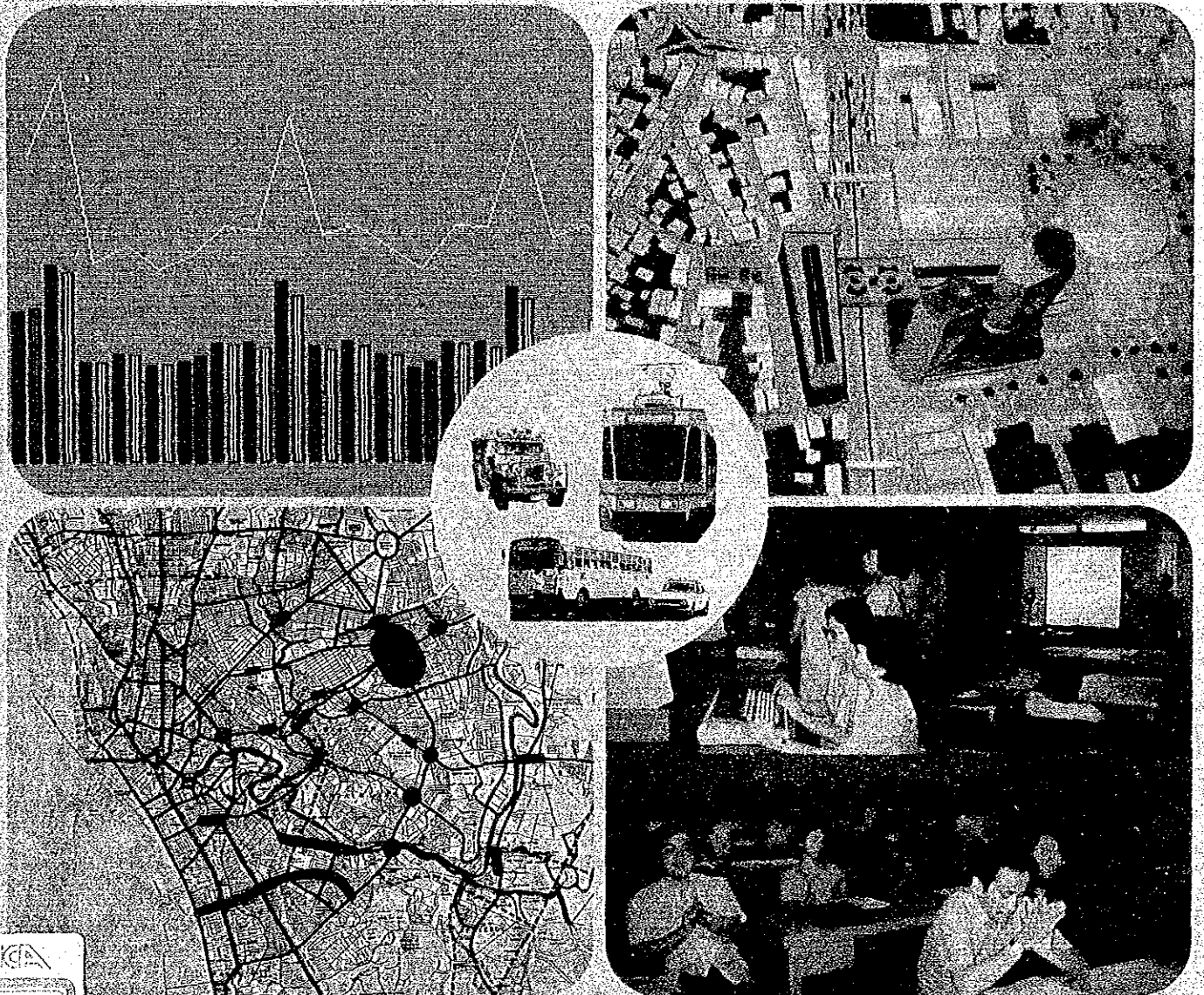


The Metro Manila Transportation Planning Study Phase II Final Report

TECHNICAL REPORT

C-3/Quezon Avenue Mode Interchange Area Study



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**The Metro Manila
Transportation Planning Study
Phase II Final Report**

TECHNICAL REPORT
C-3/Quezon Avenue Mode Interchange Area Study

SEPTEMBER 1985

JAPAN INTERNATIONAL COOPERATION AGENCY

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1.0 THE PROJECT SCOPE

1.1 C-3/QUEZON AVENUE IN METRO MANILA

The Metro Manila road network is composed of 10 radial and 6 circumferential roads. This highway network was conceived as early as the post-war period but even at present, the total concept has yet to be realized.

The alignment of C-3 (Circumferential Road No. 3) has been set and will utilize existing alignments of some local roads, other than the Buendia and Gregorio Araneta Avenues. Figure 1.1 shows the alignment of C-3 and the lengths for which specific construction actions are still required.

At present, C-3/Quezon Avenue junction does not play a major role in the road network because of the physical limitation of C-3, formed only by 3 kilometers of Gen. Araneta and then disconnected by a great distance to the rest of the existing C-3, that is, Buendia Avenue in the south.

However, the impact of C-3 when completed would be so large that interzonal traffic flow changes drastically and transfer of passengers between C-3 and major radial arteries will increase greatly. Land use would be also changed and it is very likely that C-3/Quezon Avenue Intersection, being one of the most significant intersections along C-3, would have to play a similar role as those taken by major intersections along C-4 (EDSA).

1.2 BOUNDARY OF THE STUDY AREA

The study area for C-3/Quezon Mode Interchange Area (MIA) is approximately a fourth of a hectare, from Calamba in the north to Kaliraya in the south and Biak-na-bato in the west of the Gen. Lim in the east (refer to Figure 1.1). For an informative consideration of the area, the perspective is broadened along the lengths of Gen. Araneta and Quezon Avenue.

