4.1.3 Traffic Impact of the Old Bilibid Area Redevelopment

It is not difficult to imagine the traffic generation potentials of 6.4 hectares involved in the OBA Redevelopment. The floor area is estimated on the assumption of a ratio of 3 to 1 or 300% (see Figure 4.2) utilization. Given the infrastructure of the area, the development scheme for OBA cannot but rely on the public transport system.

The foregoing consideration lead to the following planning desiderata:

a) The higher the floor-to-ground area ratio, the greater the volume and frequency of PU vehicles will be.

b) Modal split will necessarily be trimodal (LRT, Bus, and Jeepney) on the LRT corridor, and bimodal for other corridors (i.e., Bus vs. Jeepney).

c) Generated private traffic volume is predicted to be 19 thousand per day.

d) It will be necessary to consider the southbound traffic of 6.5 thousand in the traffic circulation.

e) The OBA redevelopment offers the only opportunity to remedy the poor terminal facilities in the area and thus mitigate the traffic congestion impact of public transport.

4.1.4 Description of the Problem

The preceding chapters have touched on the various transportation related problems encountered in the study area (see Table 4.1). These are consolidated and summarized below:

1) Traffic Component

a) Imbalance in traffic flow along C. M. Recto due to improper manual control and/or malfunction of traffic signals.

b) Unnecessary risks to pedestrians combined with disruption to traffic flow, due to lack of control and/or facilities.

c) Discontinuity in traffic flow as a result of U-turning movements at C. M. Recto/Rizal Avenue intersection.

d) Traffic congestion along A. Mendoza service road arising from pedestrian and vehicular misbehavior.

e) Ineffective enforcement and toleration of on-street parking.

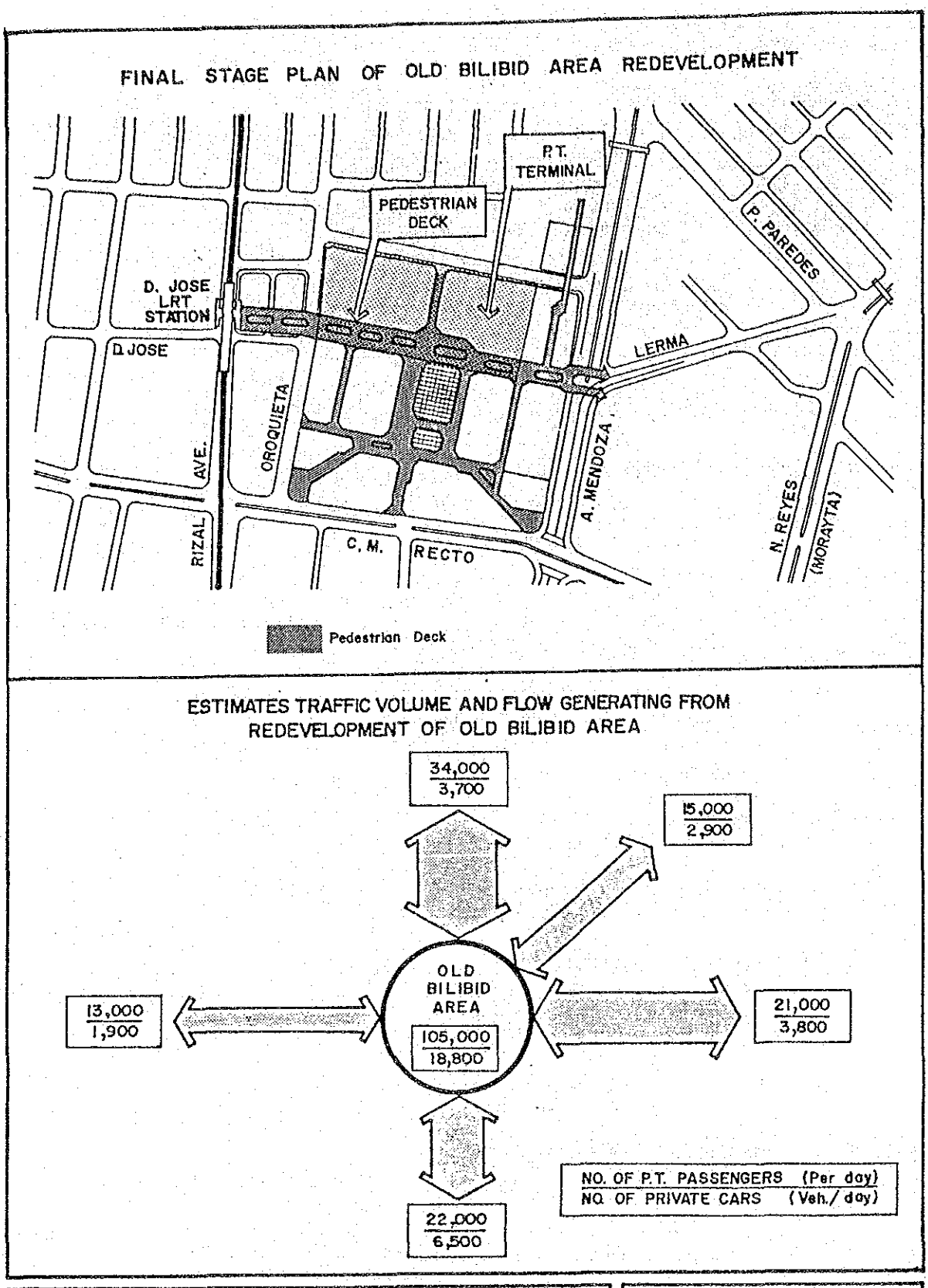


Figure 4.2
Impact of Old Bilibid
Area Redevelopment

Table 4.1
Transportation System Problems and Possible Solutions

	PROBLEM STATEMENT	DISCUSSIONS	POSSIBLE SOLUTIONS
Traffic Component	a) Disorganized traffic management due to manual control and/or malfunction of traffic signals.	• Two traffic signals along C.M. Recto malfunction. Those along Rizal Avenue and Evangelista are controlled manually.	• Improvement of traffic signals and their operation .
	b) Danger to pedestrians and impedance of smooth traffic flow due to the lack of pedestrian traffic control.	• Jaywalking at España/ Lerma, A. Mendoza/Lerma and C.M. Recto/Evangelista impede traffic flow. • Congestion due to lack of pedestrian traffic management at the intersections with malfunctioning traffic signals.	• Improvement of traffic signals and their operation. • Improvement of pedestrian crossing facilities. • Provision of barriers to prohibit pedestrian crossing.
	c) Disruption of traffic flow due to U-turn movement at C.M.Recto/ Rizal Avenue intersection.	• Improper movement of left-turn traffic from C.M. Recto/Rizal Avenue impede traffic flow at the intersection. • LRT pier located in the middle of the intersection makes it difficult to maneuver left-turning.	• Stricter enforcement with traffic signal control. • Geometric restructuring of the intersection.
	d) Traffic congestion due to improper traffic management along A. Mendoza service road.	• Reduction of lane capacity due to jeepney queueing at the influx point to C.M. Recto (Traffic volume is 600/ hour for two lanes only). • Disturbance to traffic flow due to passengers walking on carriageway.	• Transfer of jeepney queueing places. • Control of vendors and improvement of pedestrian facilities. • Better utilization of A. Mendoza service road.
	e) Local congestion and impeded traffic flow caused by improper traffic control and toleration of on-road parking.	• One lane each direction of C.M. Recto is occupied by on-road car parking. • Difficulties in securing through-traffic lane due to roadside parking along minor road (particularly P. Paredes).	• Provision of off-road parking space. • Control of on-road parking space.
	f) Disturbance of pedestrian traffic by street vendors.	• Sidewalk and arcade are occupied by street vendors in the areas along Cinerama square and Central Market.	• Control of vendors on sidewalk.
	g) Increase in traffic congestions due to generated traffic from redeveloped OBA.	• Traffic generated by OBA estimated to be 19,000/day of private cars and an estimated 105,000/day of public transportation passengers.	• Encourage diversion to LRT by strengthening mode interchange facilities and rerouting.

Table 4.1 cont'd

	PROBLEM STATEMENT	DISCUSSIONS	POSSIBLE SOLUTIONS
Public Transport Component	h) Peril to pedestrians because of mixture of pedestrians and jeepneys on the pedestrian crossing and sidewalk because of jeepneys waiting on pedestrian crossing and sidewalk.	• Jeepney U-turn in the España/Morayta intersection. • Jeepneys driving up to the gas station at Lerma (R. Papa - Paredes).	• Elimination of jeepney U-turn flow by rerouting. • Shifting the U-turn point from pedestrian crossing to Lerma side by means of median opening. • Widening of sidewalk and construction of jeepney bay.
	i) Lack of jeepney terminal space along P. Campa and P. Paredes.	• Pedestrian malls on carriageway due to jeepneys occupying sidewalks	• Keeping the passable lane for the passing through traffic by means of a proper queueing system. • Transfer of jeepney terminal by rerouting.
	j) Inconvenience of jeepney passenger due to the long walking distance (550 m.) to the V. Fuguso/F. Huertas intersection.	• Trip cutting of the northbound U-turn route.	• Rerouting from F. Huertas to Oroquieta.
	k) Congestion along the C.M. Recto station from Evangelista to Oroquieta by jeepneys and buses.	• Northbound jeepneys interrupt the passing through traffic along C.M. Recto intersection. • Bottleneck along C.M. Recto.	• Installation of traffic signals. • Repair of road pavement along Oroquieta. • Strengthening of dispatching system of Philippine Rabbit Bus Terminal. • Larger space and a more suitable location of the Philippine Rabbit Bus Terminal (PRBT). • Appropriation of the PRBT in the Old Bilibid Area.
	l) Inconvenience of minibus passengers.	• Deterioration of road and sidewalk pavement near mini-bus terminal.	• Repair of road and sidewalk pavement. • Appropriation of the mini-bus terminal in the OBA.
	m) Inconvenience of interchange and transfer among routes at C.M. Recto/A. Mendoza intersection due to grade separated structure.	• Coverage of the routes on the westside of A. Mendoza is practically limited. Particularly, interface with Quezon Avenue corridor is inconvenient.	• Opening of median of C.M. Recto/A. Mendoza service road to provide access to service road. • Development of mode interchange facilities in conformity with OBA development.
	n) Reduction in traffic capacity and disturbance to smooth traffic flow due to boarding/alighting of bus/jeepney passengers.	• Reduction in road capacities due to loading/unloading at C.M. Recto Rizal Avenue and España. • Reduction in traffic capacity of A. Mendoza and danger to pedestrians due to boarding/alighting along the medians.	• Control of boarding/alighting activities. • Prohibition of boarding/alighting on the through-traffic lane side.

Table 4.1 cont'd

	PROBLEM STATEMENT	DISCUSSIONS	POSSIBLE SOLUTIONS
Road Component	o) Impact of LRT operation and OBA redevelopment on existing public transportation.	• Restructure the existing public transportation routing and operation in conformity with OBA redevelopment.	• Improvement of mode interchange facilities and associated rerouting. • Strengthening of routes with deficient capacities. • Restructuring of LRT related routes.
	p) Impedance to smooth traffic flow due to deteriorated road surface.	• Deteriorated road surface along Oroquieta, D. Jose, L. de Vega, F. Huertas and Rizal Avenue force reduced travel speeds at 5-10 kph.	• Improvement of road surface.
	q) No pedestrian crossing facilities between A. Mendoza and Reyes (220 m.).	• No traffic signal with 1,200 pedestrian/hour crossing.	• Provision of graded pedestrian crossing in conjunction with the installation of traffic signal proposed by TEAM.
	r) Congestion around D. Jose station due to the LRT operation.	• A total of 116,000 LRT passengers/day converge at D. Jose station for boarding/alighting. • Lack of pedestrian boarding/alighting spaces. • Development of commercial establishment, the ISETANN, will further amplify the above problems.	• Plans need to be developed on the rational use of Rizal Avenue and D. Jose in due consideration to pedestrians, PUV, private cars and terminals.
	s) Anticipated increase in congestion due to generation of detouring and left-turning movement traffic.	• Traffic management of the south and north east bound traffic need to be examined as private car traffic, particularly from the south, will increase.	• Improvement of circulation within the OBA compound including development of new road links.

f) Displacement of pedestrian traffic by street vendors.

g) Increase in future traffic congestion due to generated traffic from OBA redevelopment.

2) Public Transportation Component

h) Lack of concern to pedestrians by jeepneys disregarding pedestrian crossings and sidewalks.

i) Lack of jeepney lay-over areas.

j) Passengers inconvenienced by trip cutting on the north-bound loop routes.

k) Large volume of PU vehicles converging on C. M. Recto section from Evangelista to Oroquieta.

l) Interchange and transfer among the routes at C. M. Recto/ A. Mendoza intersection hampered by road grade-separation.

m) Reduction in traffic capacity from uncontrolled or undisciplined boarding/alighting of bus and jeepney passengers.

n) Potential bottlenecks around D. Jose LRT station once the LRT is operational.

3) Road Component

o) Smooth traffic flow impeded by the deteriorated road surface.

p) No pedestrian crossing facilities to connect A. Mendoza with N. Reyes.

4.2 PLANNING DIRECTIONS

Planning stages were established based on the expected dates of the LRT's start of operation and the redevelopment phases of the Old Bilibid Area (see Figure 4.3). Thus,

Short and Mid-term – This planning stage encompasses remedial measures to existing traffic problems of the area, the improvement and modifications to the PU routes in conjunction with the LRT operation.

Long-term – This planning stage covers the period beyond the LRT opening and into the redevelopment of Old Bilibid Prison.

