MIA.

The traffic engineering components (signals, markings, and geometric improvements) are for review and implementation of TEAM/TCC. No major pedestrian facility is required in Recto – except for the pedestrian skyway across the Old Bilibid area from the D. Jose Station of LRT to FEU. Its scale and nature requires that it be undertaken as part of the Old Bilibid redevelopment – thus, not within TEAM/TCC's responsibility.

Since MMC has taken over from HSDC the responsibility for Old Bilibid, it should also be the implementor for the transport terminal proposed herein. The Recto land consolidation and urban redevelopment project of MMC becomes therefore the main vehicle on which the Recto MIA should be piggybacked.

B. Managing the Recto MIA

It can be assumed that MMC would set up a separate operating entity for the Old Bilibid Area with significant private sector involvement. This has something to do with the private ownership of frontage lots and the previous leasehold rights issued over portions of the government property.

This operating entity is expected to orchestrate carefully the sequence of developments – with the transport terminal area only one of them. The attractiveness of subsequent phases will depend on the completion and performance of the earlier “slices.” It is argued that early operation of the public transport terminal would add to the commercial viability of the undertaking. Hence, it is recommended that the Recto MIA be given early attention and even concessionary rates to encourage jeepneys and buses to use it voluntarily.

By dealing with jeepney associations and bus operators, directly, the administration of the terminal need not have large overhead staff. Dispatchers, parking attendants, and collectors, may all be that may be required to run the Recto MIA initially.

C. Seed Capital

The success of the mode interchange facility depends on the implementation of the Old Bilibid redevelopment. The latter, however, is dependent on inducing a chain of events – starting with the relocation of the old prison. To start the ball rolling, a seed capital – for clearing, and construction of the transport terminal and roads within OBA – should be explored using soft loans from foreign sources.

6.4 DIVISORIA MODE INTERCHANGE AREA

6.4.1 The Present Situation

A. Land Use and Socio-economic Characteristics

Divisoria is predominantly a highly-dense commercial and residential area (see Figure 6.29). The commercial part consists of retail and wholesale trade extending from the Pasig River to Lakandula in Moriones. Divisoria is probably the center of commodity flow for Metro Manila (see Figure 6.30).

The residential areas in the western and northern portions are characterized by a high density population and low-income households earning from P200 to P1,200 a month.

Commercial activity, specifically the retail trade, is centered in Divisoria and Asuncion markets. The area's accessibility explains the direct relationship existing between traders and wholesalers. However, Divisoria is also the favorite breeding place of on-road vendors who cause traffic snags in the areas arteries.

B. Road System and Traffic

R-10, C. M. Recto, and Juan Luna compose the primary road network of the Divisoria MIA. The supporting road network north and south of C. M. Recto is roughly gridiron in pattern as shown in Figure 6.29.

Traffic flow reflects the intensity of commercial and business activities in the area. The main access roads are C. M. Recto, Zamora and San Fernando. Aside from jeepneys and buses, pushcarts are generally used as means of transport, the latter particularly for freight.

Utilization of road space can be deemed inefficient and at the same time, inadequate. Although public transport monopolizes traffic at the rate of 80%, the basic lack of off-road traffic facilities explain the rampant on-street vending, car parking, and PU loading/unloading.

Serious traffic bottlenecks occur along C. M. Recto between Juan Luna and Dagupan. Several factors cited are the following and these are illustrated in Figure 6.31.

- 1) Undisciplined loading/unloading of jeepneys
- 2) Mixed vehicle and pedestrian crossing
- 3) Deteriorating road surface

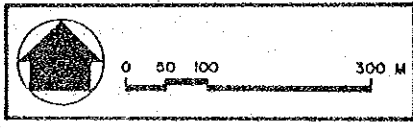
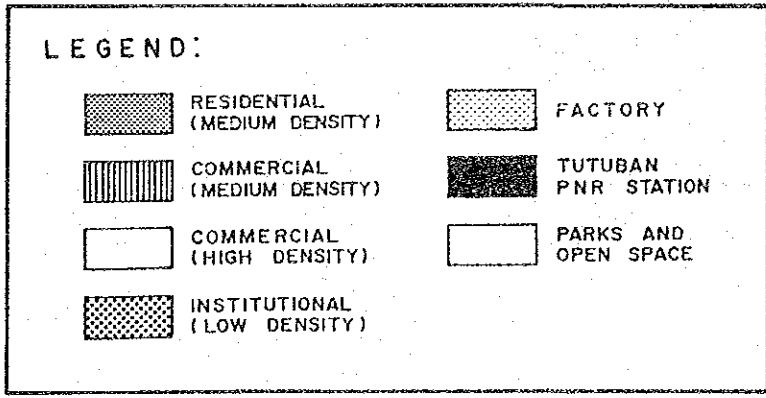
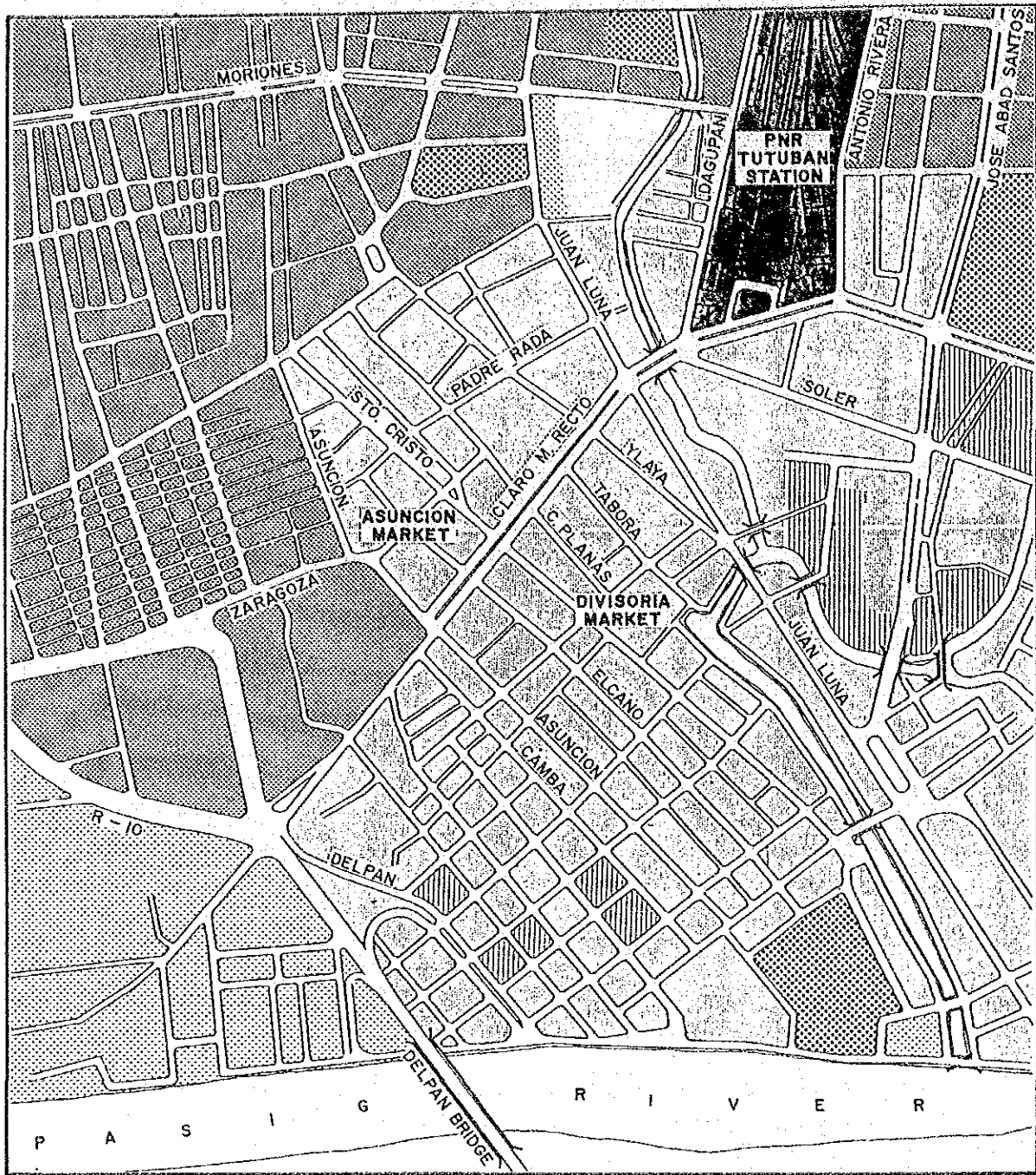
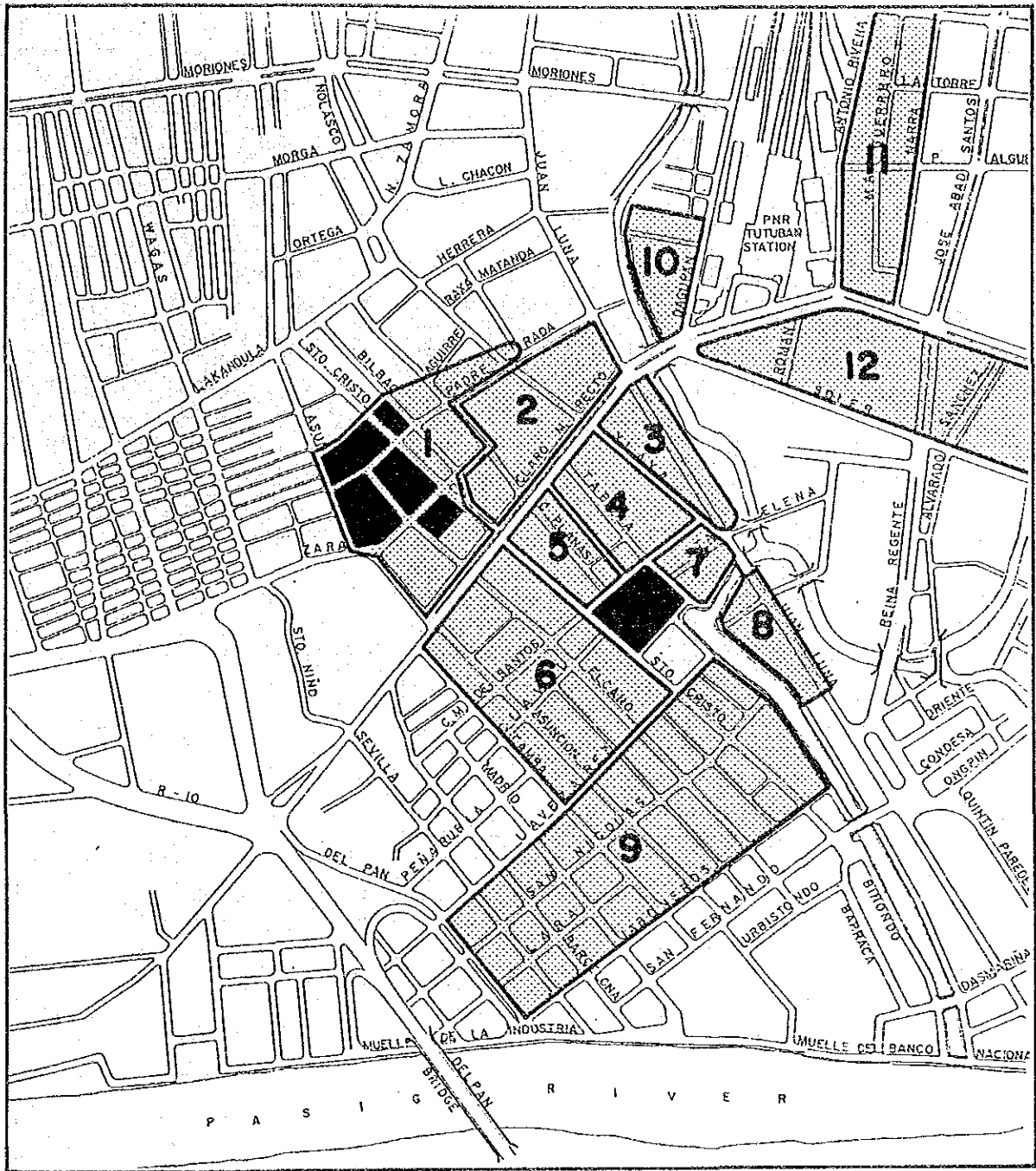