1.3 JUMSUT's BRIEF ON C-3/QUEZON AVENUE

If one were to judge from the present conditions, the conclusion inescapably leads to the one existence of a problem. But a comparison of the area with similarly-situated busy crossroads that are already in advanced stages of commercialization provides an early warning. It is anticipated that a future problem of congestion would arise unless arrested at the early stages.

Rather than react to a situation that has become problematic, the main objective for the C-3/Quezon MIA is to prevent their occurrence and to retain as much options as possible now before the constraints of lack of land sets in (as in the other 4 MIAs). In short, the government ought to seize the initiatives offered by the delay in the completion of C-3.

Based on present commitments of MPWH, the northern sections of C-3 will be completed by 1990. By then, the traffic volume would be around 65,000 to 70,000 vehicles per day - which is more than 50% of flows now observed in Cubao.

In JUMSUT II, a plan is sought to develop proper mode interchange facilities together with the construction of the road to prevent an expensive investment and to encourage more efficient land use in the area.



LEGEND:



EXISTING



STUDY AREA



PROPOSED / UNDER CONSTRUCTION

Figure 1.1
Study Area and C-3
Alignment

2.0 THE PRESENT SITUATION

2.1 LAND USE AND SOCIO-ECONOMIC CHARACTERISTICS

2.1.1 Land Use

The study area is composed of parcels of land given to mixed land usage (Figure 2.1). The area is principally residential of low to medium density. Industries are interspersed and, through time, traditional trend of commercial development along main roads developed. Several institutions also exist, i.e., schools, hospitals, clinics, etc. Busy commercial/industrial strips are found along the periphery of the study area (e.g., Del Monte and Banawe Streets).

Unutilized lands occupied by squatters are also characteristic of the area to some extent. Squatter colonies dot the area. They not only occupy unowned lands but carriageways and right-of-way as well, as in Talayan Village.

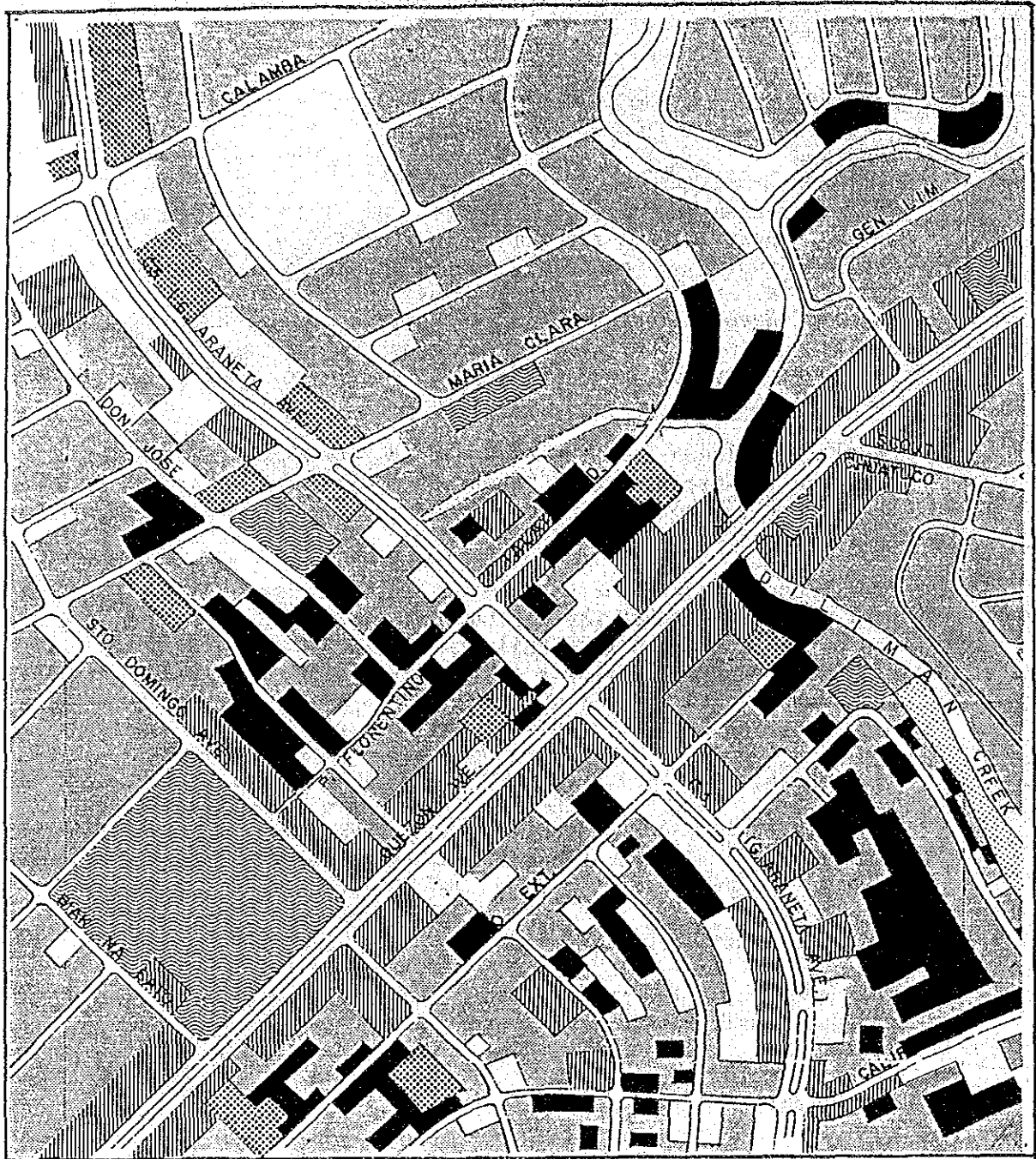
The trend observed of the land use along Quezon Avenue is that available spaces are rapidly converted into commercial establishments mostly engaged in retail trading. Specifically, these trading firms are generally of the automobile and lumber business nature which are found along roadsides. Food and shopping facilities interrupt this tendency around the Sto. Domingo Church.