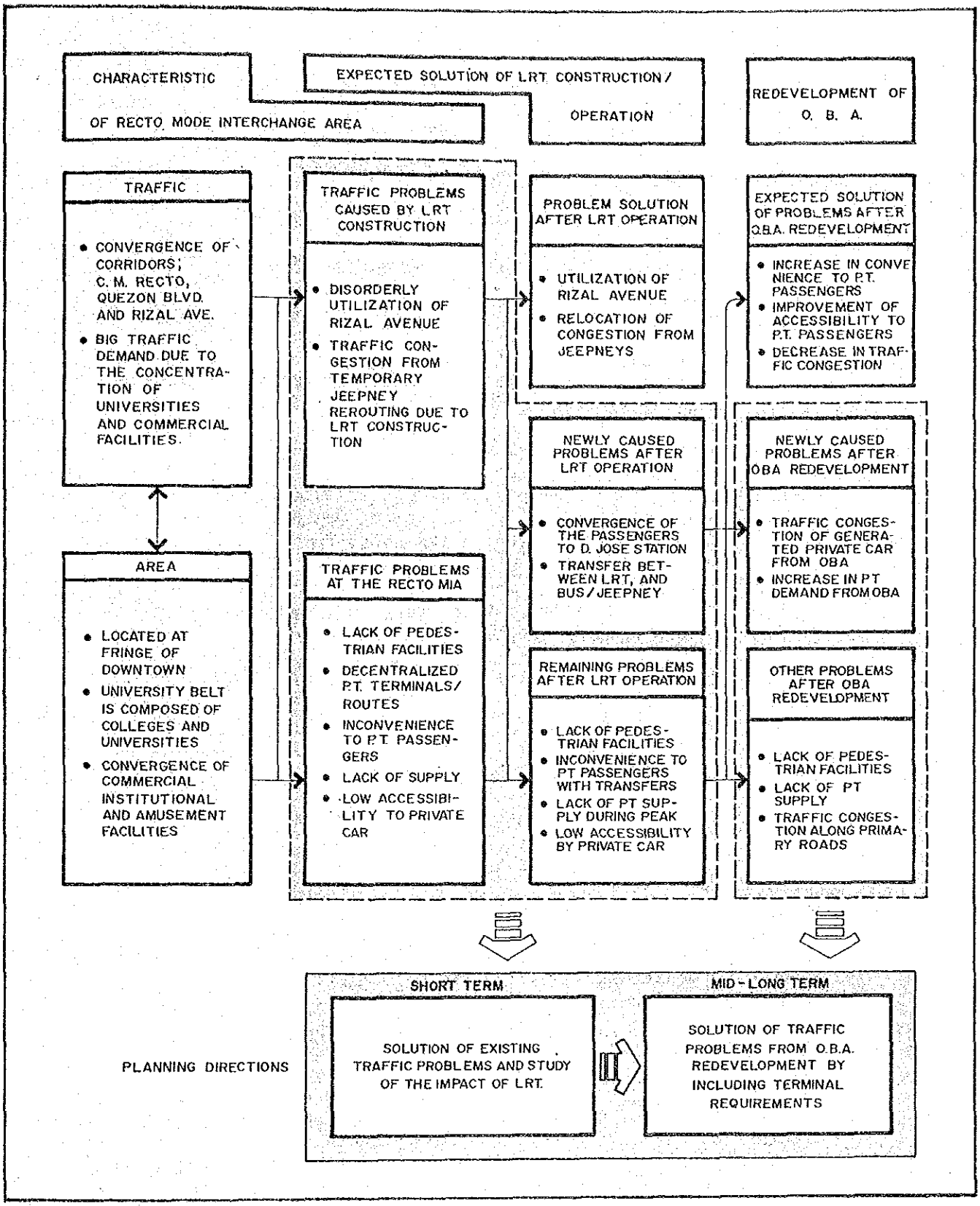


Figure 4.3
Traffic Problems
and Planning Directions

The planning of the Recto MIA therefore has to address the aforementioned problems and formulate solutions in two stages mentioned above. These plans can be brokendown into:

a) Jeepney rerouting or route modifications

b) Better utilization of A. Mendoza service road

c) Improvement or additional pedestrian facilities

d) Effective utilization of the roads near the D. Jose LRT station

e) Incorporation of public transport terminal requirements in the redevelopment of the Old Bilibid Prison.

4.2.1 Jeepney Rerouting

Passing through jeepney routes taking A. Mendoza will be rerouted to A. Mendoza service road and supported by corresponding improvement of pedestrian facilities in the short to mid-term period.

Most of the major jeepney routes will be accommodated into the Old Bilibid Area to facilitate interchange of passengers among the different modes such as jeepney, bus, tricycles and LRT.

Route modifications will be designed for three types of route, viz.:

A1 : Northbound terminating jeepneys via A. Mendoza service road

A2 : Morayta terminating jeepneys via C. M. Recto

A3 : Passing through jeepneys via Rizal Avenue

4.2.2 Better Utilization of A. Mendoza Service Road

Control of passenger boarding and alighting on the carriageway and along the median-strip will relieve congestion along the service road of A. Mendoza.

4.2.3 Improvement of Pedestrian Facilities

In the short-term, only minor improvements of pedestrian crossing facilities at the problematic road sections and intersections (including at the LRT station) can be planned for. The pedestrian skyways envisioned in the OBA redevelopment will provide a major boost for the long term.

Proposals for improving pedestrian traffic flow are:

a) Rehabilitate sidewalks between LRT D. Jose station and areas along Rizal Avenue, D. Jose and Oroquieta.

b) Prohibit on-road vendors near the entrance of the underpass at C. M. Recto/A. Mendoza intersection.

c) Construct the pedestrian deck or skyway between LRT D. Jose station and the FEU side as proposed in the MMC's OBA Redevelopment.

d) Provide pedestrian walkways with the development of parking space at the defunct Opera House and at Cinerama Theatre.

4.2.4 Effective Utilization of Roads near D. Jose 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 (see Figure 4.4):

a) Rehabilitation of sidewalks along Rizal Avenue, D. Jose and Oroquieta, to prevent pedestrian spill-over into road space.

b) Provision of bus/jeepney bays along Rizal Avenue and D. Jose, where feasible; else, control of loading and unloading to designated lanes.

c) Geometric improvements at intersections and installation of traffic signals.

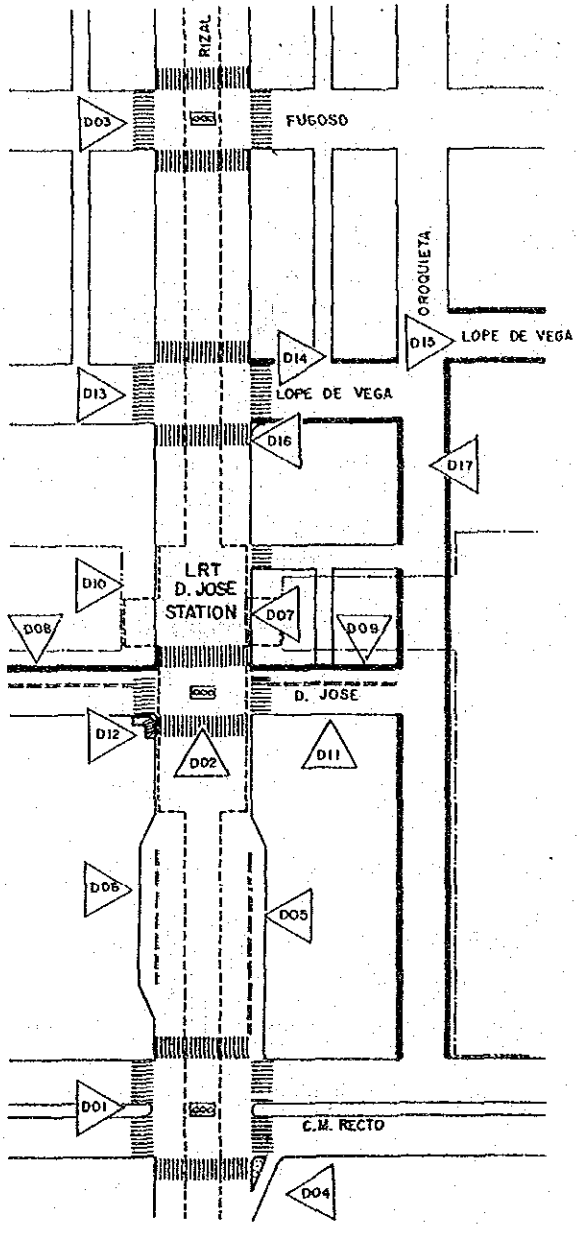
d) Repaving of dilapidated road surfaces.

4.2.5 Recommendation for Redevelopment of Old Bilibid Area

The Old Bilibid Prison provides an ideal site for an integrated public transportation terminal for PU vehicles running along Rizal Avenue, A. Mendoza, and Quezon Avenue. It creates the possibility of interchanging among different modes of LRT, jeepney, and bus. The terminal will facilitate the transfer of jeepney/bus traffic to the LRT and vice-versa, and relieve conditions along A. Mendoza, Quezon Boulevard and C. M. Recto. As a consequence, the traffic pressure in the CBD will ease up.

Development concept for the public transportation terminal aspects of the OBA Plan follows from the structure of jeepney routes and shown in Figure 4.5. The routes from the north, northeast, and the west are to terminate or end there. Transfer bays are needed at the periphery of the development site such that interchange between the LRT (on the westside) and the passing through PUJ/PUB routes (on the eastside) is made possible. These two sides will be linked by the pedestrian deck/skyway cutting across the OBA.

Because of the peculiarity of the site, not all PU routes can be accommodated into the Recto MIA. The affected areas include northbound terminating routes around OBA (jeepney and bus) and terminating routes at Morayta (jeepney). The terminating routes at P. Campa (i.e., Quezon Avenue corridor based routes) may proceed to the Recto MIA via C. M. Recto or remain as is. While new PU routes



Rizal Avenue

1) Installation of traffic signals and improvement of pedestrian crossing ------- D01, C02 and C03

2) Channelization of right turning movement at C. M. Recto/Rizal Avenue by geometric improvement -- C04

3) Provision of sidewalks and bus/jeepney stops by markings ----- D05, D06 and D07 (for jeepney)

D. Jose

1) Provision of mini-bus terminal by lane markings ---------- D08, D09

2) Provision of pedestrian space by setting back into the vacant lot ---------- D10

3) Improvement of road surface of D. Jose ---------- D11

4) Widening of sidewalk ---------- D12

De Vega

1) Improvement of road surface ---- D13

2) Improvement of sidewalk -- D14, D15

3) Channelization (corner restructured) ----- D16

Oroquieta

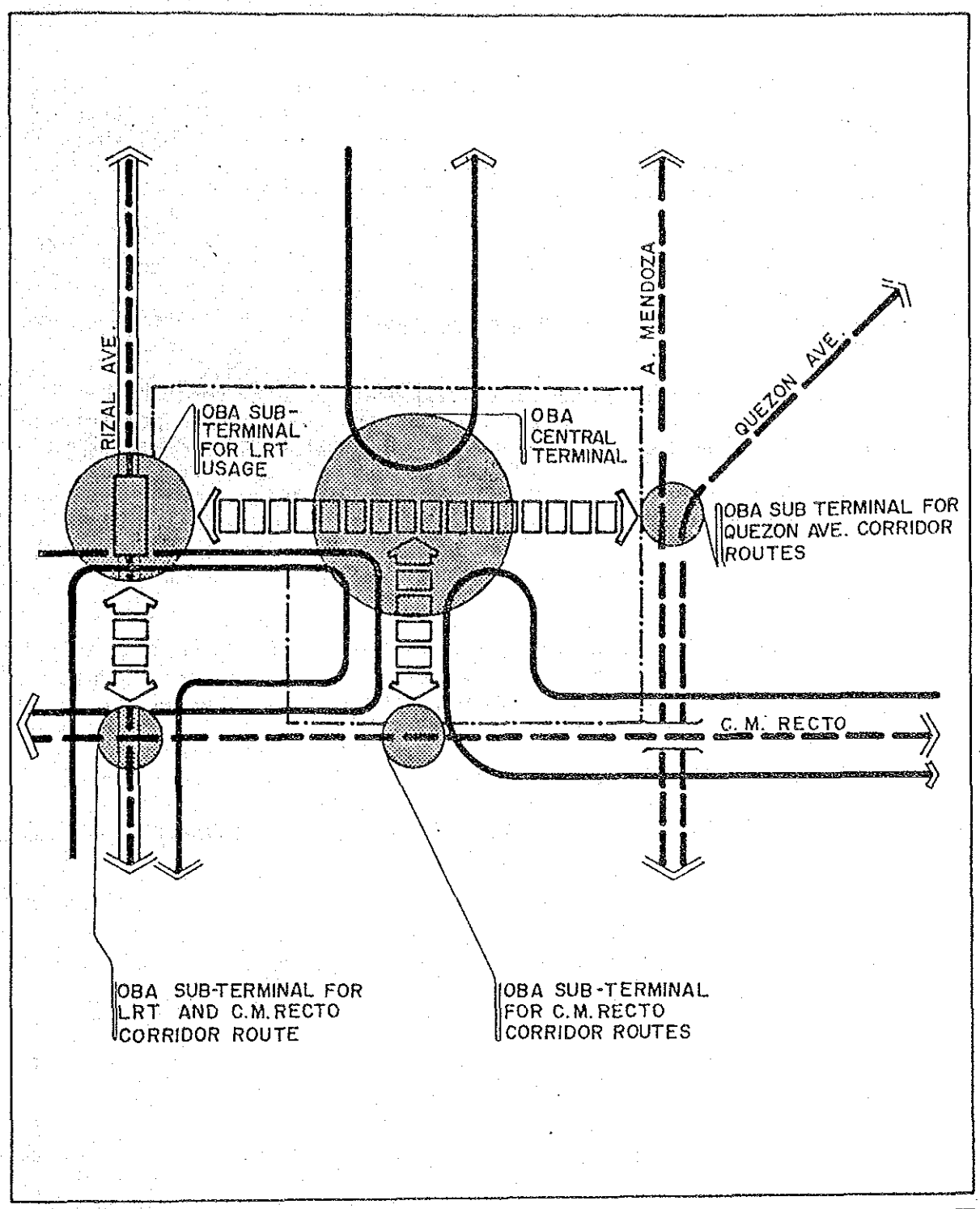
1. Improvement of road surface ---- D17

LEGEND :

- PROPOSED COUNTERMEASURE
- TRAFFIC SIGNAL
- PEDESTRIAN CROSSING
- LANE MARKING FOR BUS / JEEPNEY LOADING AND UNLOADING
- ISLAND CHANNELIZATION
- IMPROVEMENT OR PROVISION OF SIDEWALK
- SET BACK
- WIDENING OF SIDEWALK

Figure 4.4
Proposal for the Effective Utilization of the Roads near LRT (Short-term Alternative)

JUMSUT II



LEGEND:

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

Figure 4.5
Proposed Concept for Old Bilibid Area as Public Transportation Terminal

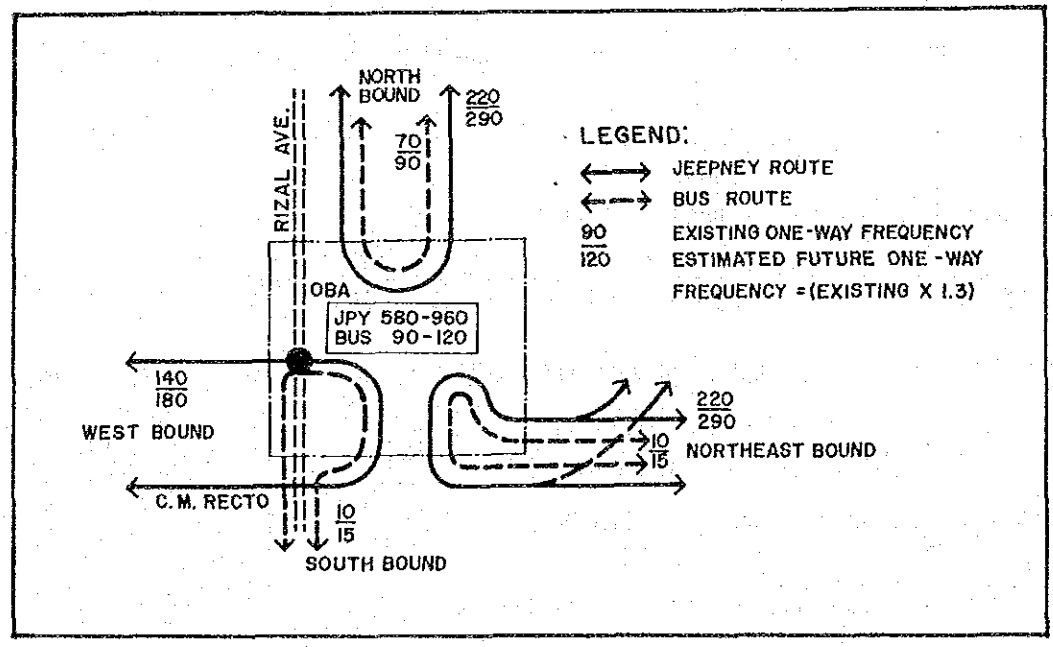
are probable to meet the generated traffic demand from OBA redevelopment, it is more likely to expect restructuring of turning points and additional units. The direct link of the LRT with the Quezon Avenue-Quiapo bound PU vehicles need not be at Recto, since the Central LRT Station is more convenient.