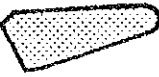


Figure 6.29
Existing Land Use of Divisoria
Mode Interchange Area



LEGEND:

 MARKET	 ZONING BY COMMODITY TYPE
1 FISH / VEGETABLE / FRUIT	7 FISH (BROKER)
2 TEXTILE / CLOTHING MATERIALS	8 FISHING GEAR
3 DRIED FISH	9 LOCAL SHIPPING LINES / IMPORTER / EXPORTER
4 DRIED GOODS / TEXTILE	10 RICE
5 FRUIT	11 CONSTRUCTION MATERIALS
6 MISCELLANEOUS (GEN. MERCHANDISE / HARDWARE, ETC.)	12 SPARE PARTS

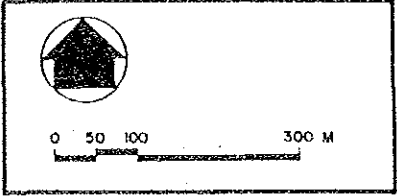
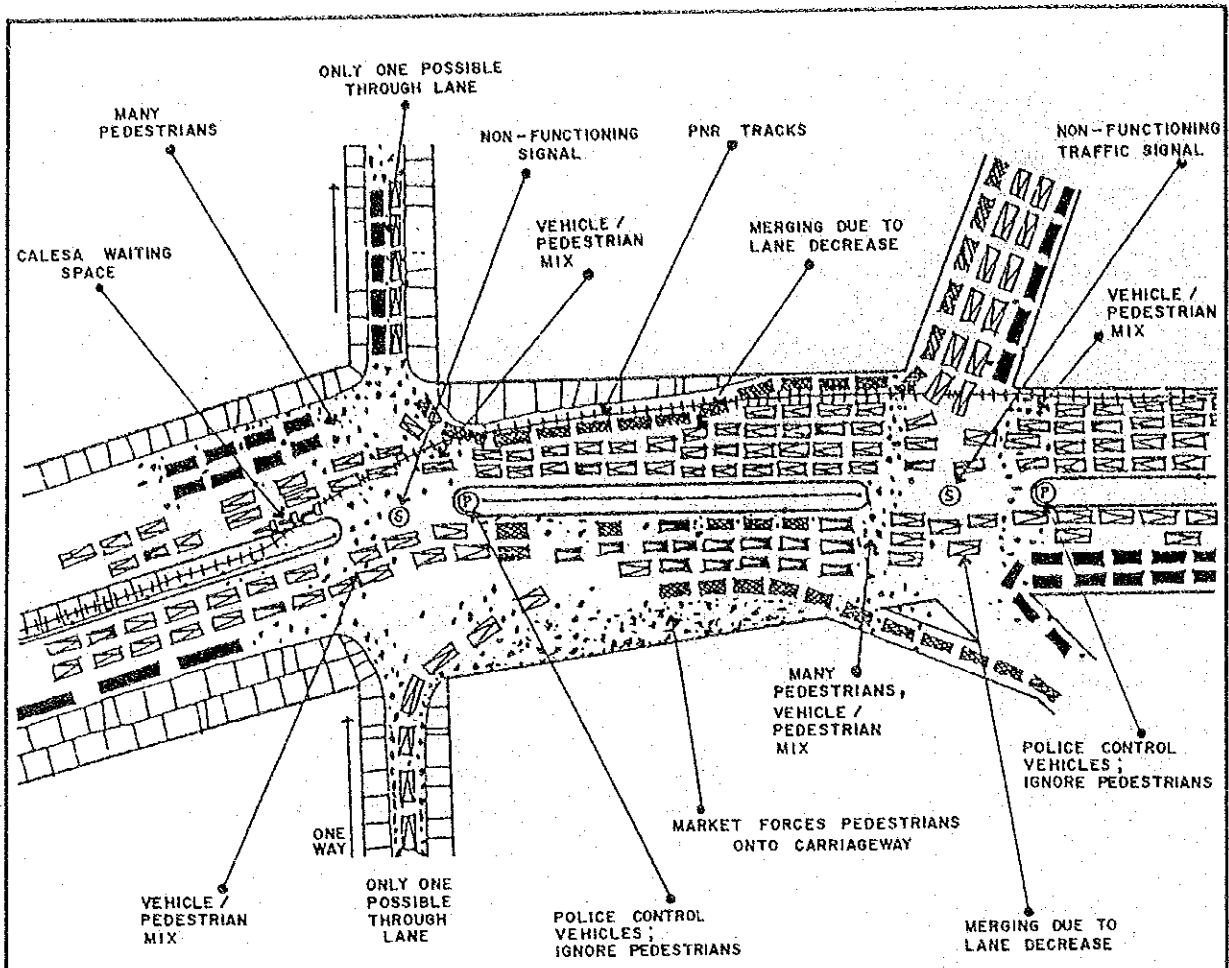