G. Araneta, on the other hand, possesses a slower pace in land development. Several factories have grown up yet many vacant lots can still be noted along this avenue. However, in the event that C-3 will be fully operational, commercial developments may be anticipated for the area.








2.1.2 Socio-Economic Characteristics

The study area is divided into 5 zones for analysis purposes and various socio-economic data are outlined on a per zone basis (see Table 2.1). The zones encompassing the vicinity of C-3/Quezon Avenue are 100, 101, 102, 108, and 94 based on the HIS 202 zoning parameters.

As a whole, the average population density of the area is 174 persons/hectare. Zone 102 portrays the highest population density while zone 101 has the lowest. The latter exhibits the characteristics of a residential place for high income groups accounting for the highest number of private trips (40%) among the zones.



LEGEND:

- | | |
|---|---|
|  INSTITUTIONAL |  COMMERCIAL |
|  SQUATTERS |  INDUSTRIAL |
|  RECLAIMED AREA |  RESIDENTIAL |
|  PARKS & OPEN SPACES | |

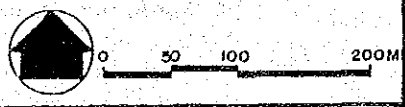


Figure 2.1
Existing Land Use

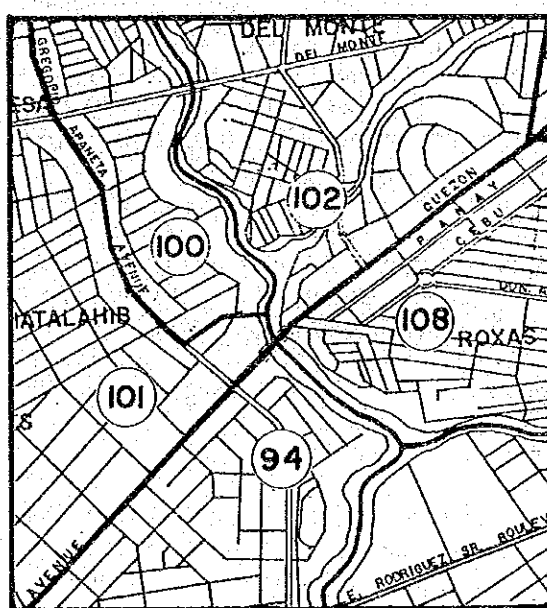
JUMSUT II

Table 2.1
 Characteristics of the C-3/Quezon Avenue Area

		HIS 202 Zone ^{1/}				
		94	100	101	102	108
Socio-Economic	Population	27,660	14,490	9,260	56,260	34,440
	Daytime Population	22,190	11,430	10,580	46,720	30,830
	No. of Students in Daytime	4,340	3,020	1,480	10,720	10,000
	No. of Employment by Workplace	5,810	2,900	5,340	13,180	8,310
	Population Density (Person/ha.)	210	150	100	240	170
	Daytime Population Density (Per/ha.)	170	120	110	200	150
	Average Household Income (₱/mo.)	800	1,230	1,200	920	1,510
	Car Owning Rate (%)	6	20	8	11	26
Traffic	No. of Trips	85,100	64,700	56,800	188,600	106,100
	Public	59,000	44,300	33,800	133,300	65,100
	(%)	(69.3)	(68.5)	(59.5)	(70.7)	(61.4)
	Private	26,100	20,400	23,000	55,300	41,000
(%)	(30.7)	(31.5)	(40.5)	(29.3)	(38.6)	

Source: JUMSUT I

1/ Zone boundaries are outlined below.



The C-3/Quezon Avenue area generally does not hold the type of attraction a commercial place would have since the only commercialized area is that along Quezon Avenue. Moreover, other trip attracting institutions like schools and work places are not numerous in the area. Thus, population density for daytime is expected to be lower than the nighttime.

Overall car ownership rate is found to be 14.2% which is much higher than the metropolitan average of 9.5%. The number of private trips within the area is fairly high, ranging from 29% to 40% of total trips per zone.

2.2 ROAD SYSTEM AND TRAFFIC

2.2.1 Road Network

The primary road network consist of Quezon Avenue and G. Araneta Avenue, being integral sections of R-7 (Radial Road No. 7) and C-3, respectively. The road network of the study area is shown in Figure 2.2.

Primary Roads:

- a) G. Araneta Avenue (4 lanes, 2-way; between Quezon Avenue and P. Florentino: 2 lanes, 2-way)

Although G. Araneta Avenue is supposedly a major thoroughfare, it does not function as such because of its short length and road condition. The road condition is particularly poor north of the Quezon Avenue where some sections are either unpaved or poorly maintained. Some sections are virtually closed to traffic due to squatters occupying the carriageway. On the other hand, G. Araneta southside of Quezon Avenue is utilized for access between E. Rodriguez and Quezon Avenue.