Estimated frequency of terminating routes during morning peak hour is shown in Figure 4.6. It is roughly estimated that around 2.0 hectares will be required to provide lay over areas and other facilities for the volume of jeepneys and buses anticipated for the OBA.

With regards to the provincial buses operating in Recto there are two options. One is to exclude them in view of the government policy of encouraging provincial buses to relocate outside EDSA. The second is to accommodate them into the OBA. The first is advantageous from the traffic management viewpoint, while the second from passenger convenience standpoint. Since the land requirement of 0.6 to 1.0 hectare is huge and demand for provincial buses at that location may decline, the exclusion option is favored.

The biggest constraint faced by the OBA redevelopment concerns external access. Critical directions are northeastward (España-Quezon Avenue) and southward (Quezon Boulevard). Opening of medians at several locations appears to be problematic. Internal circulation is easier to resolve but requires careful investigation to avoid conflicting traffic flow lines between and among private and public transportation vehicles. In the long run, the construction of LRT line number 2 along C. M. Recto will expand the external access capacity.

Figure 4.6
OBA Terminating Jeepney/Bus



4.3 TOWARDS AN IMPLEMENTABLE PROJECT

4.3.1 Basic Consideration

The fundamental structure of the integrated Recto terminal is preset by the OBA Redevelopment. There is not much room for alternatives. However, there are numerous options available at the technical and actual level. These will be finalized later in accordance with the following criteria:

Screening Factors

- technical viability and traffic engineering coherence
- acceptability to the principal sponsors or implementing agencies

Preference Factors

- least cost projects/options
- public transport vehicles and users as the beneficiaries
- least complicated solutions
- minimum government intervention

The reason for the above two categorization of evaluation factors is the fact that some of the alternatives are not mutually exclusive choices.

4.3.2 Evolution of a Recto MIA

The integration of mode interchange functions in the Recto area cannot be realized overnight - due to financial and other constraints. Elements of it will have to be introduced thru time and dovetailed with the major plans of MMC and LRT.

Table 4.2 summarizes JUMSUT II recommendations under various categories and schedules. Each rerouting package is shown in Figure 4.7.

a) Short-term

These include measures that can and should be implemented with the opening of the LRT, viz.:

1) Rerouting or route adjustments for jeepneys running along and/or feeding into the LRT corridor;
2) Rehabilitation of the roads around the LRT D. Jose station; and
3) Low-cost traffic management and pedestrian facilities, as required.

b) Mid-term

To set the stage for a strong mode interchange function at the Recto MIA and as the intervening variables between the first and last phases of development, the following steps are recommended:

1) Improvement of A. Mendoza service road and execution of the corollary rerouting;

2) Implementation of additional traffic management measures and installation of pedestrian facility not covered by the short-term program.

c) Long-term

It is during this phase when the transport terminal assumes concrete form. Implementation is dependent on the overall OBA redevelopment and includes the following:

1) Site clearing and corresponding construction of supportive facilities (parking slots, loading bays, waiting areas, service bays, etc.);

2) Construction of the pedestrian skyway/deck; and

3) Revised circulation plan and associated traffic management.

Summary of recommendations vis-a-vis the OBA Redevelopment is as follows:

- accommodate the routes as shown in Figure 4.5.
- earmark an area approximately 2.5 hectares for terminal
- adopt a circulation plan for the jeepney and bus (see Figure 4.9).

Table 4.2
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	● A101
A-2 WESTBOUND TERMINATING JEEPNEYS (MORAYTA)	● A201		● A202
A-3 PASSING THROUGH JEEPNEYS VIA RIZAL AVENUE	● A301	→	→
B. BETTER UTILIZATION OF A. MENDOZA SERVICE ROAD	● B01	→	→
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			● E101

LEGEND :

● SPECIFIC PROPOSAL WITH THE NUMBERED OPTION IS RECOMMENDED.

NA NOT AVAILABLE OR NO SCOPE FOR ACTION.

→ PROPOSALS FROM PREVIOUS PHASE STILL VALID

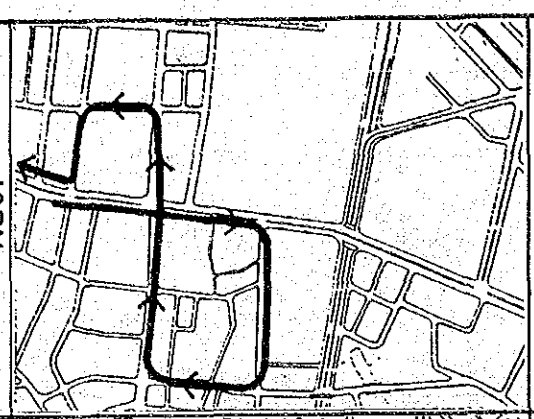
1/ SHORT-TERM ACTIONS - IMPLEMENTATION TIMED WITH THE OPENING OF LRT.

2/ LONG-TERM ACTIONS - IMPLEMENTATION SYNCHRONIZED WITH OBA.

Figure 4.7
Rerouting of Jeepneys:
Short and Long-Term Alternatives

SHORT – TERM

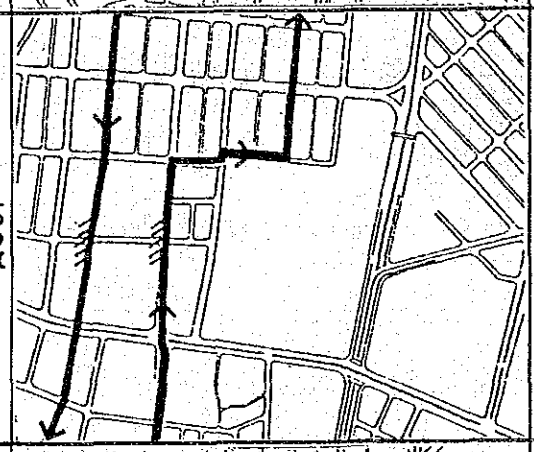
A201



Rerouting via Evangelista (MOTC Proposal)

- Discontinued U-turning at the pedestrian crossing of Morayta/España intersection; reduced traffic by 130 vehicles at the intersection during peak hour
- Increased capacity of Morayta and C.M. Recto/ Morayta intersection.
- Terminal space and facilities provided by OBA.

A301

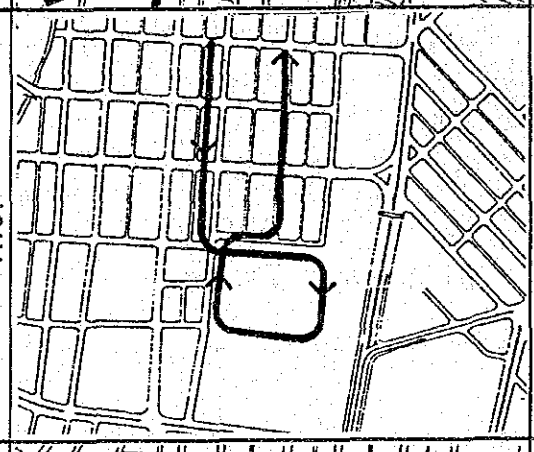


JUMSUT I Rerouting Plan

- North to south bound routes rerouted to V. Mapa, while south to north ones to De Vega-F. Huertas from Rizal Avenue.
- Decreased jeepney traffic along various roads; Evangelista (1,160/day), C.M. Recto (620-1,780), Oroquieta (1,580). A. Mendoza (600), Lerma (1,270), Quezon Avenue (1,600-2,260), Rizal Ave. (300) etc.

LONG-TERM

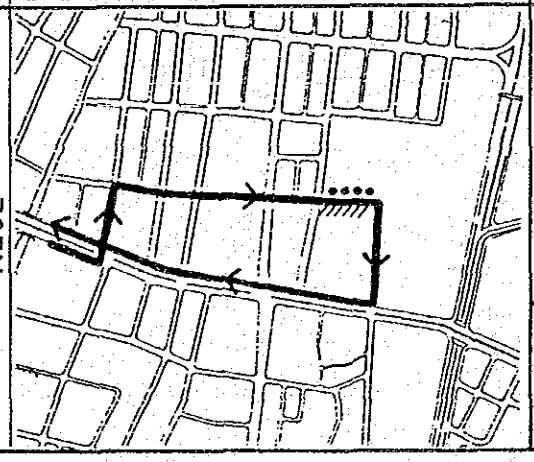
A101



Alternative Rerouting Plan after OBA development

- Turning point in the OBA instead of at C. M. Recto/A. Mendoza.
- Increased convenience for transfer purposes.
- Avoids the congested sections in the periphery of the Central Market.
- Decreased traffic by 500 vehicles along A. Mendoza and C.M. Recto during the peak hour.

A202



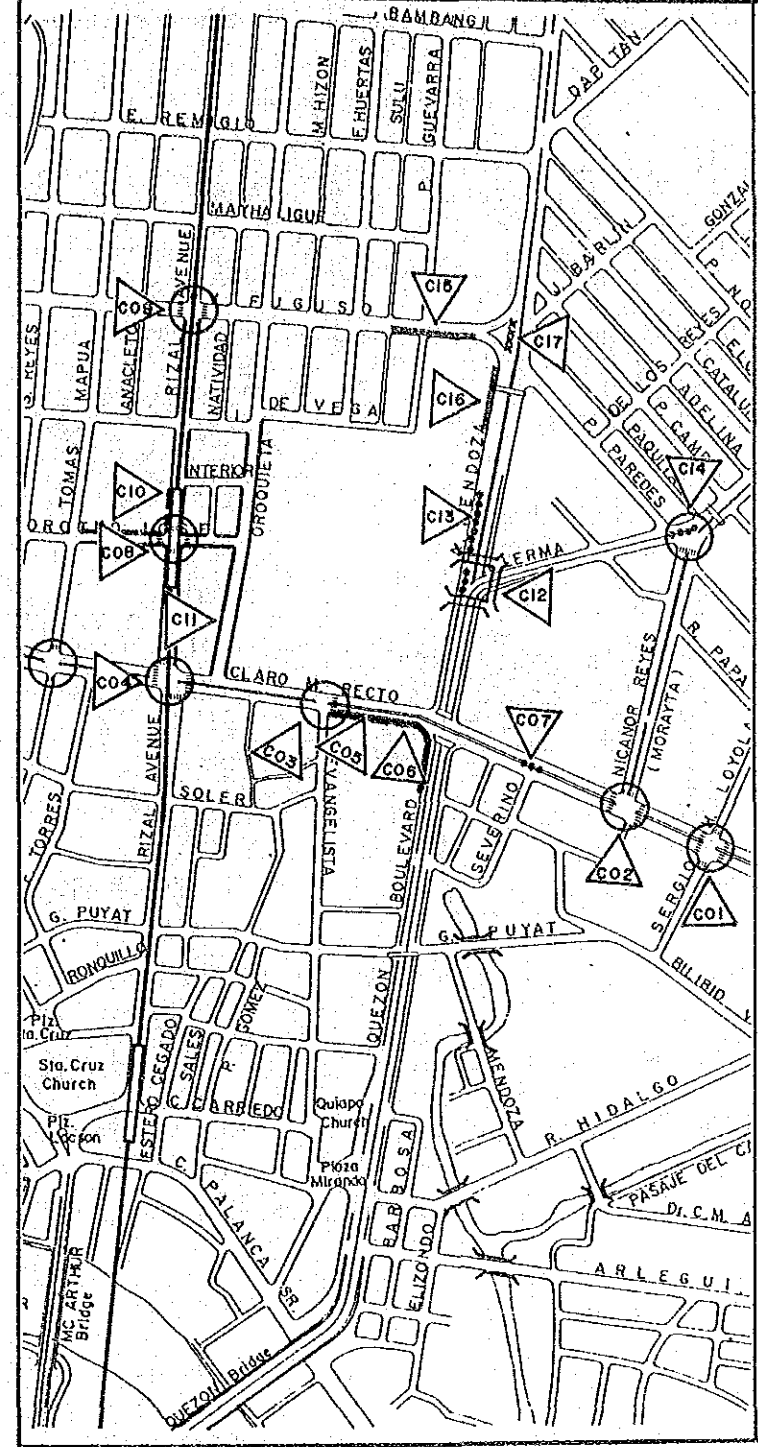
Rerouting via D. Jose

- Access to the OBA via T. Alonzo then D. Jose.
- Increased convenience of transfer to the LRT.
- Alleviated traffic conditions along C.M. Recto.