Figure 6.30
Distribution of Commercial Activities in Divisoria



TRANSFER PASSENGER FLOW

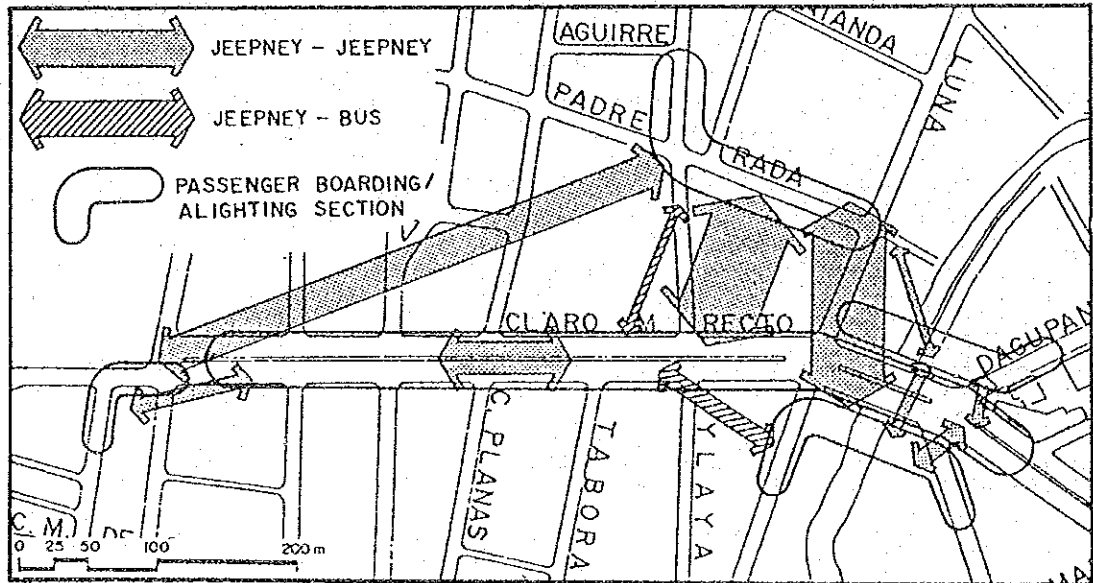


Figure 6.31
Traffic Congestion along C.M.
Recto and Transfer Passenger Flow

- 4) Non-functioning traffic signals
- 5) Waiting jeepneys
- 6) Poor Traffic enforcement

While freight trucks and pushcarts are useful to the industrial/commercial activities, they also cause traffic congestion.

Juan Luna and Ylaya are one-way streets where traffic is obstructed by pedestrian/vendor activities. Six intersections have traffic signals manually operated by traffic policemen and aides. Turning and parking prohibitions are not strictly enforced. Subsequently, on-road parking and street-vending decrease road capacity, thereby exacerbating road congestion.

C. Public Transportation Aspects

The Divisoria MIA serves 54 jeepney and 24 bus routes which use C. M. Recto, Juan Luna, Dagupan, A. Rivera and Moriones as their major access roads. Approximately 3,000 jeepneys and 500 buses use Divisoria as terminal, mostly on existing roads. Specifically, there are 9 jeepney, and 3 provincial bus terminals. This accounts for the traffic jam at P. Rada, C. M. Recto (Dagupan-Juan Luna), and Juan Luna. There are no definite jeepney and bus boarding/alighting points.

The railway system is located in the northeastern part of the Divisoria MIA. The Tutuban PNR Station is considered a mini-MIA where buses, jeepneys, trains, taxis, and calesas and converge.

The ubiquitous calesa also serve Divisoria commuters, in turn causing total jeepney delay along C. M. Recto.

It is interesting to note that 91.2% of total boarding/alighting passengers are from jeepneys, partly because 82% of total vehicles going in consists of jeepneys. Significantly, 44% of total public transport passengers are transferees (see Figure 6.31)

D. Pedestrian Facilities and Movement

Majority of the roads are built with sidewalks which are, more often than not, impassable due to street vendors. Pedestrians use the carriageway instead, leading to a virtual pedestrian mall.

Pedestrian movement is of two types: those crossing the road and those moving parallel to it. Approximately 10,000 cross C. M. Recto during peak hours, while 14,400 use the carriageway.

6.4.2 Summary of the Problems

The Divisoria MIA not only generates traffic as a result of trader/wholesaler/retailer activities, but also serves as a major transfer point of jeepney, bus and train. Although such traffic intensity indicates an active economy, the bottlenecks along such primary roads as C. M. Recto and Juan Luna have reached intolerable levels.

Various problems encountered are depicted in Figure 6.32 and are summarized as follows:

a) *Traffic Management Component*

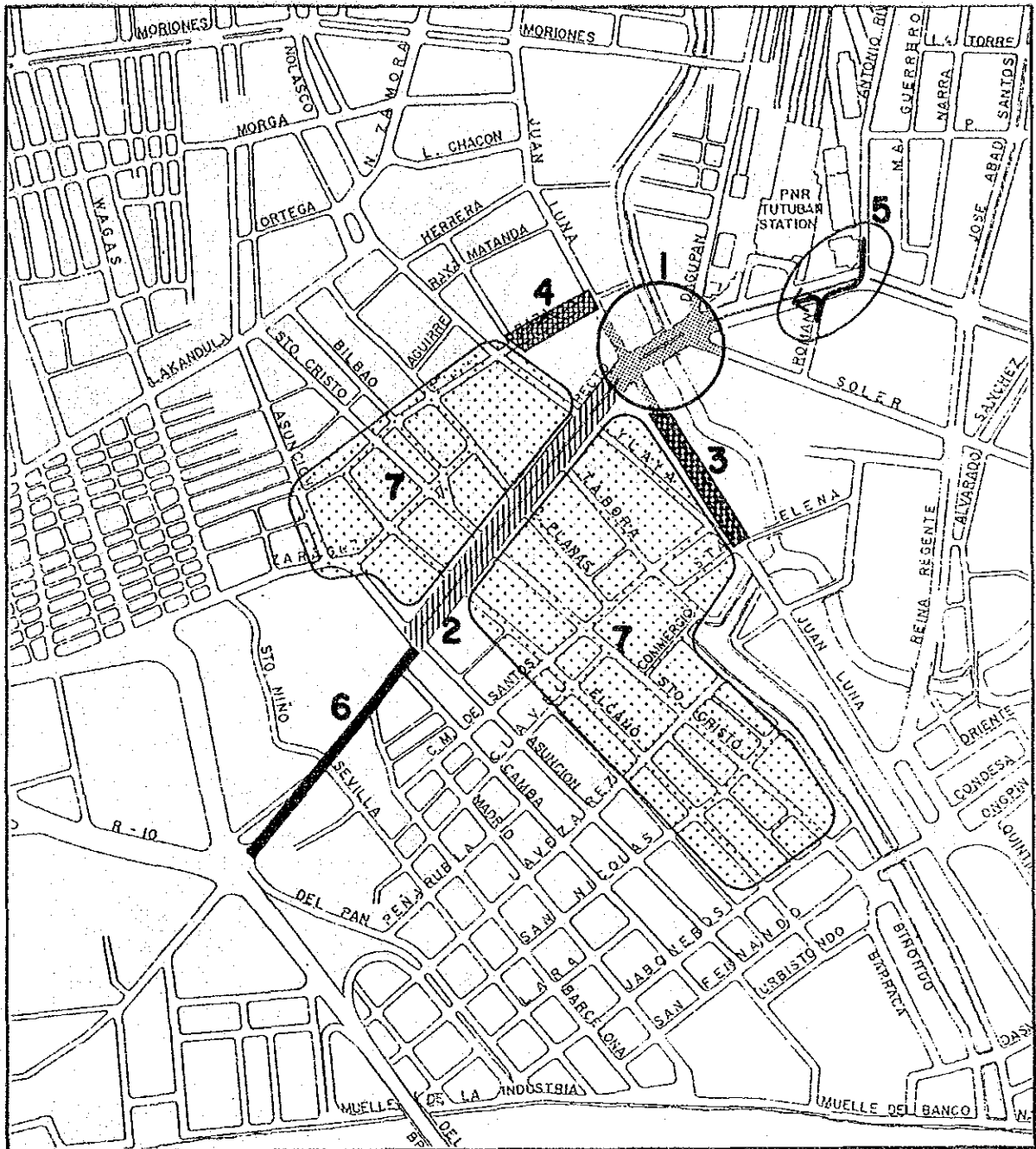
- 1) Functional role of roads, (e.g., C. M. Recto) is not realized due to multiple usage of road space.
- 2) Pedestrians are exposed to unnecessary risks due to lack of or misuse of pedestrian facilities.
- 3) On-street vendors dominate road (e.g., Ylaya) as to displace through vehicular traffic.
- 4) Malfunctioning of traffic signals at congested intersections.
- 5) Erratic enforcement of elementary traffic rules.
- 6) Illegal parking which takes up valuable lane space.
- 7) Sidestreets blocked by pushcarts and delivery trucks, especially near the Divisoria and Asuncion markets.

b) *Public Transport Component*

- 1) Intermingled jeepney routes that complicate C. M. Recto turning movements.
- 2) Disregard of median line with the occupancy of both lanes by opposing vehicles on a queue at C. M. Recto (in front of Tutuban station).
- 3) Slow-moving calesas and pushcarts mixing with fast-moving vehicles.
- 4) Transfer passengers are dispersed over a wide area due to the scattered location of various terminal functions. Off-street terminal space is inadequate.
- 5) The only available terminal space (Tutuban) is not efficiently used by the greater number of terminal users.

c) *Road Component*

- 1) Constricted opening of C. M. Recto to R-10 severely limits road capacity for through traffic.
- 2) Road pavement and drainage are in poor condition.
- 3) Primary and secondary road network (which include C. M. Recto, Juan Luna, and Moriones) are inconsistent with the physical and logical distribution of traffic.



LEGEND

1. Extremely congested section of C.M. Recto between J. Luna and Dagupan due to jeepney loading/unloading, pedestrians and street vendors.
2. Disordered multi-purpose utilization of C.M. Recto between Asuncion and J. Luna.
3. Congested section of J. Luna due to the PT turning points.
4. Congested section of P. Rada due to the PT turning points.
5. Jeepneys approaching terminal into the opposite lanes against the flow of traffic with the intention of avoiding the long queue.
6. Inadequate road section along C.M. Recto between R10 and A sunccion.
7. Most of the sidestreets are occupied by vendors, on-road parked vehicles, and goods delivery trucks.

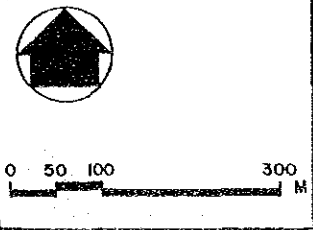
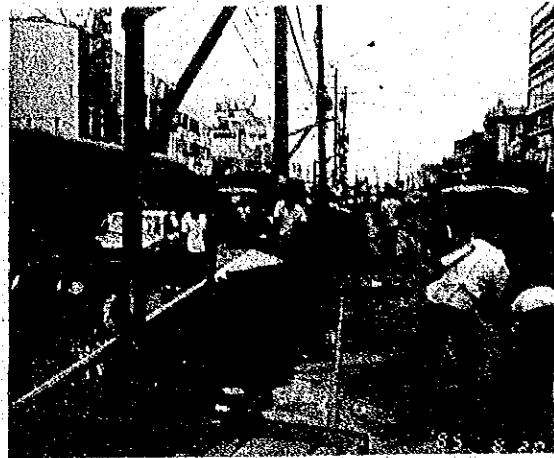


Figure 6.32
Traffic Problems in
Divisoria

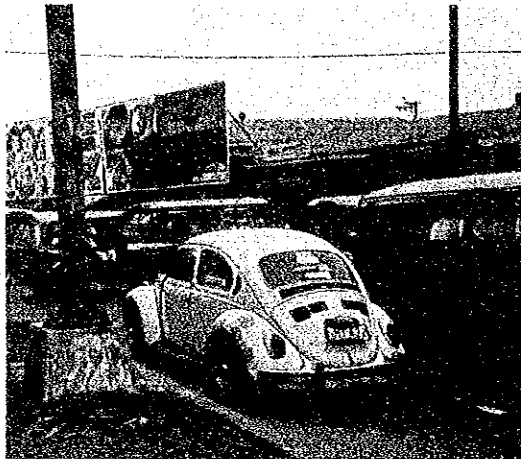
Rampant On-Road Parking Along
C.M. Recto



Disregard of Barrier Fence by
Pedestrians



Uncontrolled Traffic Flow Along
C.M. Recto



Non-functioning Traffic Signal at
C.M. Recto/Juan Luna Intersection



Ylaya St. Occupied by On-street
Vendors and Pedestrians



Unruly Loading/Unloading of Vehicles
at C.M. Recto/Soler



6.4.3 Planning Opportunities in Divisoria

Planning opportunities are very few — without a policy decision on the urban role of Divisoria now and in the future. If the past is any gauge, then only some modest steps can be recommended

- Jeepney rerouting
- Better utilization of C. M. Recto
- Redefinition of role and function of sidestreets
- Improvement of pedestrian facilities

Over the long-term, the development of an integrated public transport terminal must be addressed as the key to the resurgence of Divisoria.

A. Jeepney Rerouting

Simplified routes are classified into eight (8) types as shown in Figure 6.33.

- A1 Eastbound terminating jeepneys via C. M. Recto and A. Rivera
- A2 Northbound terminating jeepneys
- A3 Southbound terminating jeepneys via Juan Luna
- A4 Tayuman/North Harbor terminating jeepneys
- A5 CBD bound terminating jeepneys
- A6 Southbound terminating jeepneys via Del Pan
- A7 Jeepney running counter to on-coming vehicles at C. M. Recto
- A8 Creation of new route