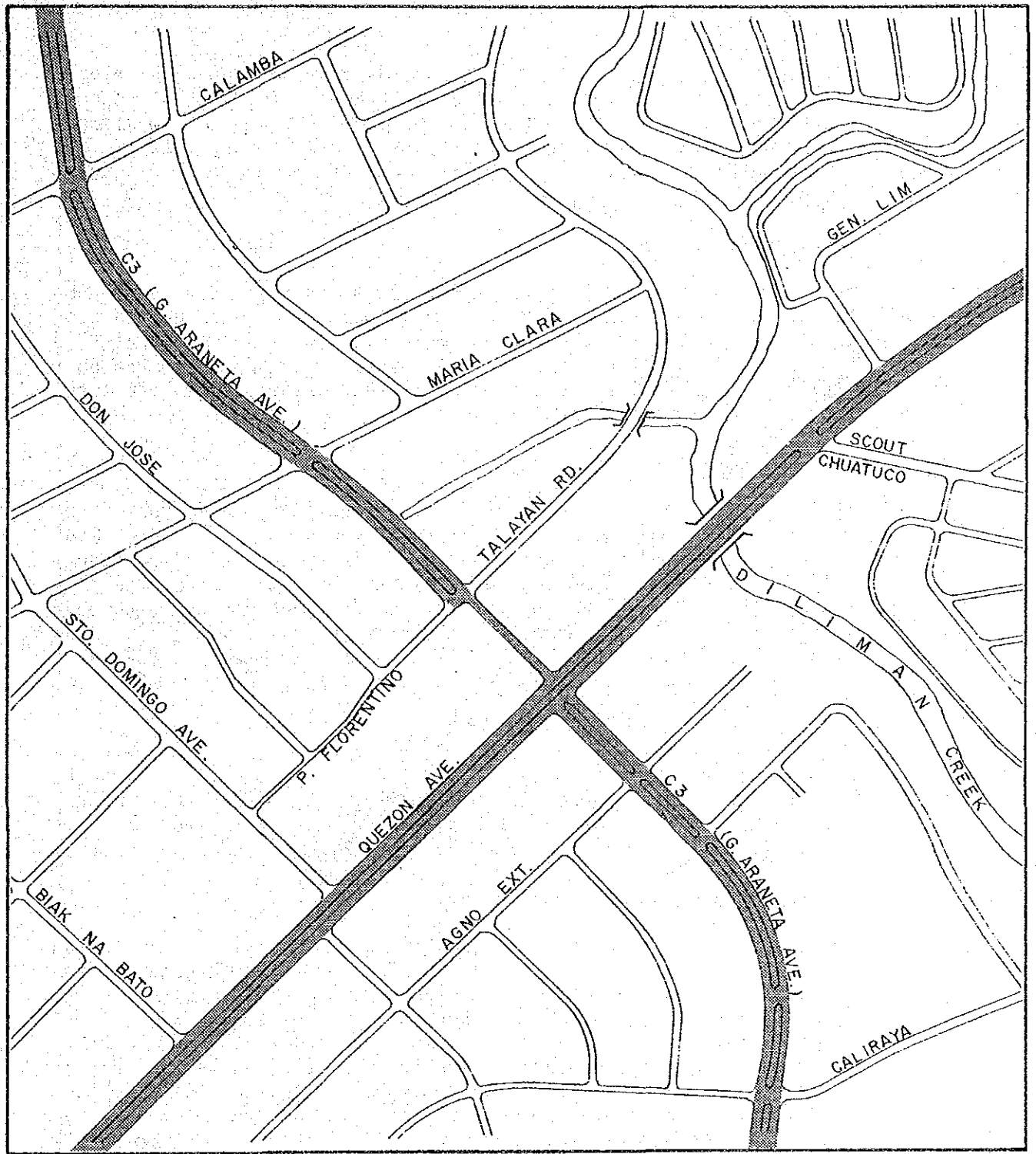
Based on present commitments of MPWH, the northern sections of C-3 will be continuous by the year 1990. By then, the traffic volume would be around 65,000 to 70,000 vehicles per day - which is more than 50% of flows now observed in Cubao.

- b) Quezon Avenue (8 lanes, 2-way)


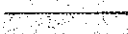
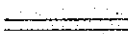
Quezon Avenue is one of the desired line for east-west vehicle movement. Usage is heavy by the public transport and traffic is dominantly passing through traffic. Current traffic volume is classified as medium intensity for that section in the study area.

Secondary Roads:

There are four (4) secondary roads within the study area, namely: Sto. Domingo, Maria Clara, Dapitan and Scout Chuatoco. These roads are generally in good condition and are predominantly used by private vehicles.



LEGEND:

-  PRIMARY ROAD
-  SECONDARY ROAD
-  TERTIARY ROAD

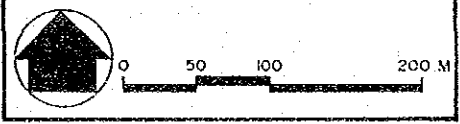


Figure 2.2
Existing Road Network

It is interesting to note that secondary roads have developed mainly in the area with the highest attraction for that of school and church, in lieu of the function amiss of C-3 due to its discontinuous length. Likewise, other proximate secondary roads, i.e., Banawe and Roosevelt have captured many of the school and church trips.

Local Roads:

Local road condition in the study area is generally not commendable. On the other hand, some local distributor roads are in good condition but lightly used at the moment. The area is punctuated with severely damaged sections. However, in the northwestern part of the study area, road condition is good since this is the interior of high income residential area.