LEGEND:

- FLOW OF JEEPNEYS
- JEEPNEY WAITING PLACES
- MAJOR BOARDING/ALIGHTING PLACES

IMPROVEMENT OF PEDESTRIAN FACILITIES ; SHORT-TERM AND MID-TERM ALTERNATIVES



Associated Countermeasures/Investments

1) Installation or repair of traffic signal and improvement of pedestrian facilities.
   - C. M. Recto/Loyola ———— C01
   - C. M. Recto/Morayta ———— C02
   - C. M. Recto/Rizal Ave. ——— C04
2) Control of street vendor ——— C05
3) Provision of sufficient pedestrian space ———————— C06
4) Rehabilitation of C. M. Recto Central Median ———————— C07
5) Installation of traffic signals
   - C. M. Recto/Evangelista —— C03
   - Rizal Avenue/D. Jose ——— C08
   - Rizal Avenue/V. Fuguso —— C09
6) Provision of sufficient pedestrian space by control and enforcement ———————— C10
7) Improvement of sidewalk (D. Jose, Oroquieta, Rizal Avenue) ——— C11
8) Construction of pedestrian overpass ———————— C12
9) Provision of fence and continuation of median service road — C13
10) Provision of fence ———— *C14
11) Control of street vendors ——— C15
12) Control of street vendors and refunctioning of sidewalks ——— C16
13) Prohibition of boarding/alighting activities of bus along median islands ———————— C17 (transfer bus stops to Center Market side)

* Provided already: Dec. 1984

LEGEND:

- PROPOSED COUNTERMEASURES
- TRAFFIC SIGNAL
- PROPOSED PEDESTRIAN OVERPASS
- MEDIAN / BARRIER
- PEDESTRIAN CROSSING
- SIDEWALK IMPROVEMENT
- MIN. SETBACK OF ESTABLISHMENT FROM PROPERTY
- EVACUATION OF SIDEWALK VENDOR
- xxxxx NO LOADING / UNLOADING AREA

Figure 4.8
Improvement of Pedestrian Facilities: Short-term and Mid-term Alternatives

JUMSUT II

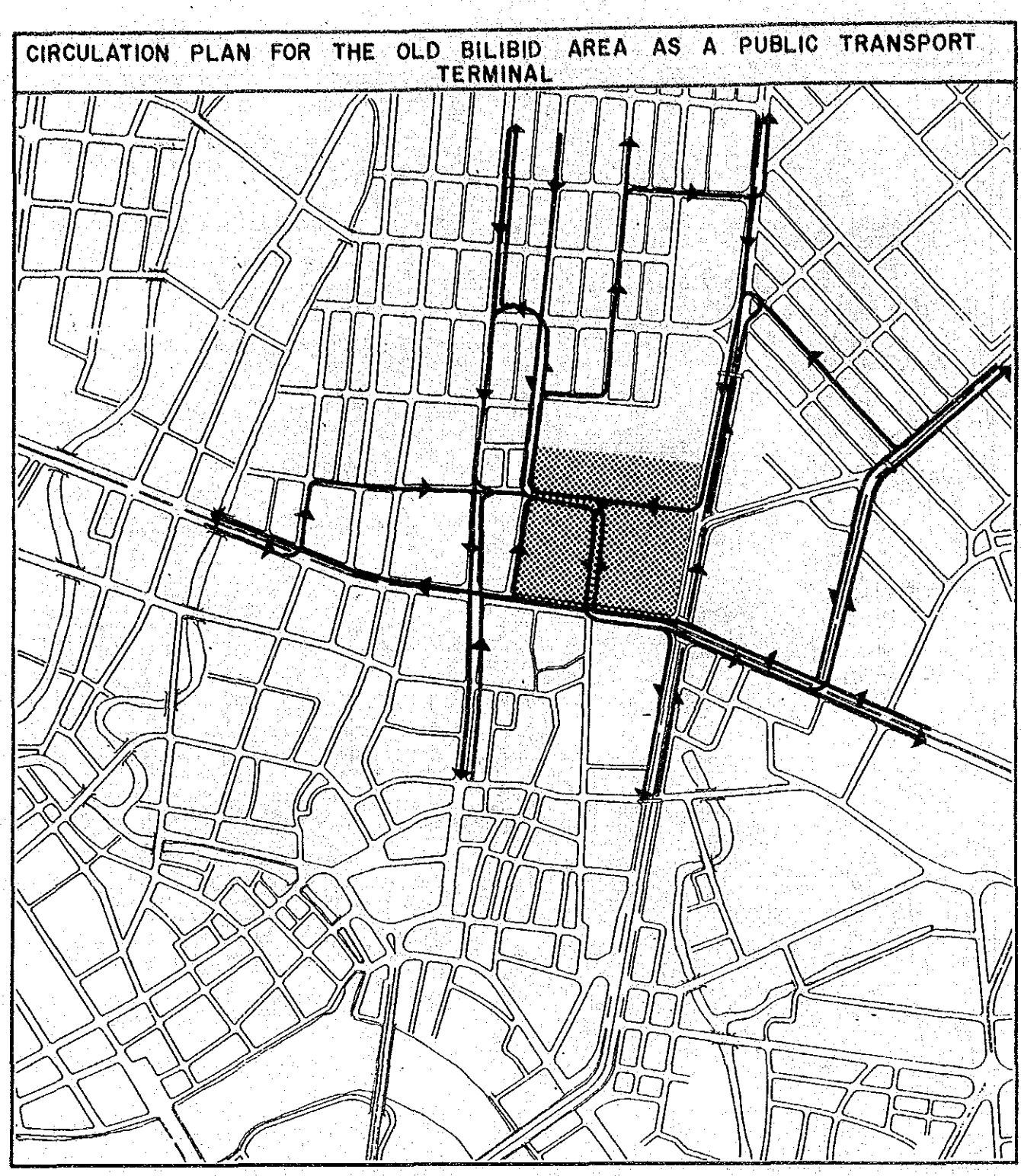


Figure 4.9
Circulation Plan for the Old Bilibid Area as a Public Transport Terminal

5.0 DETAILED PLANNING

5.1 GENERAL

This chapter presents further details of relevant plans and proposals advocated in the study and the corresponding estimated input requirements.

5.2 REROUTING OF JEEPNEYS

5.2.1 Affected Routes

The proposed rerouting plans for short and long-term affect the routes shown in Table 5.1.

The general concept is the alleviation of the traffic conditions for short-term and the utilization of OBA as terminal facility in the long-term.

Table 5.1
Affected Routes in the Implementation Package
of the Recto Mode Interchange Area

	Affected Routes	Frequency 1/ MP	EP	OP	16 hrs.
A. SHORT TERM					
A.1 Rerouting of westbound terminating (Morayta) jeepneys (A201)	1. Divisoria-Morayta	97	90	95	1,115
	2. Morayta-N. Harbor	30	51	6	460
	Sub-Total	127	141	101	1,575
A.2 Rerouting of passing through jeepneys via Rizal Avenue (A301)	1. Baclaran-Blumentritt	165	140	94	2,101
	2. Baclaran-Monumento	16	18	22	319
	3. Baclaran-MCU	50	53	41	728
	4. Baclaran-La Loma	12	18	9	153
	5. Baclaran-Retiro	8	3	5	57
	6. Blumentritt-Libertad	51	39	35	635
	7. Baclaran-Frisco	4	2	3	40
	8. Blumentritt-V. Cruz	52	11	52	631
	9. BBB/Tullahan-T.M. Kalaw	2	0	0	10
	10. Baclaran-Tullahan	1	1	1	20
	11. Baclaran-Fatima	5	1	0	20
	12. Balintawak-Pier	2	3	2	41
	13. Blumentritt-Pier	15	12	25	251
	14. Balintawak-V. Cruz	1	1	1	27
	15. Blumentritt-Pasay Rd.	42	32	40	490
	16. Baclaran-Malanday	10	5	4	72
	17. Frisco-Pasay Rd.	1	5	4	48
	18. Frisco-Libertad	15	5	10	116
	19. Frisco-Pier	8	8	5	96
	20. Fatima-Pier	5	2	3	37
	21. Frisco-T.M. Kalaw	5	2	4	53
	22. Frisco-V. Cruz	47	46	30	693
	23. Frisco-Libertad	10	12	8	141
	24. Frisco-Harrison Plaza	12	46	21	370

Table 5.1 cont'd

	Affected Routes	Frequency 1/ MP	EP	OP	16 Hrs.
	25. Gasak-Sta. Cruz	33	32	23	464
	26. Karuhatan-Pier	1	1	1	25
	27. Kalaw-Malinta	10	17	10	127
	28. Karuhatan-San Andres	3	1	0	21
	29. Karuhatan-Pasay Rotonda	1	0	0	9
	30. Kalaw-Malanday	8	4	4	69
	31. Libertad-Monumento	41	36	39	524
	32. Libertad-Malanday	32	22	19	379
	33. Libertad-MCU	38	41	40	587
	34. Libertad-Retiro	11	4	8	119
	35. Libertad-Malinta	4	4	6	64
	36. Libertad-La Loma	15	19	23	310
	37. Pier-La Loma	15	12	20	219
	38. Libertad-Tullahan	10	14	2	80
	39. Monumento-Pasay Rtda.	2	2	2	3
	40. Muñoz-V. Cruz	101	93	66	939
	41. Pier-MCU	23	26	33	382
	42. Pier-Malanday	44	21	26	460
	43. Malinta-San Andres	2	1	0	21
	44. MCU-Pasay Rtda.	4	3	0	45
	45. Muñoz-San Andres	8	5	5	73
	46. Monumento-Pier	33	42	24	524
	47. Malinta-Pier	40	60	39	660
	48. Malinta-Pasay Rtda.	2	0	1	17
	49. MCU-V. Cruz	2	1	0	10
	50. Malanday-San Andres	2	2	0	22
	51. MCU-Pier	19	22	19	339
	52. Malanday-Pasay Rtda.	0	0	1	10
	53. Navotas-Sta. Cruz	14	16	16	206
	54. Pier-Retiro	6	12	7	119
	55. Pier-Tullahan/BBB	30	38	25	444
	Sub-Total	1,093	1,016	878	14,420
B. LONG TERM					
B.1 Rerouting of Northbound terminating jeepneys (A101)	1. Blumentritt-Recto	88	99	56	1,199
	2. Gasak-Recto	100	93	113	1,322
	3. Malanday-Recto	14	6	5	134
	4. Monumento-Recto	1	8	6	68
	5. M.C.U.-Recto	30	23	14	306
	6. Malinta-Recto	13	14	12	286
	7. Morayta-Novaliches	4	2	2	31
	8. Navotas-Recto	39	36	45	597
	9. La Loma-Recto	4	1	2	43
	10. Recto-Retiro	19	39	21	418
	11. Recto-Retiro	7	1	3	52
	12. Recto-Sangandaan	2	1	1	17
	13. La Loma-Recto	26	20	18	343
	Sub-Total	347	343	298	4,816
B.2 Rerouting of Westbound Terminating jeepneys (Morayta) (A202)	1. Divisoria-Morayta	97	90	95	1,115
	2. Morayta-N. Harbor	30	51	6	460
	Sub-Total	127	141	101	1,575

1/ MP - morning peak
EP - evening peak
OP - off-peak

5.2.2 Impact on Traffic

Elimination of U-turning at Morayta via short-term jeepney rerouting of 1,600/16 hrs. would improve traffic flow and relieve traffic congestions in the problematic points of Morayta/Lerma, C. M. Recto/Morayta, C. M. Recto/A. Mendoza. Another rerouting scheme for the long-term would still effect the same and will further increase transfer convenience with the LRT.

Short-term rerouting on north to south passing through jeepneys would relieve Rizal Avenue of a one-way frequency of 14,500/16 hrs. This eliminates congestion problems at C. M. Recto/Evangelista.

Aside from the reduction of 1,600/16 hrs. crossing traffic at A. Mendoza/C. M. Recto intersection long-term rerouting would further relieve the intersection of 5,000/16 hrs. turning traffic. A. Mendoza will be relieved of 400 vehicles during the peak hour or 5,000/16 hrs. and this is significant especially along the Central Market periphery.

Long-term rerouting plans employ utilization of the OBA as a terminal. A total of 6,400/16 hrs. jeepney will be rerouted into the Old Bilibid Area. The redevelopment for terminal space and the associated rerouting would also favor pedestrian transfer conveniences to other bus or jeepney routes and, more importantly, to the LRT.

Table 5.2 shows the traffic reduction in the affected sections.

Table 5.2
Traffic Reduction Due to Jeepney Rerouting

	Affected Section/ Intersections	Frequency	
		Peak Hour	16-Hour
A. SHORT TERM PLAN			
A.1 Rerouting of Westbound Terminating Jeepneys	C.M. Recto/A. Mendoza, C.M. Recto/Morayta, Morayta/Lerma	127	1,575
A.2 Rerouting of Passing Through Jeepneys via Rizal Avenue	northbound direction of Rizal Avenue, C.M. Recto/Evangelista	1,093	14,420
B. MID TERM PLAN			
B.1 Rerouting of Northbound Terminating Jeepneys	C.M. Recto/A. Mendoza,	347	4,816
B.2 Rerouting of Westbound Terminating Jeepneys	C.M. Recto/A. Mendoza C.M. Recto/Morayta Morayta/Lerma	127	1,575

5.2.3 Input Requirement

Table 5.3 shows the associated improvements required by jeepney rerouting.

Table 5.3
Associated Improvements Required by Jeepney Rerouting

Item	Quantity	Unit Cost	Estimated Cost (₱ 000)	Remarks
A. SHORT TERM PLAN				
1) Improvement of Oroquieta				
a) Carriageway	4,480 sqm	256.00/m^2	1,146.88	
b) Sidewalk	1,140 sqm	690.00/m	786.60	
2) Improvement of L. De Vega				
a) Carriageway	1,780 sqm	256.00/m^2	455.68	
b) Sidewalk	280 sqm	690.00/m	193.20	
3) Channelization at Rizal Ave., L. De Vega				
a) Removal of sidewalk	20m(L)x1.5(W)	898/m	17.96	
	Short Term Plan Total		2,600.32	
B. LONG TERM PLAN				
1) Installation of Traffic Signals				
a) Rizal Avenue/C.M. Recto	1 set	832,000	832.00	
b) Rizal Avenue/D. Jose	1 set	832,000	832.00	
	Mid-Term Plan Total		1,664.00	

5.3 UTILIZATION OF A. MENDOZA SERVICE ROAD

The plan is to restrict jaywalking and unruly transfer and loading/unloading activities on A. Mendoza service road by adopting a continuous median and fence. In order to further regulate jeepney operation, queueing space is clearly specified at the Recto intersection, in a location such that turning traffic is not menaced, together with the allocation of dispatchers. The plan is shown in Figure 5.1.

Associated improvements and inputs required are shown in Table 5.4.