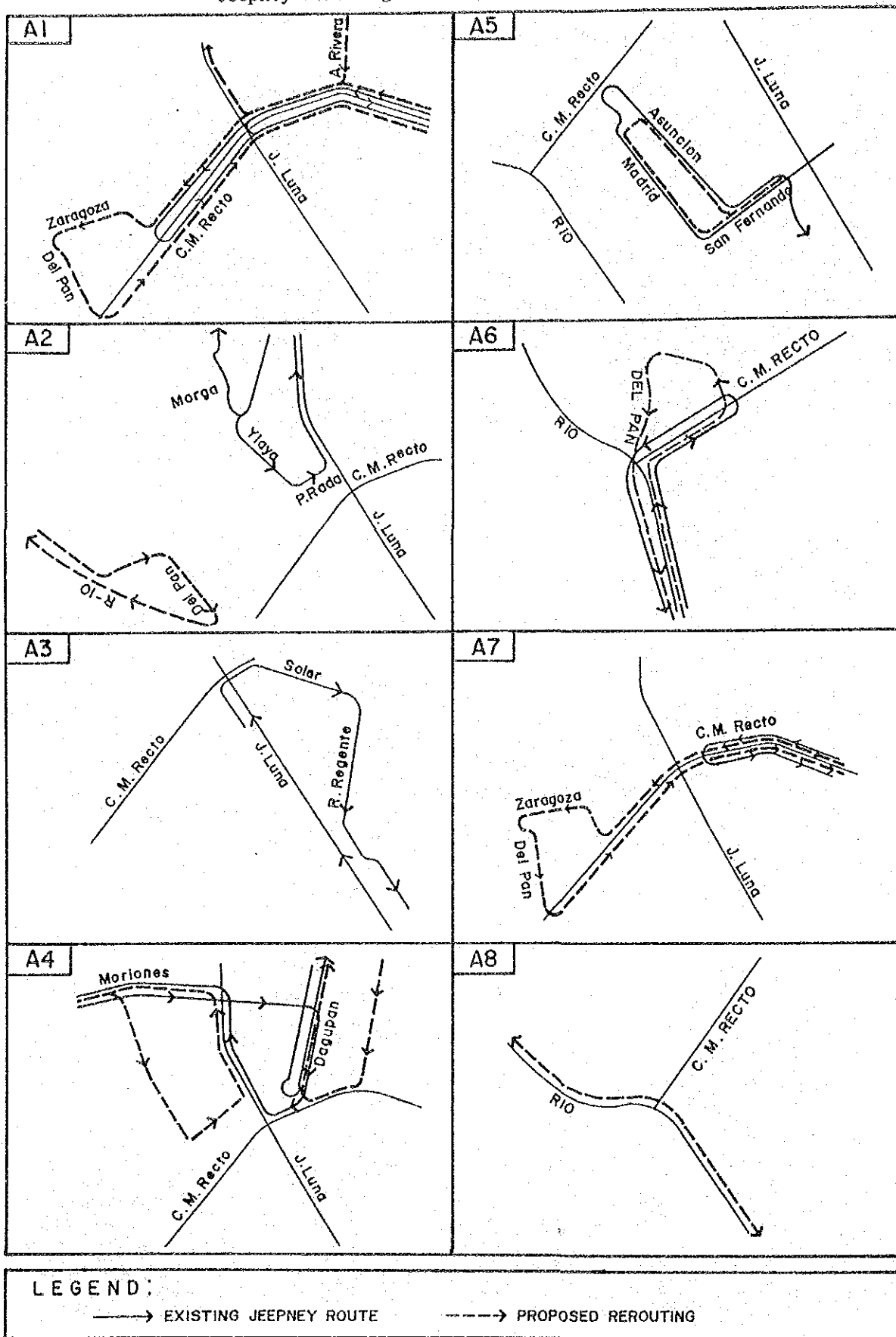
B. Better Utilization C. M. Recto

Proposals for relieving some of the problems in C. M. Recto fall into two categories:

B1 C. M. Recto from Asuncion to Juan Luna

Steps can be confined to the existing structure and requires management of public transportation, vending, and private car parking on the existing carriageway (see Figure 6.34).

Figure 6.33
Jeepney Rerouting Plan for Divisoria MIA



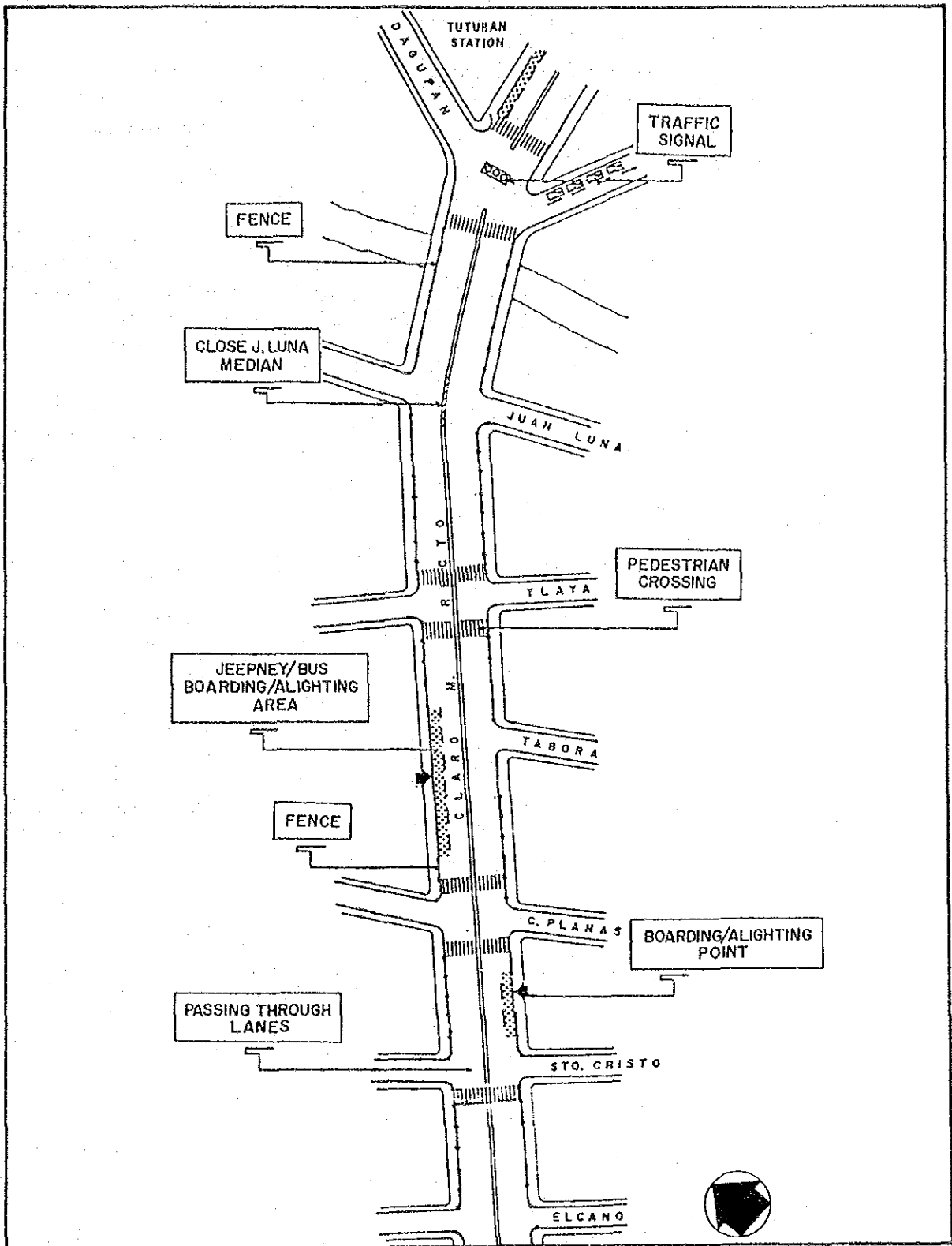


Figure 6.34
 Better Utilization of
 C.M. Recto (from Asuncion to
 Juan Luna)

B2 C. M. Recto from Asuncion to R-10

Existing facilities are adequate for 12,000 vehicles; however, traffic demand may go up to 56,000. This volume can only be handled with an additional capacity via street widening and use of one-way couples (see Figure 6.35).

B3 C. M. Recto from A. Rivera to R-10

From a long-term viewpoint, construction of flyover will directly benefit the large amount of potential through-traffic without affecting any terminal and commercial activities in Divisoria (see Figure 6.36).