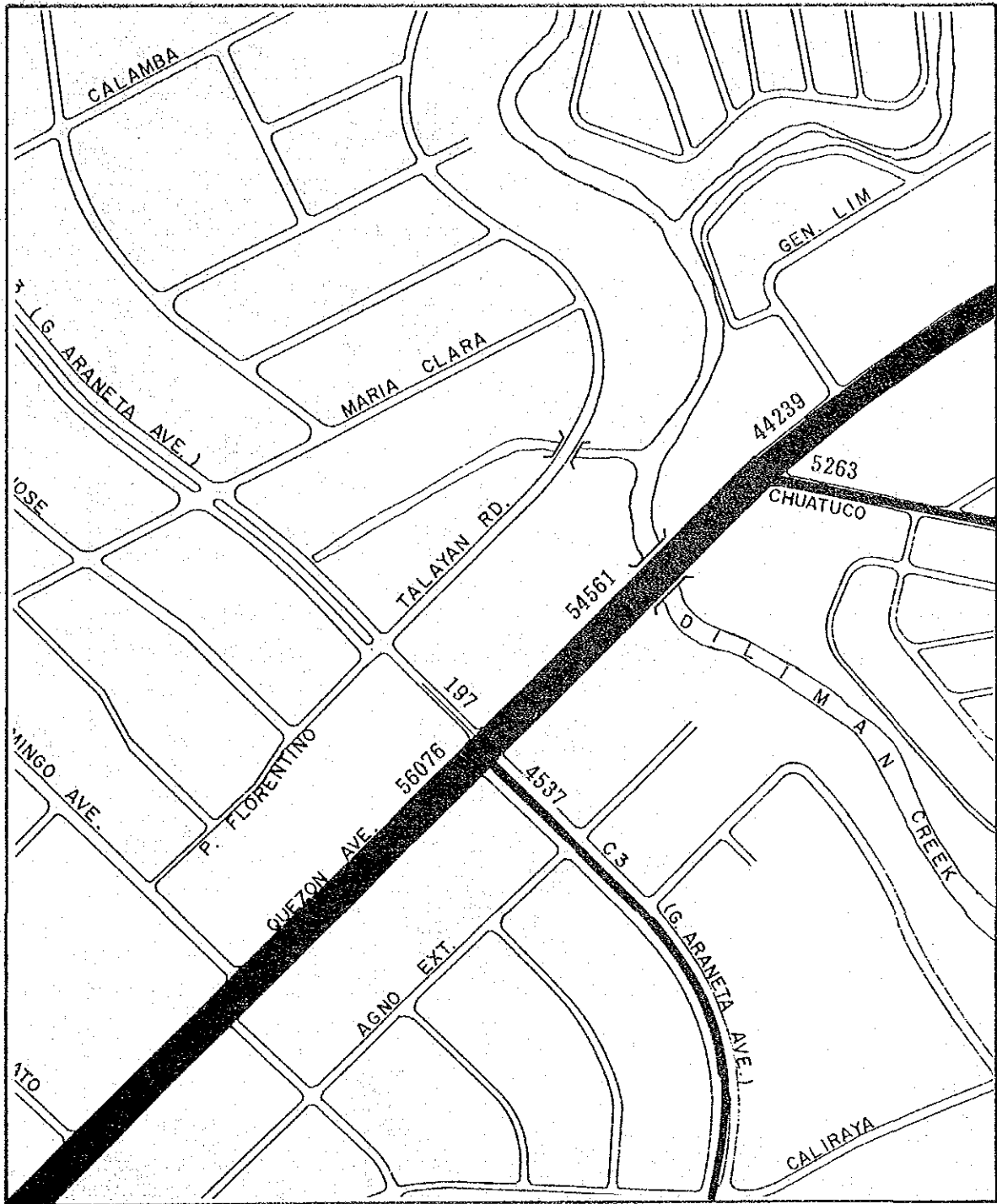
2.2.2 Traffic Flow Characteristics

Traffic flow is light in most areas of the study area save the stretch of Quezon Avenue, G. Araneta Avenue southside and Sto. Domingo Avenue where traffic volume is classified as medium intensity. Since the area does not hold much of an attraction for trips, the C-3/Quezon Avenue traffic is dominantly passing-through with heavier vehicular usage on Quezon Avenue vis-a-vis the G. Araneta Avenue (see Figure 2.3). The traffic in most of the side streets of the study area, on the other hand, is classified as subdivision traffic.

G. Araneta Avenue southside of Quezon Avenue is utilized as an access between Quezon Avenue and E. Rodriguez Avenue. Sto. Domingo and Biak-na-bato accounts for comparatively larger traffic volume because of the church, school and some other smaller facilities. It is also used as access to Del Monte Avenue in the north.

2.2.3 Traffic Congestion in the Area

The two notable sites in the area which suffers periodic congestion is Quezon Avenue fronting the Sto. Domingo church and Quezon Avenue/G. Araneta junction (see Figure 2.4). The former site is signalized and cross-marked, but a large volume of public and private vehicles and street vendors is experienced on weekdays (users are mainly students) and Sundays (dominated by church goers). This is exacerbated by the habit of jeepneys waiting on-road until fully loaded in complete disregard of the signals, the lanes and time spent. The Quezon Avenue/G. Araneta junction usually experiences traffic snags only during peak hours since it is not signalized and all right-turning vehicles from G. Araneta merge with the main stream traffic on Quezon Avenue without proper coordination.



LEGEND:

● JEEPNEY TERMINAL

▲ TRICYCLE TERMINAL

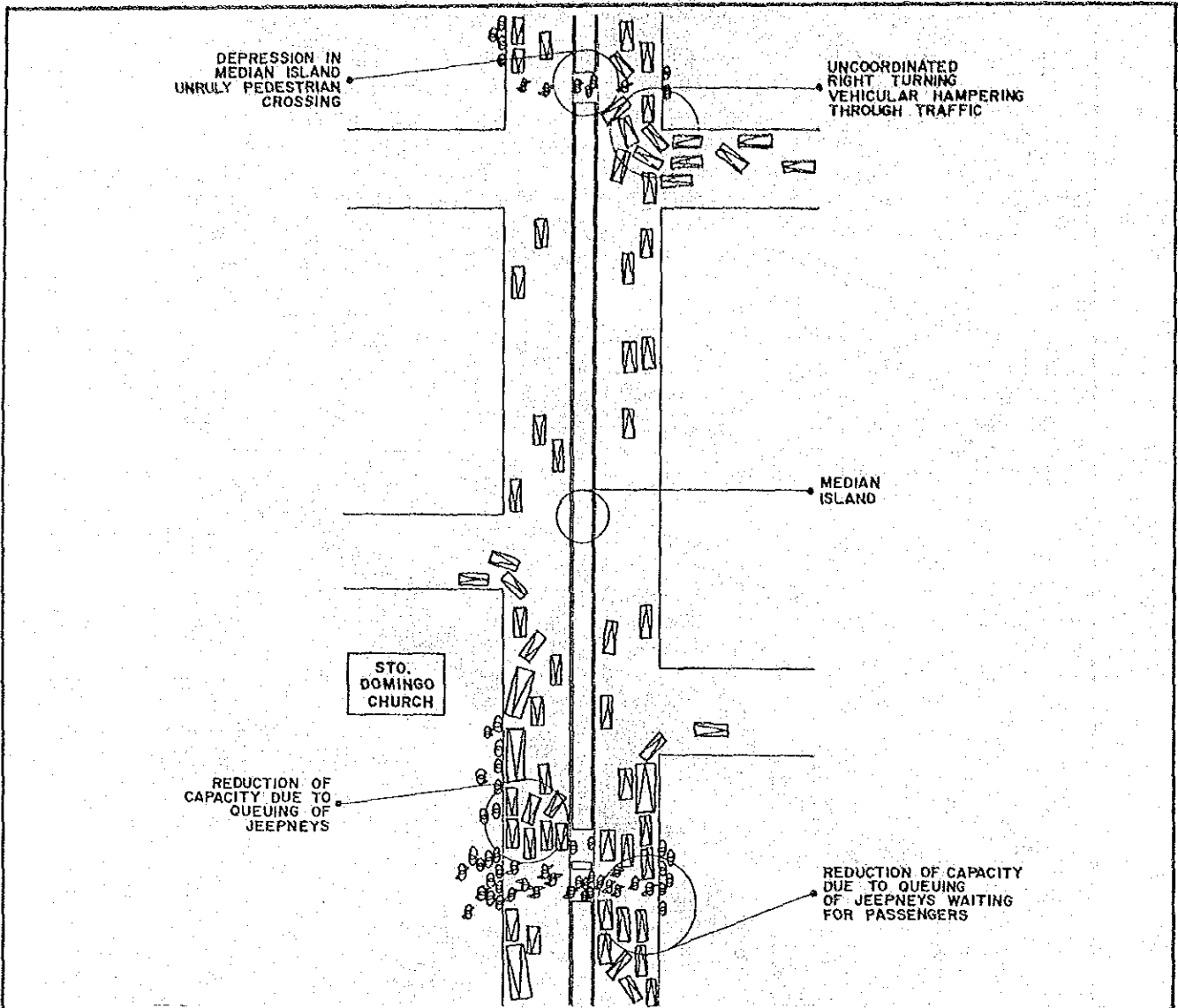
▨ MAJOR B/A POINTS

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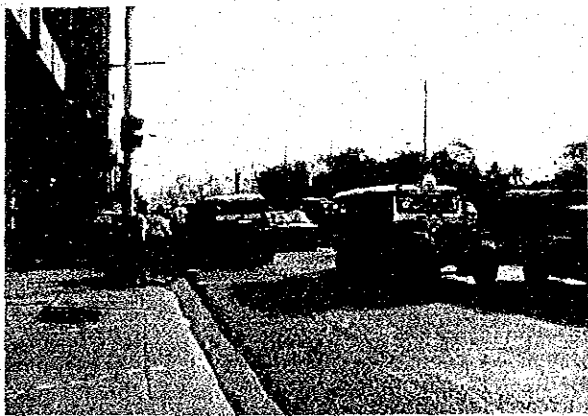


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Figure 2.3
Road Traffic Flow
in C-3/Quezon
Avenue



Front of Sto. Domingo Church



G. Araneta/Quezon Avenue



Figure 2.4
Congestions along
Quezon Avenue

2.3 PUBLIC TRANSPORT ASPECTS

2.3.1 Jeepney and Bus Routes

The existing public transport route network relative to C-3/Quezon MIA is composed of 90 jeepney and 12 bus routes, all of which are intra-city routes and are fairly simple in structure (see Table 2.2). Most of the jeepney routes are passing-through with only 2 routes terminating in the area (refer Figure 2.5). Likewise, all of the bus routes are passing-through.

Table 2.2
Existing Public Transportation Routes
Related to C-3/Quezon Avenue

Type of Routes	Intracity Jpy.		Intercity Bus	
	No. of Routes	No. of Units ^{1/}	No. of Routes	No. of Units ^{1/}
Terminating Routes	3	37	-	-
Passing Through	87	4,055	12	235
Total	90	4,092	12	235

Source: JUMSUT I

^{1/} No. of units refer to daily operating units.

Quezon Avenue is plied by trunk routes which are generally characterized by its long distances. Both the bus and jeepney routes co-exist on this road section. The demand for bus service is not so large because of the proliferation and extensive service, both in area and frequency of the jeepneys. However, bus service is of premium standard. G. Araneta Avenue, on the other hand, is given to short terminating routes. The short routes are almost exclusively used to service the residents within the area. These routes are forced to terminate at Quezon Avenue - because of a physical barrier posed by a central median.