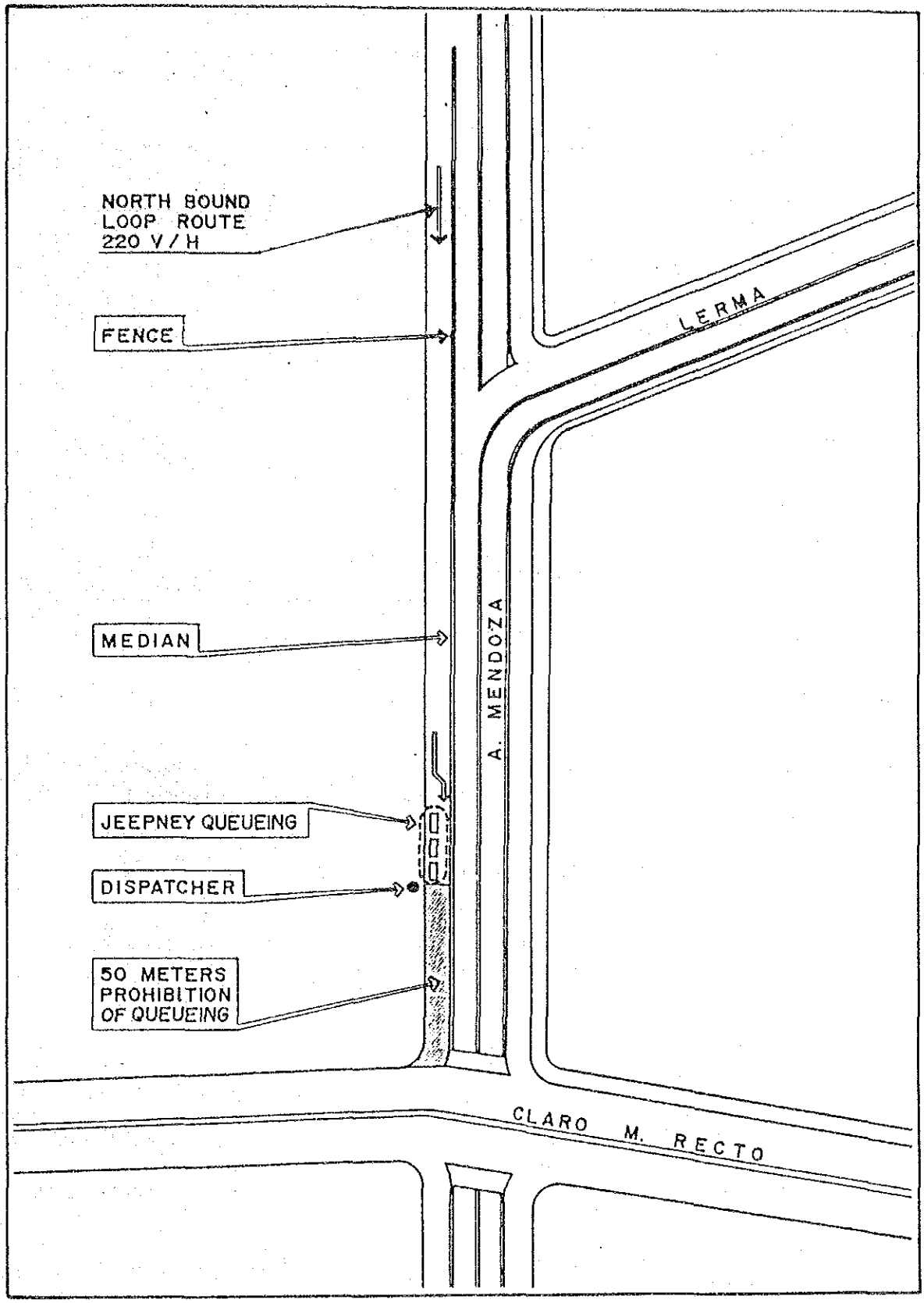


Figure 5.1
Utilization of
A. Mendoza Service
Road

Table 5.4
Associated Improvements Required for Better
Utilization of A. Mendoza

Item	Quantity	Unit Cost	Estimated Cost (₱ 000)	Remarks
A. SHORT TERM PLAN				
.1) Provision of Pedestrian Fence				
a) Reconstruction of Median	10mx0.5m	468.50	4.69	
b) Provision of Fence	140m	725.00	101.50	
2) Specification of Queueing Place at Recto Intersection				
a) Road Markings	30m	72.00/m	2.16	
b) Traffic Sign Posts	2 pcs.	1,077.00/pc	2.15	
c) Allocation of Dispatchers	2 persons	-	-	
	Short Term Plan Total		110.50	

5.4 IMPROVEMENT OF PEDESTRIAN FACILITIES

Pedestrian facility improvements have the aspects of both facilitating pedestrian movement and restricting unruly movement. There are both physical and non-physical (enforcement) measures as follows:

a) Physical improvement measures

1) provision of fence/pedestrian barrier
2) specification of pedestrian crossing
3) construction of pedestrian overpass (underpass)
4) improvement of sidewalk

b) Enforcement measures

1) removal of street vendors and vehicles parking on sidewalk
2) restriction of boarding/alighting and waiting on undesignated loading/unloading locations
3) prohibition of crossing of roads at undesignated area.

The plans and their requirements are shown in Table 5.5 by stage of implementation.

Table 5.5
Associated Improvements Required for
Pedestrian Traffic Improvement

Item	Quantity	Unit Cost	Estimated Cost (₱000)	Remarks
A. SHORT TERM PLAN				
1) Improvement of España/ Morayta Intersection				
a) Pedestrian Crossing Markings	26m(L)x5m(W)	864.00	22.46	
b) Provision of Pedestrian Fence	50m	725.00	36.35	
2) Improvement of C.M. Recto/ Loyola Intersection				
a) Rehabilitation of Existing Signal	1 unit	249,600.00	249.60	
b) Pedestrian Crossing Markings	72m(L)x5m(W)	864.00	62.20	
3) Improvement of C.M. Recto/ Morayta Intersection				
a) Rehabilitation of Existing Signal	1 unit	249,600.00	249.60	
b) Pedestrian Crossing Markings	84m(L)x5m(W)	864.00	72.57	
4) Rehabilitation of Central Median of C.M. Recto	5m(L)x1m(W)	567.00	2.83	
5) Prohibition of Boarding/ Alighting in A. Mendoza/ Fugoso Intersection				
a) Install Sign Post	1 pc.	1,077.00	1.07	
b) Enforcement	-	-	-	
	Short Term Plan Total		696.68	
B. MID-TERM PLAN				
1) Improvement of C.M. Recto/ Evangelista Intersection				
a) Install New Traffic Signal	1 unit	832,000.00	832.00	
b) Partial Removal of Median	2m x 1.00	637.00	1.27	
c) Pedestrian Crossing Marking	37.40m(L)x5m(W)	864.00	32.31	
2) Removal of On-Road Vendors by Enforcement				
a) V. Fugoso	-	-	-	
b) Around Pedestrian Bridges in front of Central Market	-	-	-	
c) In front of Cinerama Theatre of C.M. Recto	-	-	-	
	Mid Term Plan Total		865.58	
C. LONG TERM PLAN				
1) Construction of Pedestrian Deck at A. Mendoza/Lerma Intersection	340m	60,000.00	20,400.00	
2) Proper Guidance to Acquire Additional Pedestrian Space in Association with:				
a) Cinerama Theatre Development	-	-	-	
b) Opera House Development	-	-	-	
	Long Term Plan Total		20,400.00	

5.5 UTILIZATION OF ROADS AROUND D. JOSE LRT STATION

The efficient utilization of roads around the D. Jose LRT station in conceived under this implementation package together with its short-term and mid-term actions. The required associated works are as follows:

a) improvement of road sections:
b) designation of bus loading/unloading zones;
c) designation of minibus terminals; and
d) designation of jeepney stops beside LRT station.

Table 5.7 iterates the associated tasks designed for each work which is threshed and quantified in this section.

5.6 DEVELOPMENT OF INTEGRATED PUBLIC TRANSPORTATION TERMINAL

The proposed terminal will be basically located as has been allocated in OBA redevelopment plan of MMC to retain the conformity of terminal function with its overall development concept. Required space for the terminal is estimated in Table 5.6.

The overall circulation of bus and jeepney in Recto MIA is shown in Figure 4.9, while Figure 5.3 gives the more detailed circulation within the OBA complex. The figure also indicates the possible significant improvement of pedestrian movement in the Recto MIA due to the completion of grade-separated pedestrian deck system.

Detailed plans of the proposed terminal are shown in Figures 5.4 and 5.5.

Estimated project cost required for the development of the transportation terminal is approximately ₱28.7 million as shown in Table 5.8.

Table 5.6
Estimated Space Required for Recto
Mode Interchange Area

	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
B. 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 3 unloading, 15 loading berths and 36 lots for waiting buses; excluding 3 unloading and 9 loading berths along CM Recto, and 3 unloading berths along Rizal Avenue
3/ Gas station

Table 5.7
Improvement Utilization of
Roads Around D. Jose LRT Station

Item	Quantity	Unit Cost	Estimated Cost (₱000)	Remarks
A. SHORT TERM PLAN				
1) Improvement of Rizal Avenue/ C.M. Recto Intersection				
a) Pedestrian Crossing Markings	98m(L)x5m(W)	864.00/m	84.67	
2) Designation of Bus Loading/ Unloading Zone along Rizal Ave.				
a) Markings	160m	36.00/m	5.76	
b) Sign Posts	4 pcs.	1,077.00/pc	4.31	
3) Improvement of D. Jose				
a) Pavement of Carriageway	9m(W)x170(L)	256.00/m^2	391.68	
b) Pavement of Sidewalk				
i) Northern Side (new construction)	3m(W)x100m(L)	687.00	68.70	
ii) Southern Side (improvement)	2m(W)x170m(L)	690.00/m	117.30	
4) Designation of Minibus Terminal				
a) Markings	100m	36.00/m	3.60	
b) Sign Posts	4 pcs.	1,077.00	4.31	
5) Designation of Jeepney Stops Beside the LRT Station				
a) Markings	40m	36.00/m	1.44	
b) Sign Posts	1 pc.	1,077.00	1.08	
	Short Term Plan Total		682.85	
B. MID TERM PLAN				
1) Improvement of Rizal Avenue/ C.M. Recto Intersection				
a) Installation of Traffic Signal	1 unit	832,000.00	832.00	
b) Construction of Traffic Island	40 sqm.	548.00	21.92	
c) Traffic Sign Posts	11 pcs.	1,077.00	11.85	
2) Improvement of D. Jose				
a) Installation of Traffic Signal	1 unit	832,000.00	832.00	
b) Pedestrian Crossing Markings	52m(L)x5m(W)	864.00/m	44.93	
c) Widening of Sidewalks	10m x 1.5m	634.00/m	6.34	
3) Improvement of Rizal Avenue/ V.Fugoso Intersection				
a) Installation of Traffic Signal	1 unit	832,000.00	832.00	
b) Pedestrian Crossing Markings	52m(L)x5m(W)	864.00/m	44.93	
4) Improvement of Rizal Avenue/ L. De Vega Intersection				
a) Pedestrian Crossing Markings	12m(L)x4m(W)	691.00/m	8.29	
5) Guidance to Opera House Development to Incorporate Additional Pedestrian Space	-	-	-	
6) Improvement of Rizal Avenue/ L.De Vega Intersection				
a) Pedestrian Crossing Marking	15m	864.00/m	12.96	
	Mid-Term Plan Total		2,647.22	