C. Redefinition of the Roles and Functions of the Sidestreets

Actual use should conform to road location, geometry, and economic needs. Every square inch of Divisoria is to be maximized but this requires difficult trade-offs between conflicting requirements. To effect this proposals, the following steps are considered essential:

- 1) Construction of a secondary road in the northern area of C. M. Recto.
- 2) Establishment of an access route from C. M. Recto to the southern sector of Divisoria. San Fernando is used as the only access from the south for commodity distribution because of impassable and inundated sidestreets.
- 3) Satisfaction of parking demand (1,800 vehicles) elsewhere and restriction of on-road parking.
- 4) Mitigation of C. M. Recto's congestion by partly dispersing public transport to the sidestreets. This requires the strengthening of the south-north sidestreets network (perpendicular to C. M. Recto).

D. Improvement of Pedestrian Facilities

C. M. Recto also functions as a transport convergent point and transfer zone. As such, pedestrian activity is heavy. Deficient pedestrian facilities aggravate traffic congestion. Provision of pedestrian facilities to enhance safety and minimize conflicts with vehicles include the following steps:

- 1) Repair of pedestrian signals
- 2) Stricter enforcement
- 3) Relieving the sidewalks of vendors
- 4) Construction of overhead pedestrian walkways integrated with the commercial buildings.

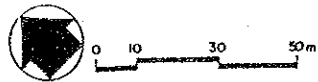
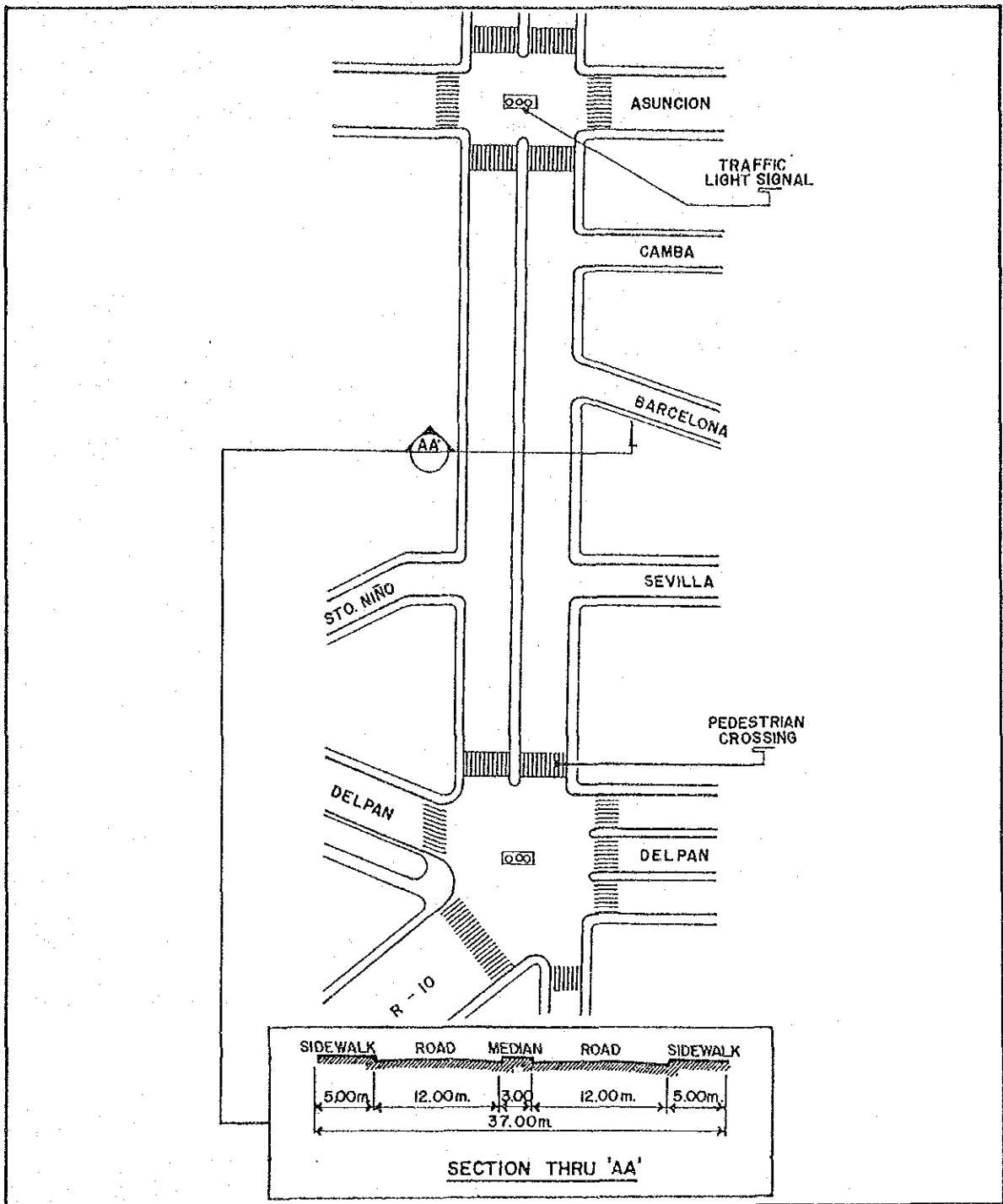


Figure 6.35
 Better Utilization of C.M.
 Recto (from Asuncion to
 R-10)