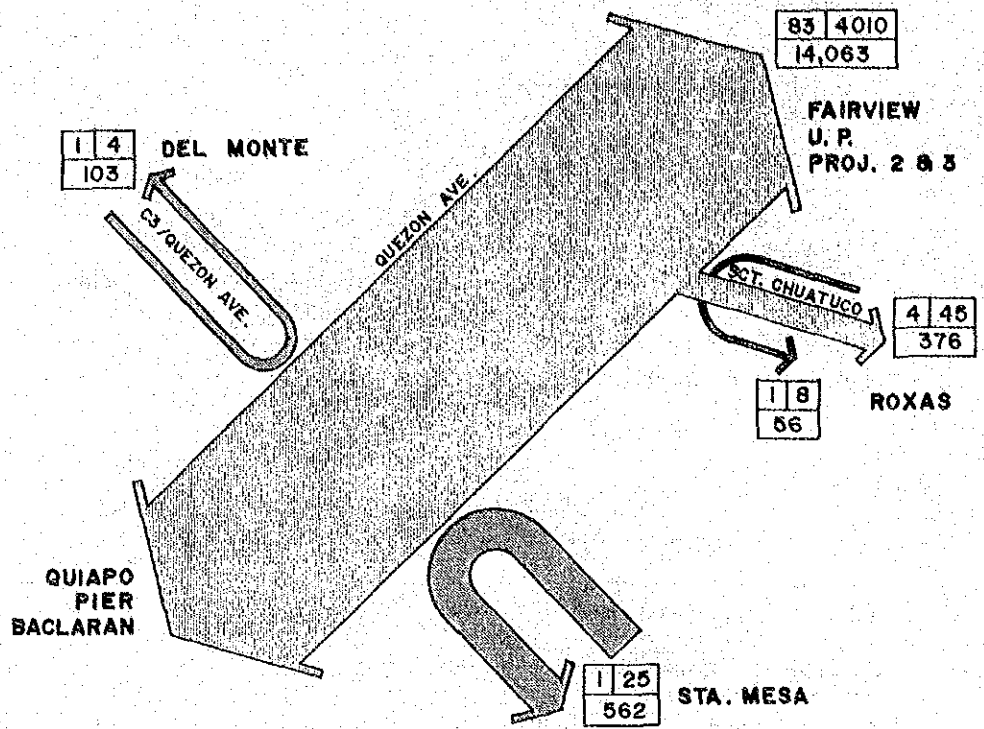
Similar to the G. Araneta, Scout Chuatoco also has a short terminating route which cater to residents of the Roxas District. This route feeds the main stream of Quezon Avenue.

2.3.2 Existing Terminals

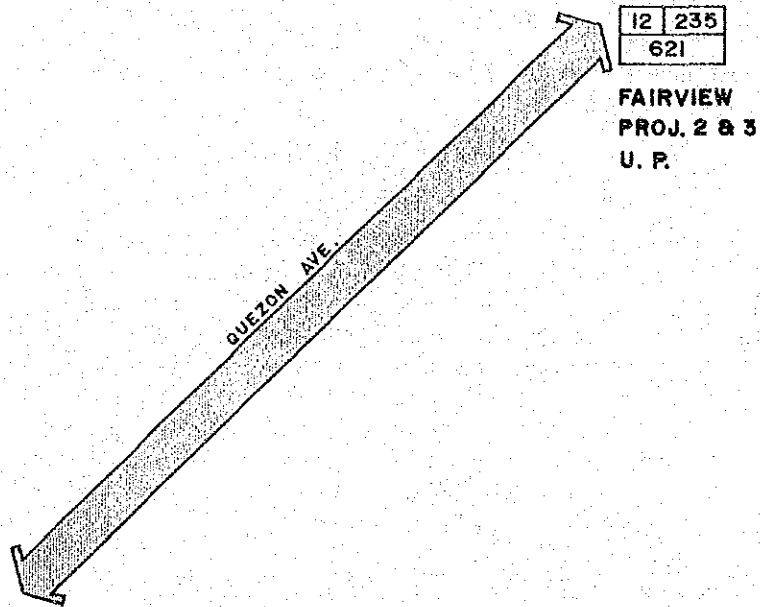
There are three (3) jeepney terminals, two (2) tricycle terminals and several bus stops/jeepney stops in the area. The Quezon Avenue routes are the trunk routes providing only for PUV stops. The C-3 and Scout Chuatoco routes are feeders with definite routes while tricycles provide flexible feeder service.

Figure 2.6 locates the terminals by type in the study area. All terminals save the north C-3 jeepney route, are on-road. The said exception utilizes the vacant lot as the waiting area.