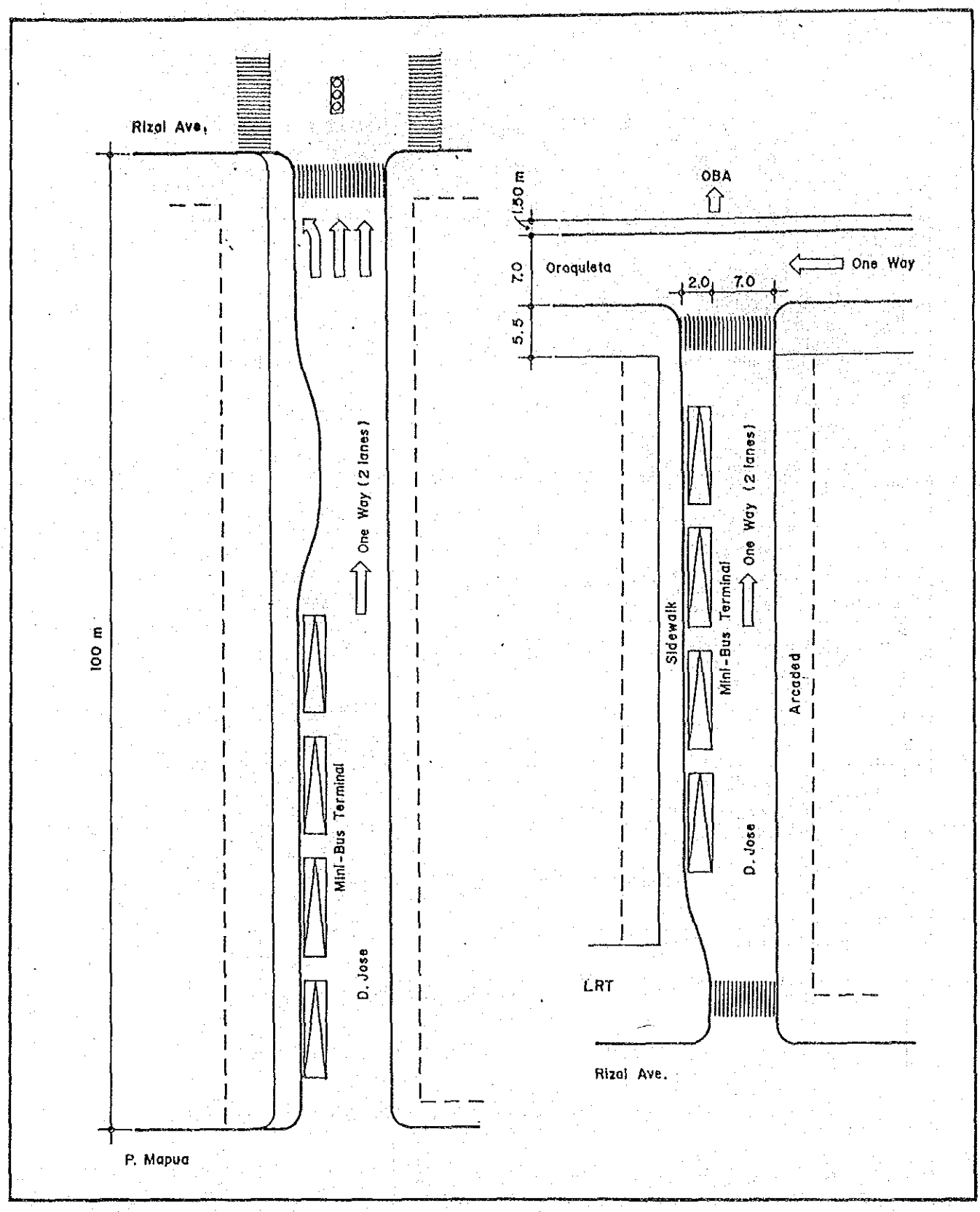


Figure 5.2 (A)
Better Utilization
of Roads around D. Jose
LRT Station

JUMSUT II

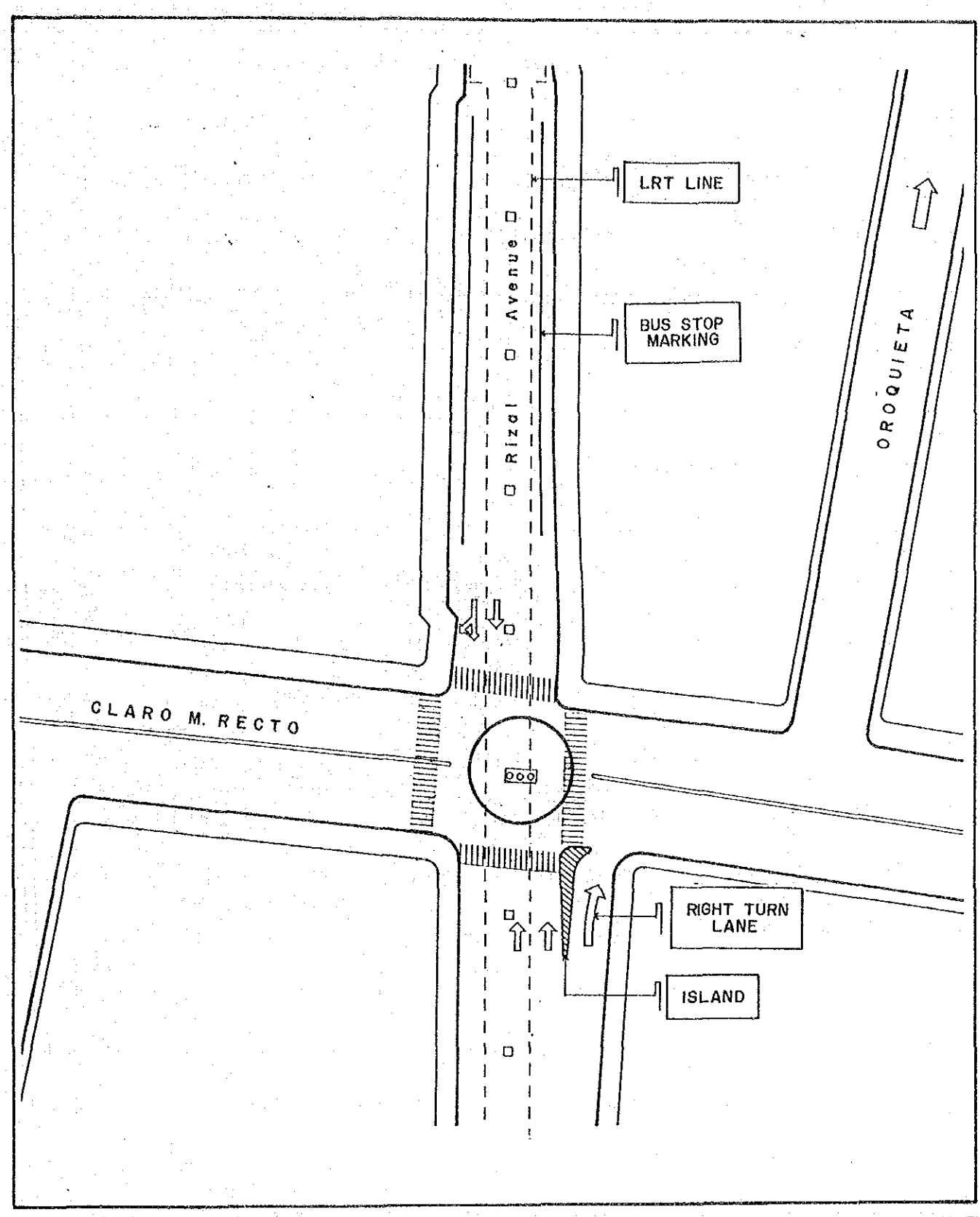


Figure 5.2 (B)
Better Utilization
of Roads around D. Jose
LRT Station

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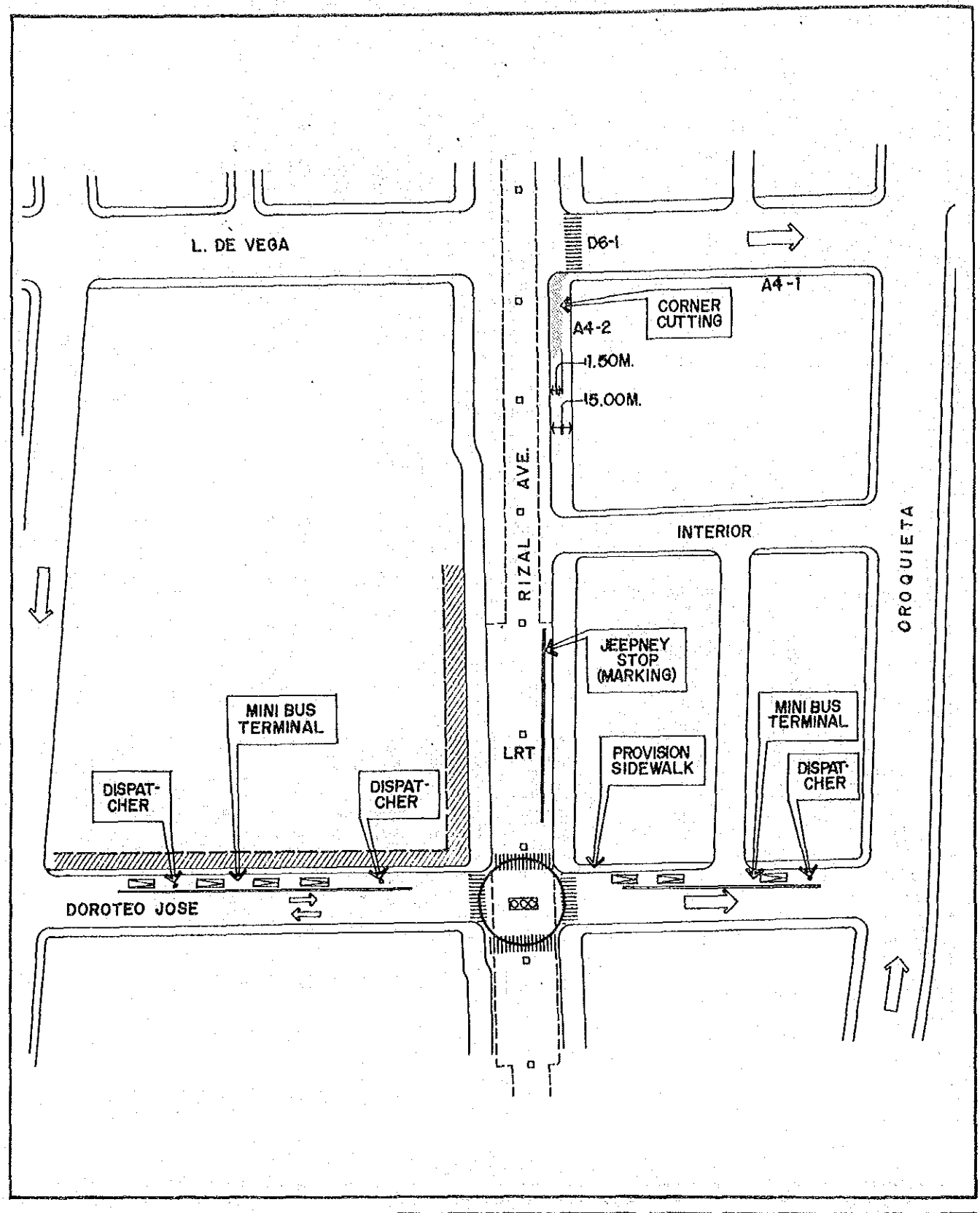