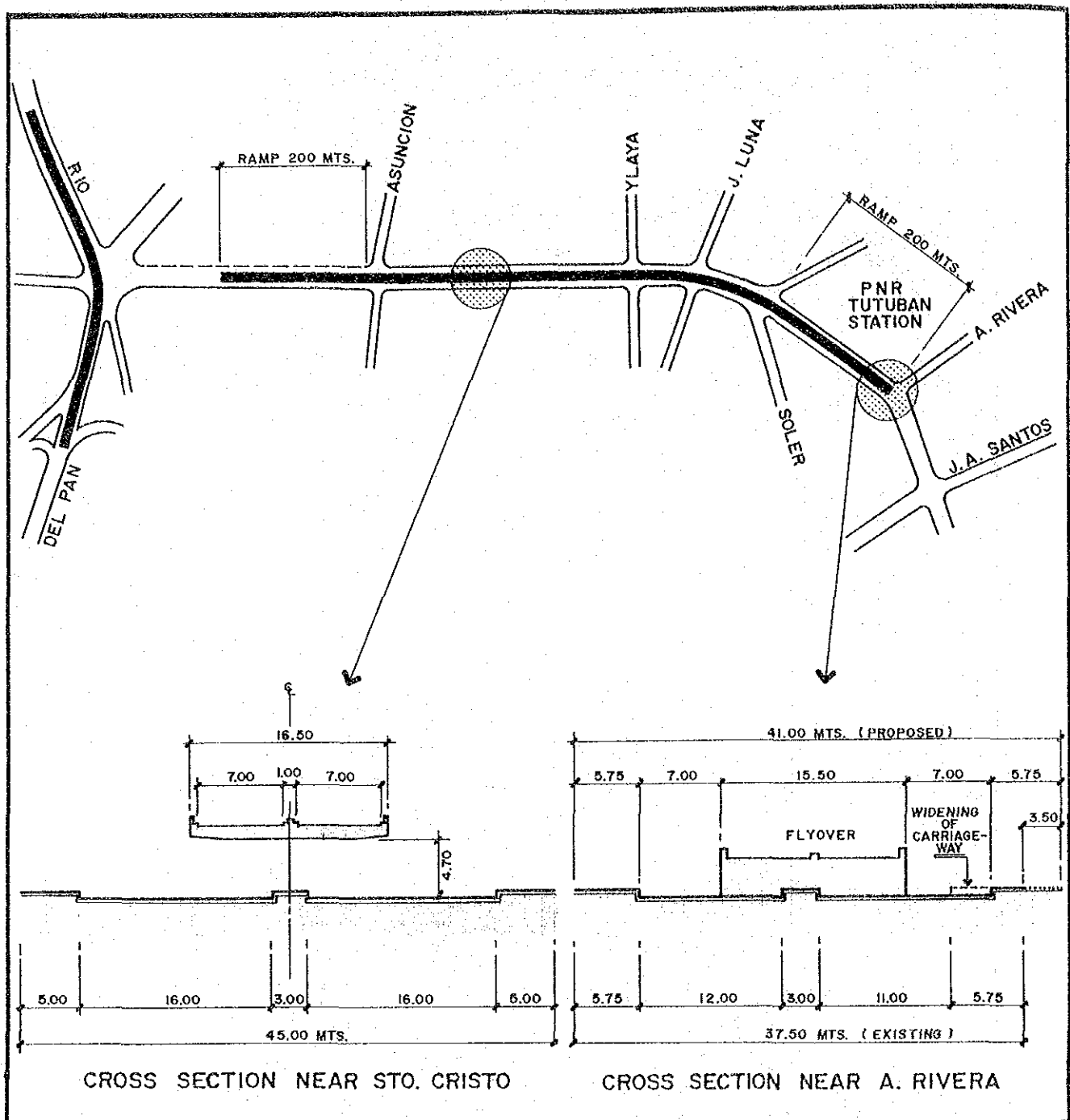


Figure 6.36
Proposed Flyover along C.M.
Recto to Cater Through Traffic

The spill-over of pedestrians into the main carriageway of C. M. Recto may be deemed not dangerous owing to the marked slowdown in vehicle speed. Pavement of sidewalks, however, are in poor condition. Rehabilitation of pedestrian amenities is needed before they can be enticed away from the carriageway. The possibility of a pedestrian mall appears worthy of exploring.

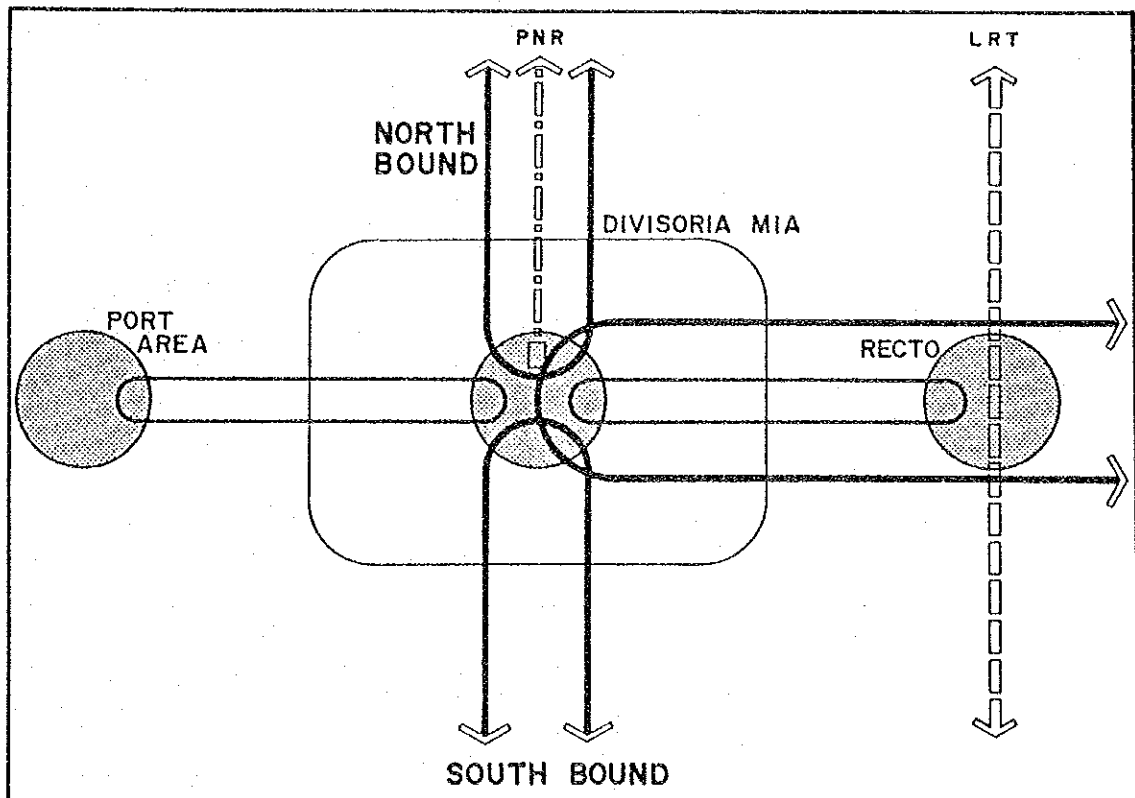
E. Development of Integrated Public Transport Terminals

Eventual resolution of the passengers transfers and traffic problems of Divisoria inevitably leads to a serious consideration of an integrated transport terminal. Integration of the various facets of mode interchange activities in one properly-designed location is crucial. Tutuban Station and Del Pan are possible sites.

The latter will fill up the current shortage of off-street lay-over and parking areas for public transport vehicles. The less intensively used PNR Tutuban Station is the only large site feasible for such a mode interchange station facility. The "role" it should fulfill is apparent from Figure 6.37. Its only drawback is its lack of coincidence with the center of activities in Divisoria; it is slightly "off-the-beaten track".

Realizing that such a facility will be too far down into the future, a medium-term recommendation is to use Del Pan Street (see Figure 6.38) farther West of C. M. Recto.

Figure 6.37
 Concept of Intermodal Relations
 at Proposed PNR Mode
 Interchange Facilities in Divisoria
 MIA