Figure 5.2 (C)
Better Utilization
of Roads around D. Jose
LRT Station

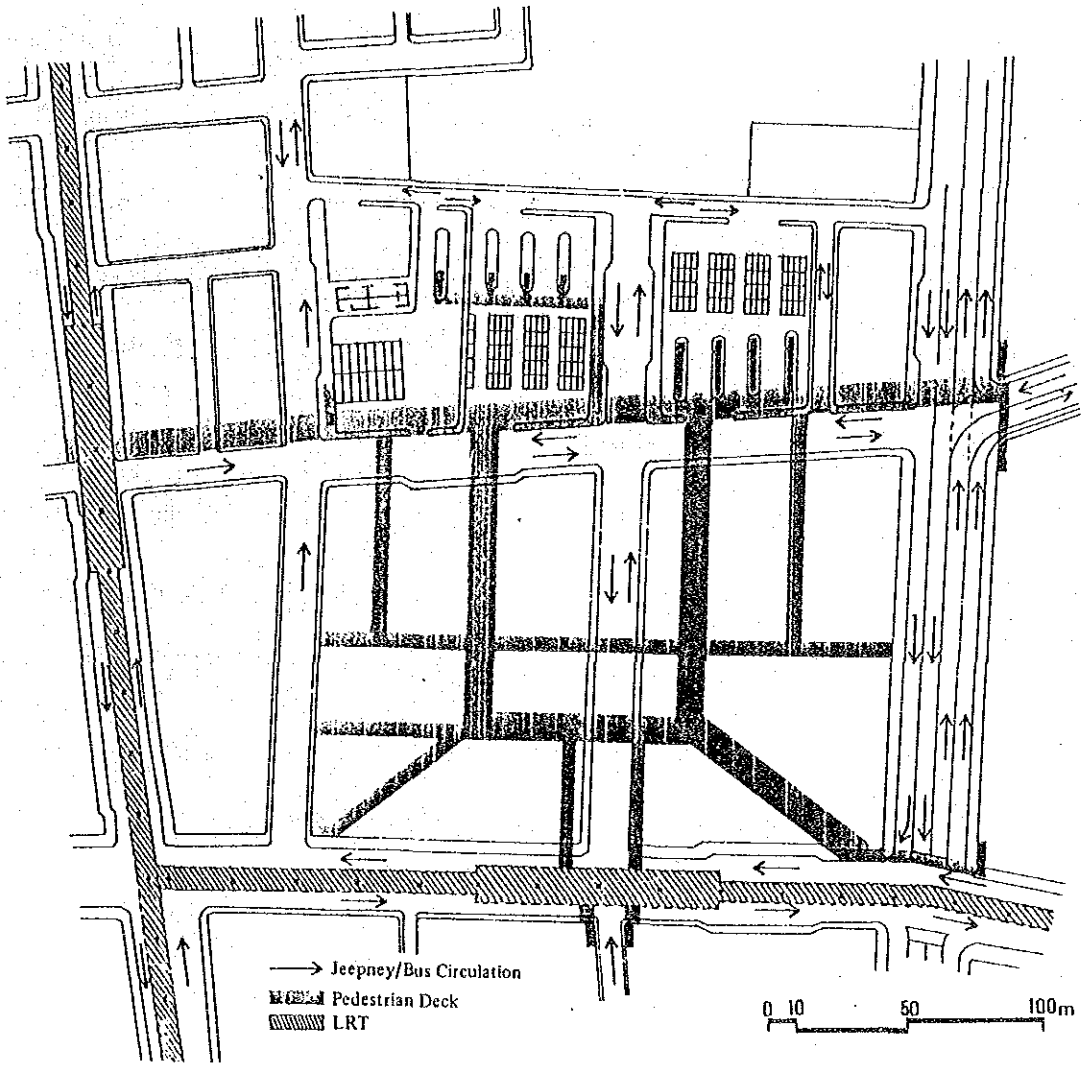


Figure 5.3
Development Concept/
Circulation Plan
for OBA Complex

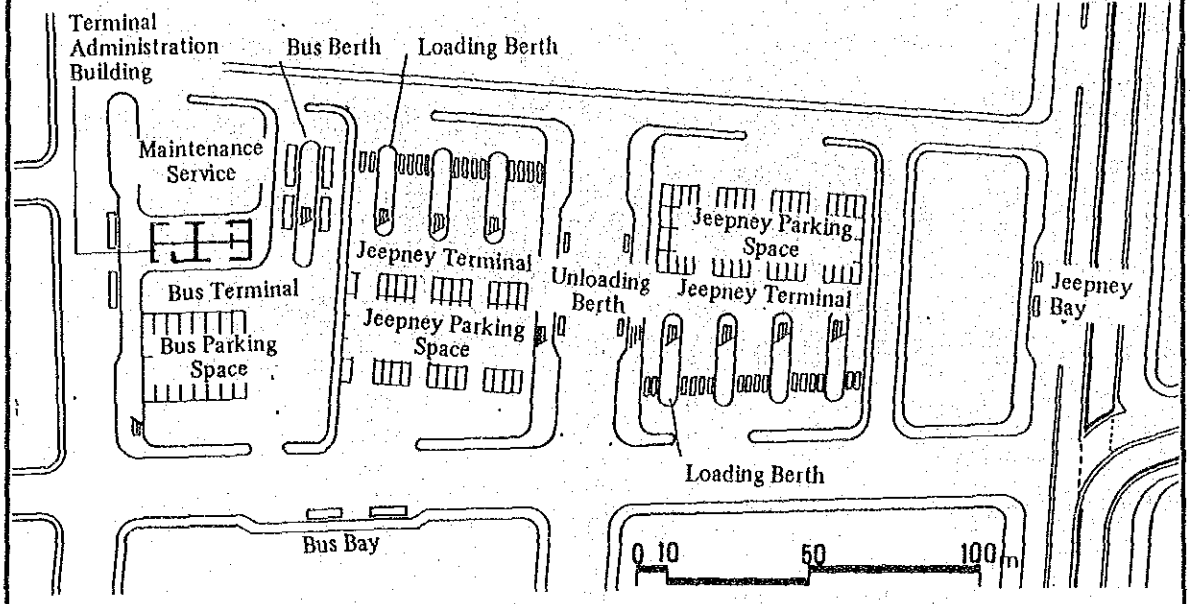


Figure 5.4
Proposed Terminal
Plan

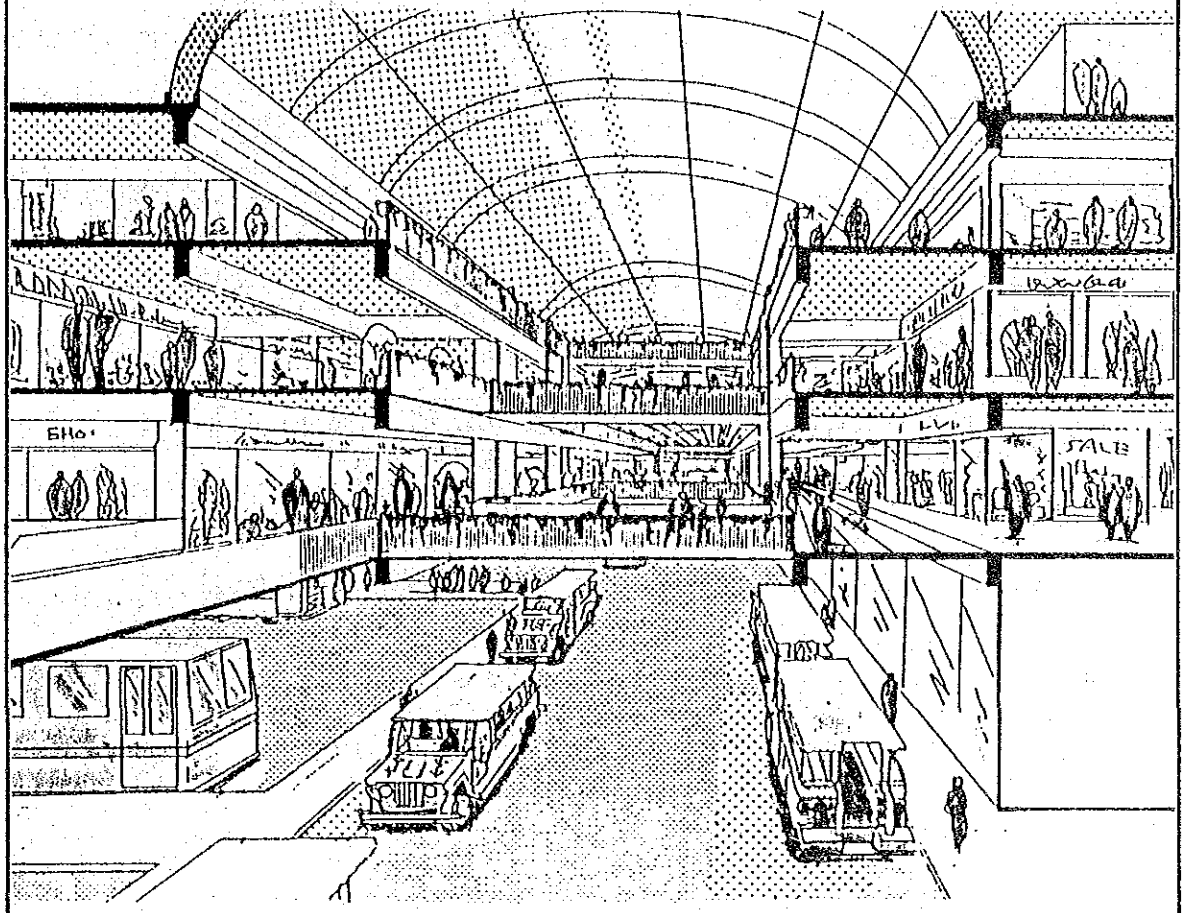


Figure 5.5
Sectional Plan of
Transportation Terminal

Table 5.8
Estimated Cost Required Bus/Jeepney
Terminal in OBA Complex

Item	Quantity	Unit Cost (₱)	Amount (₱000)	Remarks
1) Clearance of existing facilities	20,000m^2	110	2 200	
2) Earthwork	20,500m^2	50	1 025	including drainage
3) Pavement of carriageway	16,600m^2	544	9 030	
4) Pavement of sidewalks	3,700m^2	250	925	
5) Staircases	390m^2	3,000	1 170	
6) Waiting sheds	4,900m^2	1,300	6 370	connecting to pedestrian deck
7) Utilities		lump sum	480	
8) Traffic signals	2 pcs	832,000	1 664	
9) Street lights	10 pcs	10,000	160	
10) Markings and traffic sign posts	-	lump sum	256	
11) Access road				
- east-west (in the centre)	250m	10,500	2 625	W=22m (4 lane w/sidewalks)
- north-south (in the centre)	160m	10,500	1 680	
- east-west (north sides)	30m	6,000	180	W=11m (2 lane w/sidewalks)
12) Administration building	200m^2	2,500	500	
Total			28.265	

5.7 ECONOMIC EVALUATION

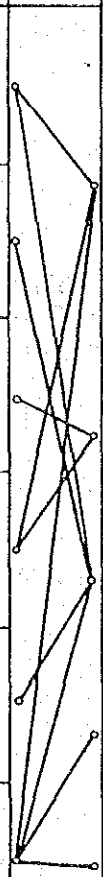
The redevelopment of the Recto Old Bilibid Area into a mode interchange facility is expected to be great. Some difficulties are encountered in the evaluation due to the non-tangible nature of most of these benefits.

The rerouting of jeepneys would account for time and vehicle operating costs savings due to the alleviated traffic conditions. Comfort of passengers is also one benefit from rerouting as well as from the improvement of pedestrian facilities.

The better utilization of A. Mendoza service road will also save time and vehicle operating costs and, consequently, bring comfort. Safety of pedestrians is one major benefit gained from fencing the service road.

The effective utilization of the roads near the LRT D. Jose station is beneficial to both LRT passengers and operators.

Table 5.9
Consequences of MIA Development

TYPE OF ACTIONS / SYSTEM INVENTIONS	LINKAGE	CATEGORY OF BENEFITS/ CONSEQUENCES	PUBLIC TRANSPORTATION				OTHER ROAD USERS		LOCAL NEIGHBORHOODS	GOVERNMENT
			PROVIDERS		USERS					
			DRIVERS	OPERATORS	PASSENGERS	BUSINESS	PEDESTRIANS	VEHICLES		
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)

The whole implementation package and especially the recommendations for the redevelopment of the Old Bilibid would optimize the land potential of the area. Although the central idea advocated here is the development of the OBA as a terminal, the interchange function will advance other development potentials.

The development of the OBA as a terminal would provide space for public transport vehicles for queueing and parking, alleviating traffic congestions and consequently increasing accessibility of the area, inviting attraction to the LRT and commercial developments. The integrated system will also favor effective control and management of public transportation.

Beneficiaries include parties concerned in public transportation, i.e., operators/drivers/associations, passengers, other road users pedestrians, vehicles and occupants, local people, business operators, residents, governments.

5.8 FINANCIAL VIABILITY OF THE TERMINAL

Based on the observed statistics of bus and jeepney frequency in the area, the assumed patronage level for the terminal is 1,360 jeepneys and 1,730 buses. An exercise was made to examine the financial viability of the terminal operation.

A. Revenue

1) Revenue from Jeepney

a) Terminal fee at ₱5.00/day

b) Dispatcher fee at ₱0.25/trip

c) Number of jeepneys = 1,360 (frequency of 9,500/16 hrs.)

d) Frequency advocating dispatching service: 3,800 trips/day (40% of total frequency)

Revenue from jeepney = (terminal fee x number of jeepney using the terminal) + (dispatcher fee x frequency advocating service)

= (₱5.00 x 1,360) + (₱0.25 x 3,800)
= ₱7,750/day

2) Revenue from Bus

a) Terminal fee at ₱2.00/trip

b) Number of buses = 1,730

Revenue from bus = (terminal fee x frequency using the terminal)

= ₱2.00 x 1,730
= ₱3,460/day

3) Total Revenue

Total daily revenue = revenue from jeepney + revenue from bus.

= ₱7,750 + ₱3,460
= ₱11,210/day

Total yearly revenue = total daily revenue x 350 days

= ₱11,210 x 350 days
= ₱3,923,500/year

B. Expenditure

a) Terminal construction cost : ₱28,265,000
b) Rent of land (5% of market value) : ₱800,000/year
c) Operating and Maintenance cost : ₱1,100,000/year

C. Assumptions

a) Depreciation : 20 years, fixed amount
b) Repayment conditions on loan: uniform repayment of principal and interest for 20 year repayment period at 5% interest rate
c) Taxes : exempted

D. Results

Table 5.9
Proforma Annual Income Statement

	% of Own Capital		
	100%	50%[1/]	50%[2/]
1. Revenue (₱/year)	₱3,923,500	3,923,500	3,923,500
2. Expenditure (₱/year)			
a) Depreciation	1,413,250	1,413,250	1,413,250
b) Operating Costs	1,100,000	1,100,000	1,100,000
c) Rent of Land	800,000	800,000	-
d) Interest on Loan	0	424,000	424,000
Total	3,313,250	3,737,250	2,937,250
3. Profit (₱/year)	610,250	186,250	986,250
4. Investment (terminal construction cost) (₱)	28,265,000	28,265,000	28,265,000
5. 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 with assumption of profit being constant.

5.9 MANAGEMENT ASPECTS

As prerequisites to effective management, the following tasks are required for Recto MIA:

a) careful evaluation and assignment of responsibility to a body or organization that would best push forward the development of the area;

b) determining a viable management scheme for the administration of the transport termial;

c) determining the possible avenues for funding to implement the redevelopment activities within the area.

5.9.1 Implementing Responsibilities

In consonance with the present institutional delineation of responsibilities, the rerouting plans should be implemented by BOT and subsequently enforced by the police. On a mid-term viewpoint, the affected transport routes should be orchestrated the best possible way once the off-street terminal facility has been completed. This could be implemented by making all routes stop at or use the Recto MIA.

The traffic engineering components like the signals, road markings and geometric improvements are for review and implementation of TEAM/TCC. These components should be implemented as prescribed by the developments to be undertaken in the Recto area. At this point, no major change is required of the pedestrian facilities in the area with the exception of the proposed pedestrian skyway across the Old Bilibid Area from D. Jose station of the LRT to FEU. Its scale and nature suggests that the pedestrian skyway is an integral part of the Old Bilibid redevelopment scheme. Hence, this undertaking does not fall within the responsibility of TEAM/TCC.

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

5.9.2 Managing the Recto MIA

As pointed out, the MMC holds sole responsibility over the Old Bilibid Area. Due to the intricacies of administration, it can be assumed that MMC would set up a separate operating entity for the Old Bilibid Area with significant reliance placed upon the participation of the private sector. Consideration of the private sector's involvement has something to do with the private ownership of frontage lots and previous leasehold rights issued over portions of the government property.

The MMC created operating entity is expected to orchestrate carefully the sequence of developments - the transport terminal area being only one of them. The attractiveness of subsequent phases will depend on the completion and performances of earlier undertakings. On the basis of the argument that early operation of the transport terminal would add to the commercial viability of the undertaking, it is recommended that the Recto MIA be given early attention and even concessionary rates to encourage jeepneys and buses to use the facility voluntarily.

5.9.3 Seed Capital

Immediate actions to initiate the Old Bilibid redevelopment is the task of relocating the old prison presently occupying the area. Relative to this is the clearing of the area and the construction of the transport terminal and roads within OBA. Since the success of the mode interchange facility depends on the implementation of the redevelopment task, various means for assurance of capitalization should be explored. As it is the nature of the terminal facility to be service-oriented rather than profit-oriented, the burden of monetary obligation should be made minimal. Thus, only soft loans could insure the viability of the project. Foreign sources of funds should be explored as it is quite expensive to secure funding from domestic sources at this point in time.

APPENDICES

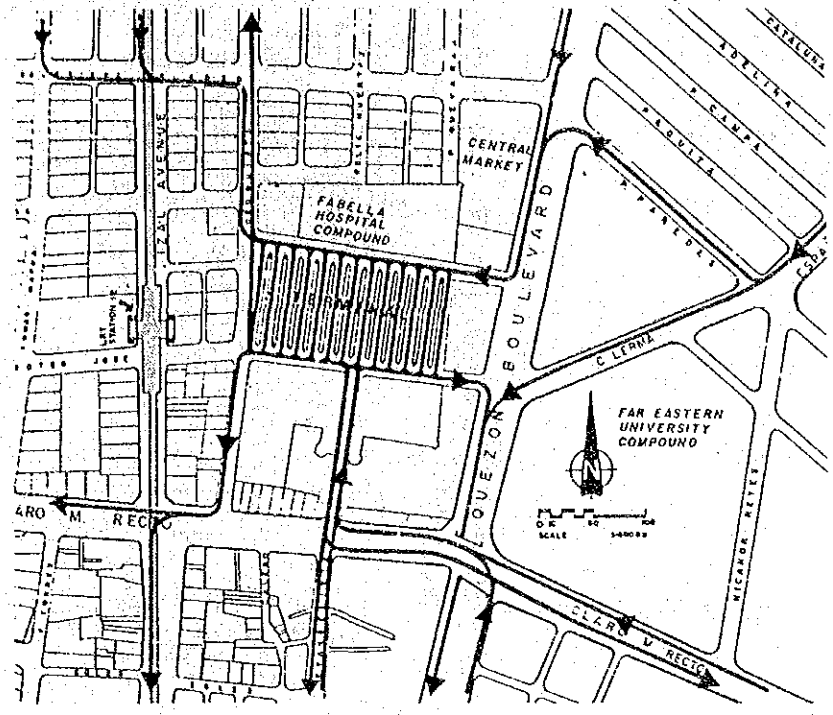
Appendix 2.1
Existing Provincial (Long Distance) Bus Terminals

Terminal No.	Terminal Name	No. of Companies	Area (m^2)	No. of Routes[1]	Transportation: No. of Units: Total	Air-con	Ordinary	Mini	Frequency/day	Facilities: Office	Waiting room (space)	Maintenance	Terminal Ownership[2] (₱)	Passenger (%): weekday	weekend	Trend over 1983	Remarks
1	Phil. Rabbit	1	500	N 8	167	17	150	-	292				own Phil. Rabbit	40	100		
	Kapalaran	1	600	W 1	12		12		6				private (900 ₱/mo.)	40	90		
3	Dalin Liner	1	375	N 5	24		24		11				private Dalin Liner Inc.				
4	Danny Boy Liner	1	900	N 1	10		10		3				owned Danny Boy Liner	40	70		
5	4J/Isabela Transp.	1	800	N 1	7		7		2				4J New Isabela Transp.	20	20		
6	Lawin	1		N 3	18	18			9				Private (office only) (3000₱/mo.)	50	75		on-road
7	Hiway Pioneers	1	800	N 1	10		10		3				owned	70 80	70 80		Boarding of passenger on-road
8	F. Franco Trans B.Trans	2	200	N 2	20	4	16		6				private (1,120₱/mo.)	60	95		on-road
9	Maria de Leon			N 5	21	6	15		11				Private	50	90		

Appendix 2.1 cont'd

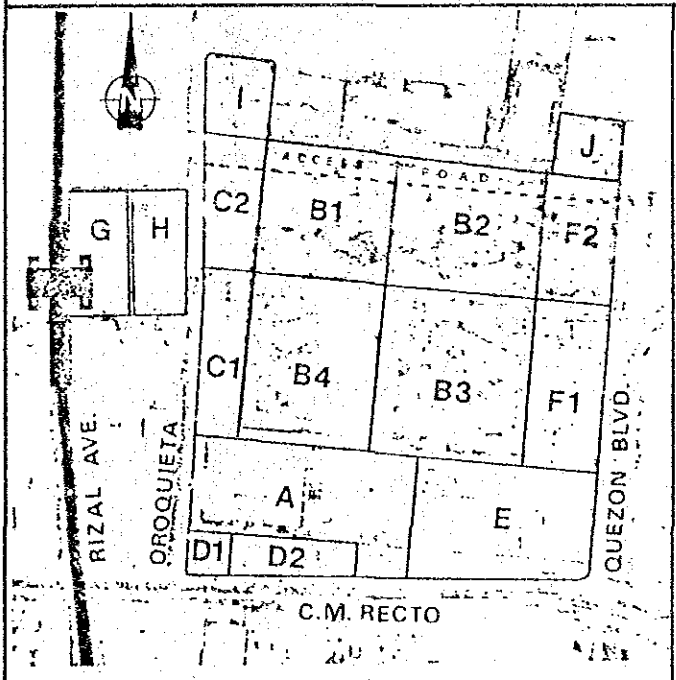
Terminal No.	Terminal Name	No. of Companies	Area (m^2)	No. of 1/ Routes	Transportation No. of Units Total	Air-con	Ordinary	Mini	Frequency/ day	Facilities Office	Waiting room (space)	Maintenance	Terminal Ownership (₱)	Passenger (%) weekday	weekend	Trend over 1983	Remarks
10	Inocencio Aniceto	1		N 1	17	2	15		15				Private (2000₱/mo.)	50	90		garage are separate
11	Canhagimet Express	1		S 1	7		7	-	-	3 times a week			Private (5₱/mo.)	80	90		gasoline station
12	Pantranco	1	1000	N 2	32		32		50				Private	50	75		
13	Dangwa	1	800	N 1	44	4	40		19				owned	40	70		
14	Times	1	1000	N 1	39	16	23		41				Private (8000 ₱/mo.)	50	100		
15	Farinas	1	1000	N 1	40	10	30		0				Private (6000 ₱/mo.)	50	50		
16	Viron	1	1100	N 1	42		42		18				owned	20	30		

1/ "Private" as opposed to "own", refers to separate ownership of bus company and terminal area; ( ) - monthly lease.
2/ N - northbound; W- westbound; S- southbound

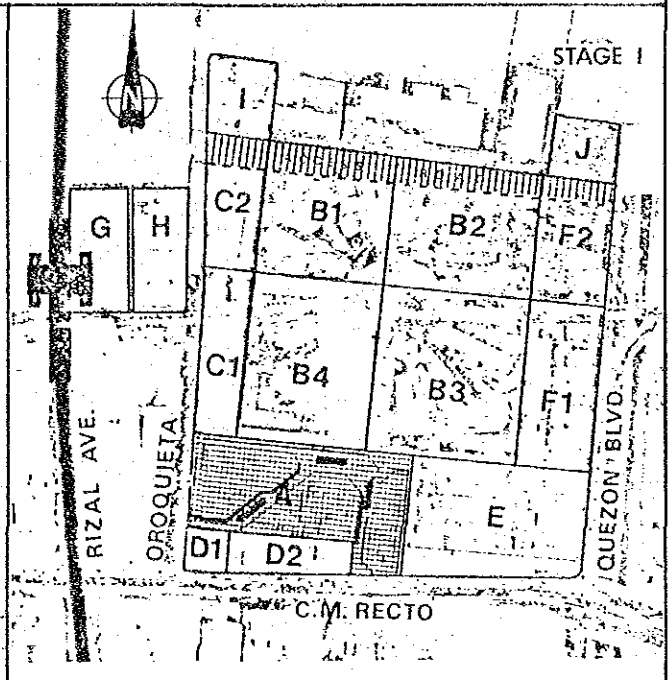


CIRCULATION PLAN

Proposed traffic circulation scheme utilizing the proposed bus and jeepney terminal

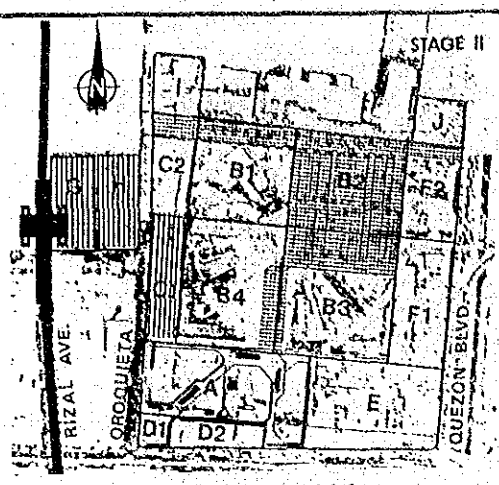


I. Preparation of Site

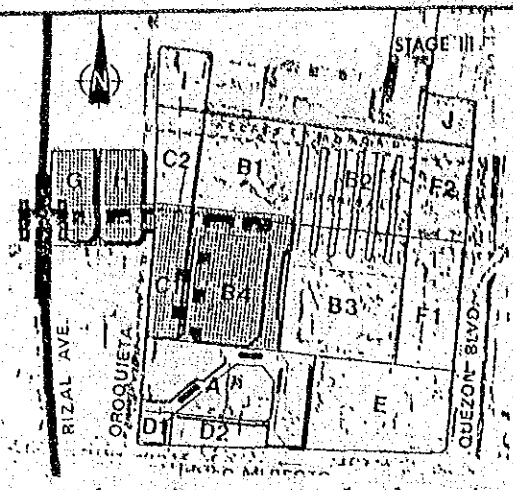


II. Construction

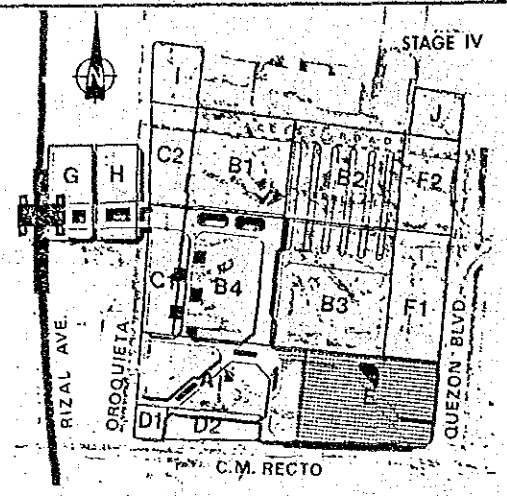
Appendix 3.1
Specific Proposals for
Recto O.B.A. by MMC



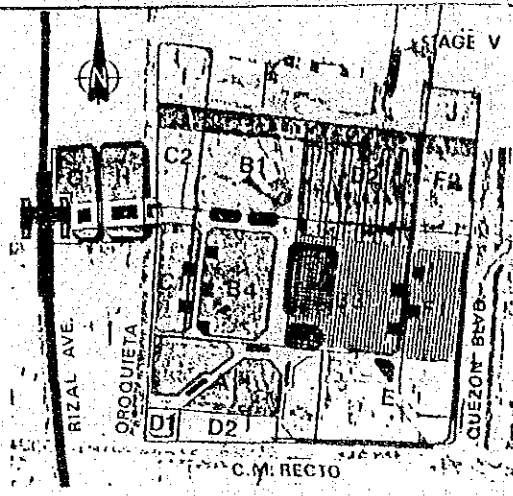
III. Construction; build temporary transport terminal



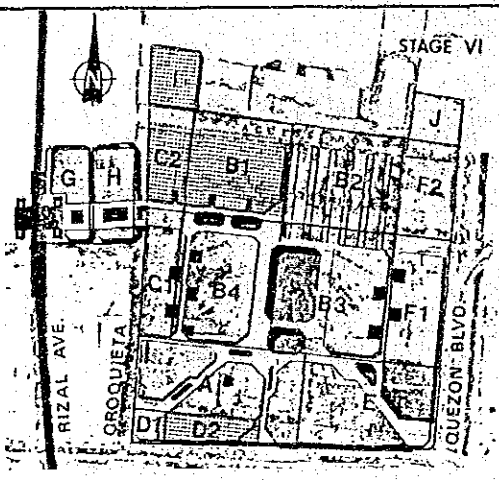
IV. Pedestrian access landscaping Preparation of other sides



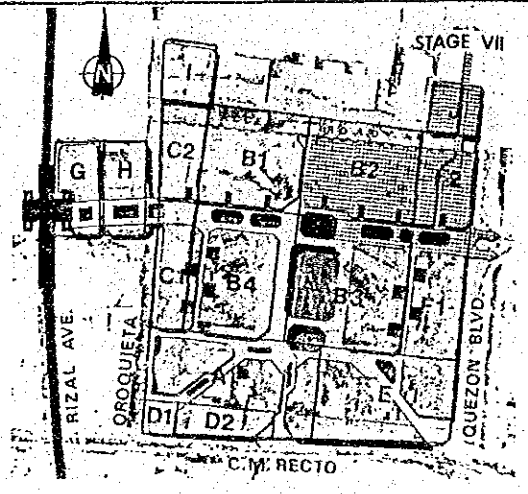
V. Preparation and Construction



VI. Preparation and Construction



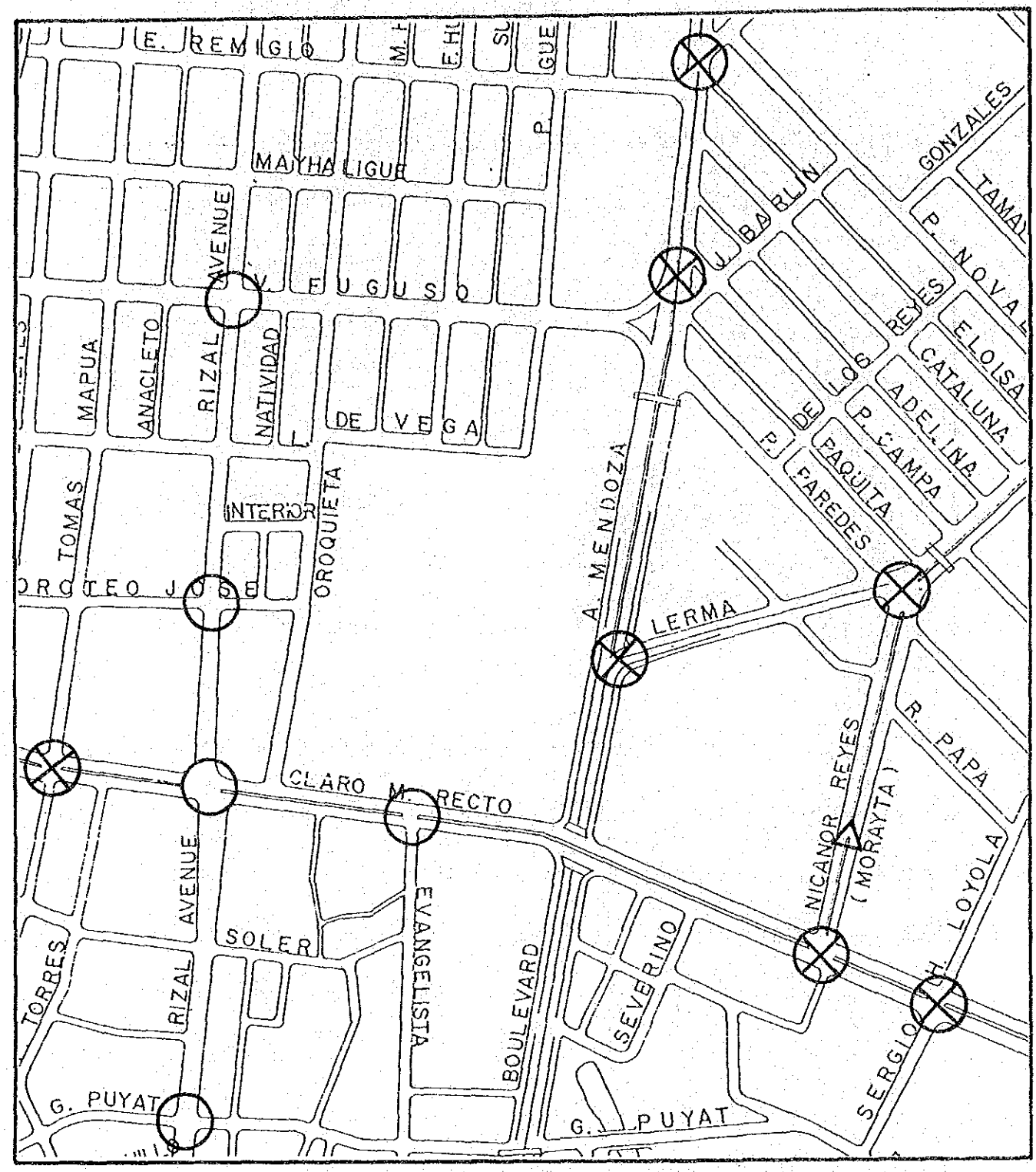
VII. Preparation and construction Build terminal



VIII. Preparation and Construction

Appendix 4.1
MMTEAM II Plan for Installation of Traffic Signals

Location	Remarks
1. C.M. Recto/T. Mapua	Existing
2. C.M. Recto/Rizal Avenue	Removed due to LRT construction
3. C.M. Recto/Evangelista	Planning stage
4. C.M. Recto/N. Reyes	Existing but not functioning
5. C.M. Recto/Loyola	Existing but not functioning
6. Rizal Avenue/G. Puyat	Planning stage
7. Rizal Avenue/D. Jose	Planning stage
8. Rizal Avenue/V. Fuguso	Planning stage
9. A. Mendoza/Lerma	Existing but not functioning
10. A. Mendoza/P. Campa	Existing but not functioning
11. A. Mendoza/ Dapitan	Existing but not functioning
12. España/N.Reyes	Existing but not functioning
13. España/P. Noval	Existing but not functioning
14. N. Reyes (infront of FEU gate)	Installation of pedestrian traffic signal)



LEGEND:

- TRAFFIC SIGNAL (EXISTING)
- TRAFFIC SIGNAL (NEWLY INSTALLED)
- PEDESTRIAN SIGNAL

0 25 50 100 150 200M

Appendix 4.2
Location of Traffic Signals

JUMSUT II