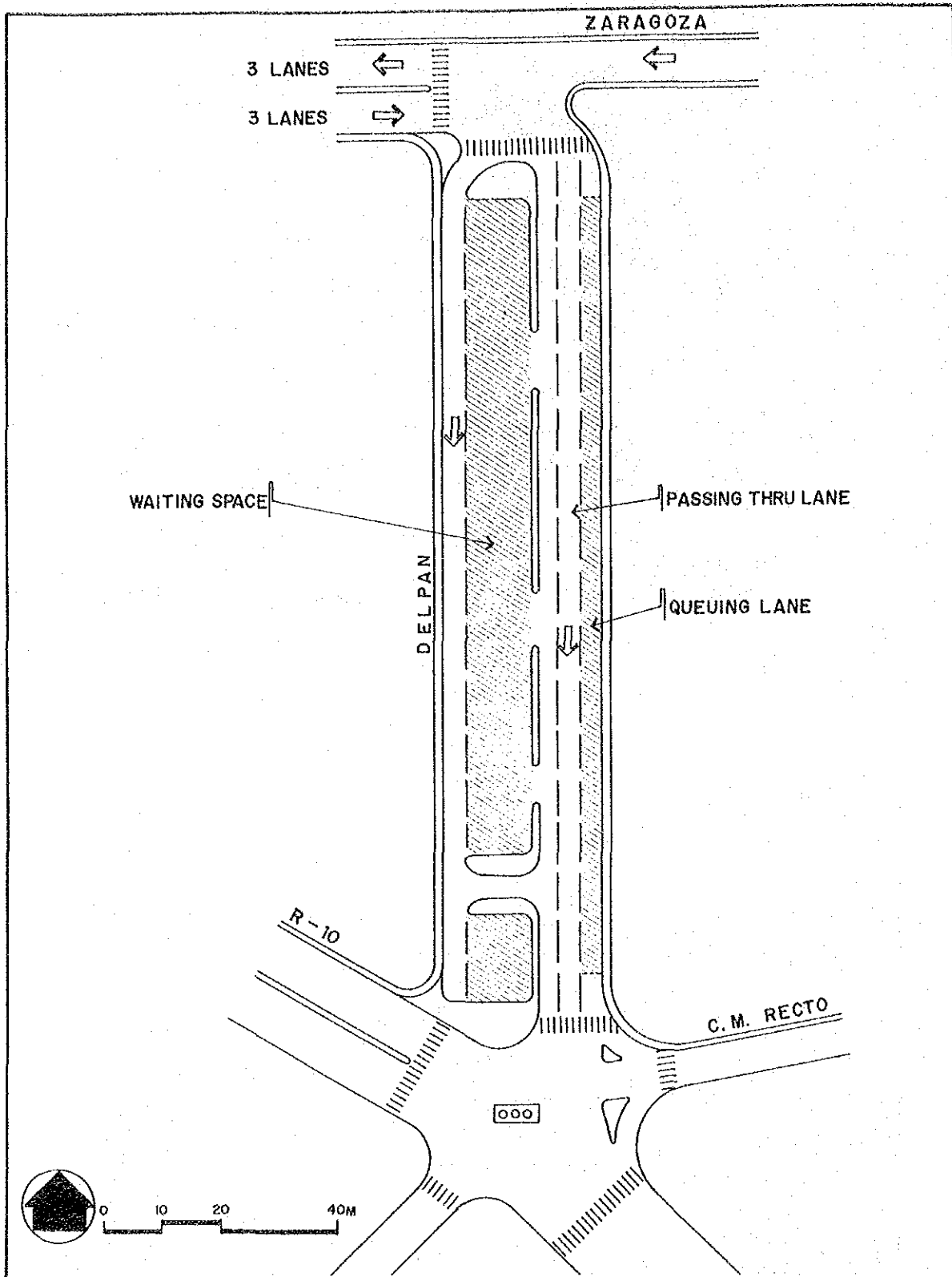


Figure 6.38
Proposed Terminal at Del Pan

6.4.4 Concept Plan of Mode Interchange Facilities for Divisoria MIA

The root of the congestion problem in Divisoria is the misuse of the street. Enforcement and other non-physical solutions have failed time and again. Only a major investment in infrastructure appear to be workable. Two feasible options are:

- a) Expansion of the PNR Tutuban Station into a mode interchange facility.
- b) Construction of a flyover to bypass the ground-level traffic along C. M. Recto.

The first alternative aims at diverting the gravity centre of Divisoria towards PNR Tutuban Compound by absorbing further commercial development needs of Divisoria as well as Binondo areas. Planned development of approximately 30 hectares (1,200 m x 250 m) of space provided, with good accessibility of road & rail, would possibly attract various urban activities and this would be more economical than to meet development demand by way of urban renewal of the existing area. Figure 6.43 indicates a possible future role of PNR Tutuban Compound in urban expansion of existing CBD, while Figure 6.44 exhibits a proposed land use concept of the compound.

This alternative is riskier although less expensive (P35.9 million vs. P100 million). There is no assurance that public transport vehicles will move to this site (which is off-center) and abandon their congesting behavior along C. M. Recto. Its success will be dependent on two uncertain variables – the ability to enforce the imposed routes and traffic rules and the ability to attract new establishments within the Tutuban Complex. On the presumption of optimism, a concept plan for Tutuban is shown in Figures 6.41 and 6.42 while Table 6.14 gives the breakdown of spaces required.

Table 6.14
Estimated Terminal Space
Required for Divisoria MIA

Use	Area (m ²)
A. Terminal Space	
1) Jeepney Terminal ^{1/}	8,100
2) City Bus Terminal ^{2/}	5,200
3) Provincial Bus Terminal ^{3/}	4,800
4) Tutuban Station ^{4/}	12,600
5) Administration Service Facility	1,000
B. Road Space	15,500
C. Building Space	5,200
D. Others ^{5/}	2,600
Total	55,000

1/ Comprising 17 unloading berth, 32 loading berth and 92 waiting space and each direction of berths for passing through jeepneys along C.M. Recto.

2/ Comprising 3 unloading berths, 12 loading berths and 41 waiting space.

3/ Comprising 10 berths.

4/ Space occupied by existing Tutuban Station.

5/ Medians, open space etc.

On the other hand, the building of a flyover is an unorthodox solution to an institutional problem. Besides, it is expensive (P100 million). It means acceptance of the prevailing "ethos" of Divisoria and converting the C. M. Recto road section underneath this proposed via-duct into a virtual pedestrian mall. All the vehicles that now use the road for parking, loading/unloading, waiting for passengers, etc. can continue as they please without hampering the through traffic to/from R-10. Figure 6.36 illustrates this concept.

It is noted that the development of Tutuban Station and the flyover could be implemented simultaneously.

Figure 6.39
Development Concept of PNR
Tutuban Compound as New
Urban Core

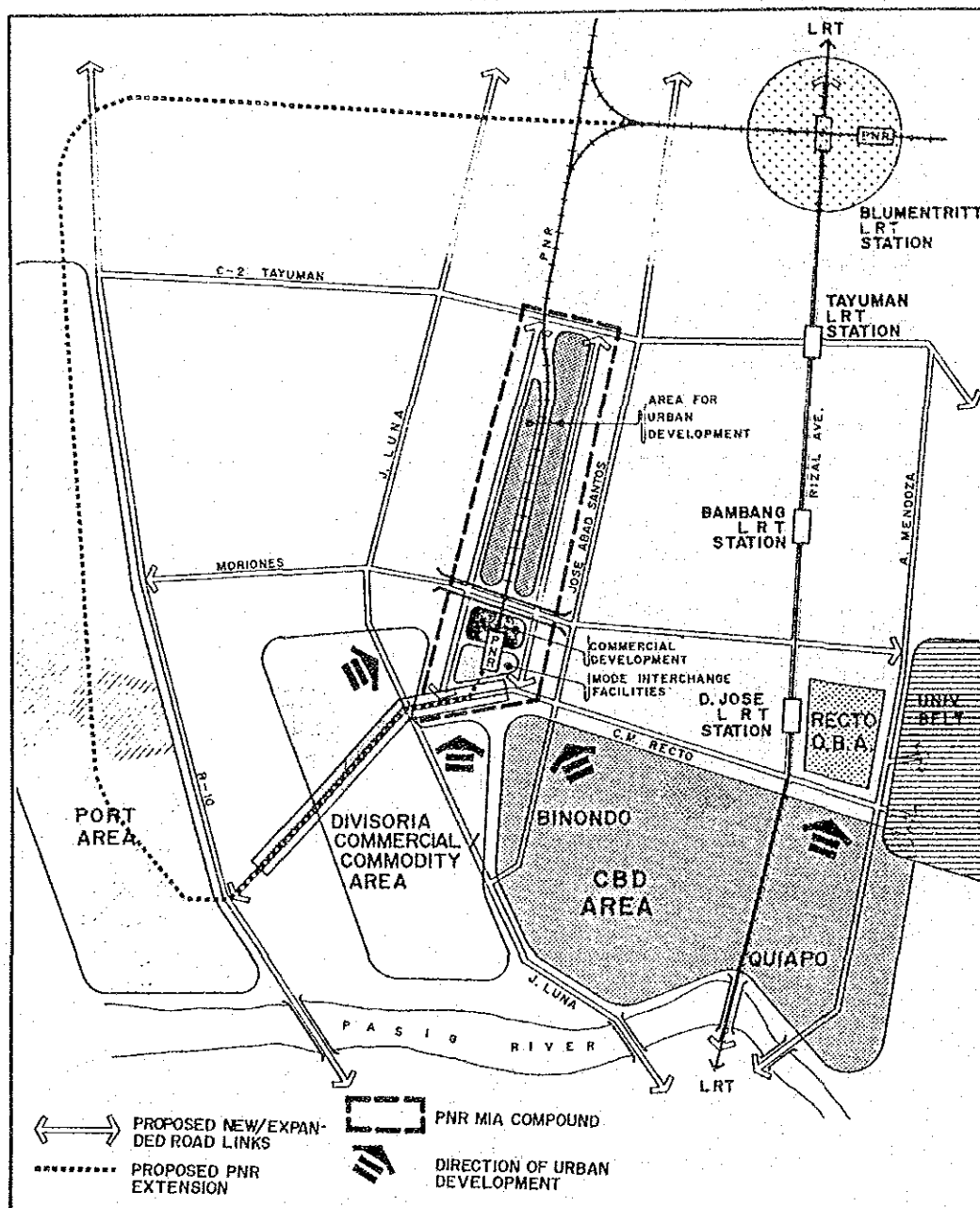


Figure 6.40
 Development Concept and
 Land Use of PNR Tutuban
 Compound