JEEPNEY



BUS



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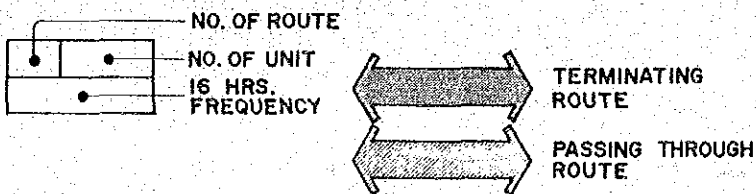
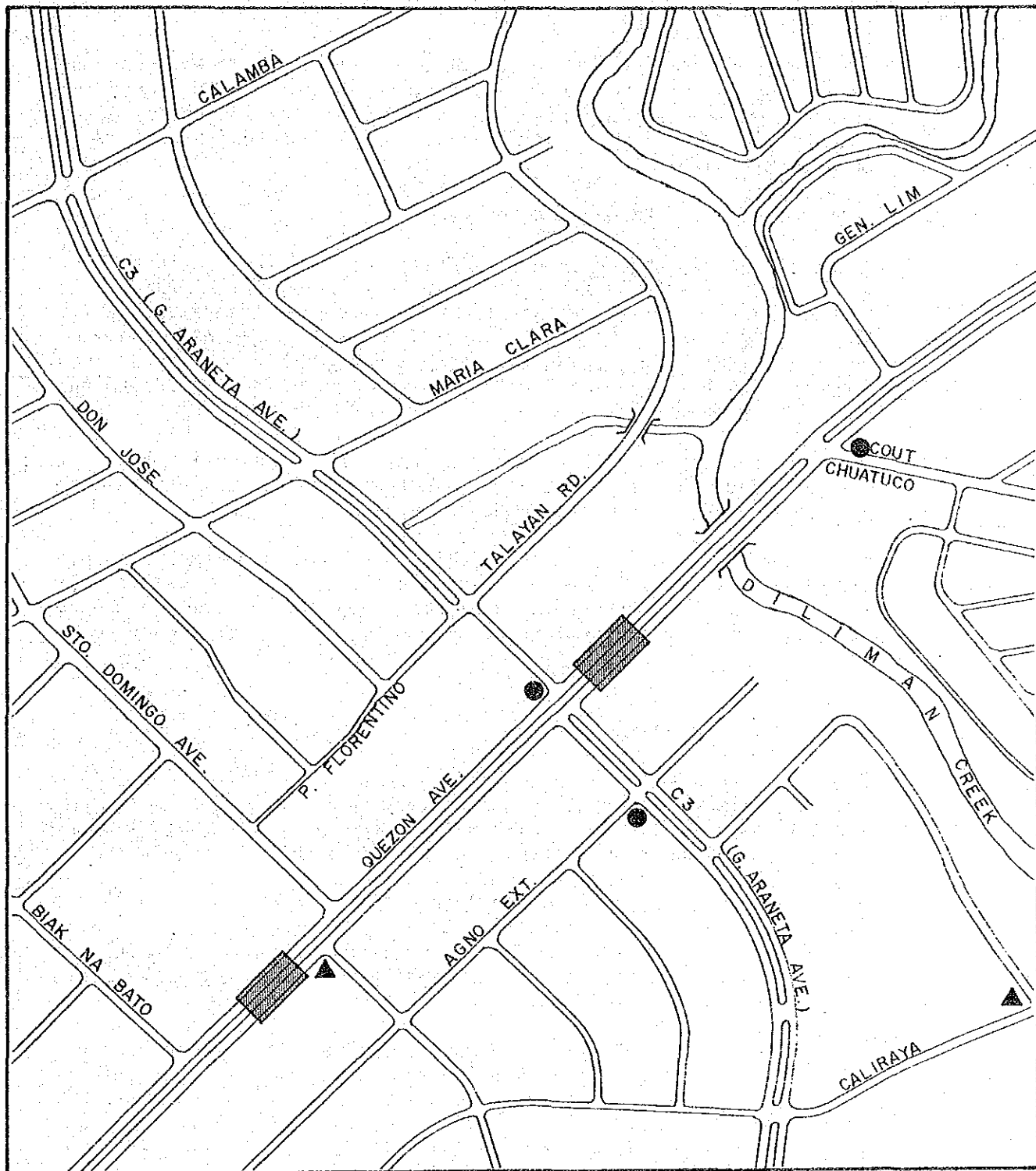


Figure 2.5
Existing Public
Transport Route Structure



LEGEND:

- JEEPNEY TERMINAL
- ▲ TRICYCLE TERMINAL
- ▨ MAJOR B/A POINTS

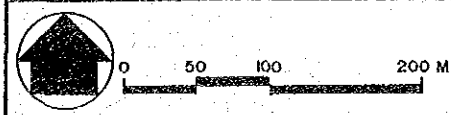


Figure 2.6
Existing Terminal/
Turning Points

The Araneta jeepney routes are managed by dispatchers charging ₱2.00 per jeep. Cooperative affiliated jeepneys are scheduled together on a half day; the other half of the day is scheduled for the rest of the operating jeepneys. Shifting of schedules is done on a weekly basis.

2.3.3 Public Transport Passenger Behaviors

Existing conditions would not classify the C-3/Quezon Avenue link as a major interchange. There are relatively three (3) major boarding and alighting points in the study area (see Figure 2.7). These are the Sto. Domingo, G. Araneta and Scout Chuatoco junctions. The total daily PT boarding/alighting passengers in the study area is about 85,000 based on JUMSUT I 1983 Jeepney and Bus Boarding/Alighting Passenger Count.

Most of the trips by PT passengers are of the terminating type at the Sto. Domingo area and transferring type for the G. Araneta/Quezon Avenue and Scout Chuatoco/Quezon Avenue junctions.

Major mode transfer pair is still between Quezon volume jeepneys and C-3 jeepneys. However, interior areas rely on walking or tricycle service. Bus service along Quezon Avenue, although the premium type is less relied on because of its low frequency compared to jeepney units.

2.4 PEDESTRIAN FACILITIES

The street section of Sto. Domingo, where the level of pedestrian activity is the highest, has a controlled pedestrian signal light and zebra-marked lines. Corollarily, the area of Scout Chuatoco/Quezon Avenue junction is provided with the same facilities.

However, the G. Araneta/Quezon Avenue intersection is not provided with the necessary facilities. Only the depression in the high continuous median and faded zebra markings allow the crossing of pedestrians. Regardless of the light pedestrian activity, this junction is deemed perilous.

Sidewalks are provided in a few road sections. There is none along G. Araneta and those along some lengths of Quezon Avenue are either rutted or unpaved. This does not present any problem at present since pedestrian traffic is light in most sections. Where pedestrian traffic is larger (of medium intensity); in front of Sto. Domingo Church, sidewalk is provided; at the periphery of the school, unpaved pedestrian space is adequate; at the G. Araneta jeepney terminal, vehicular traffic is not so heavy that pedestrian activity on the carriageway is tolerated.

2.5 TRAFFIC MANAGEMENT ASPECTS

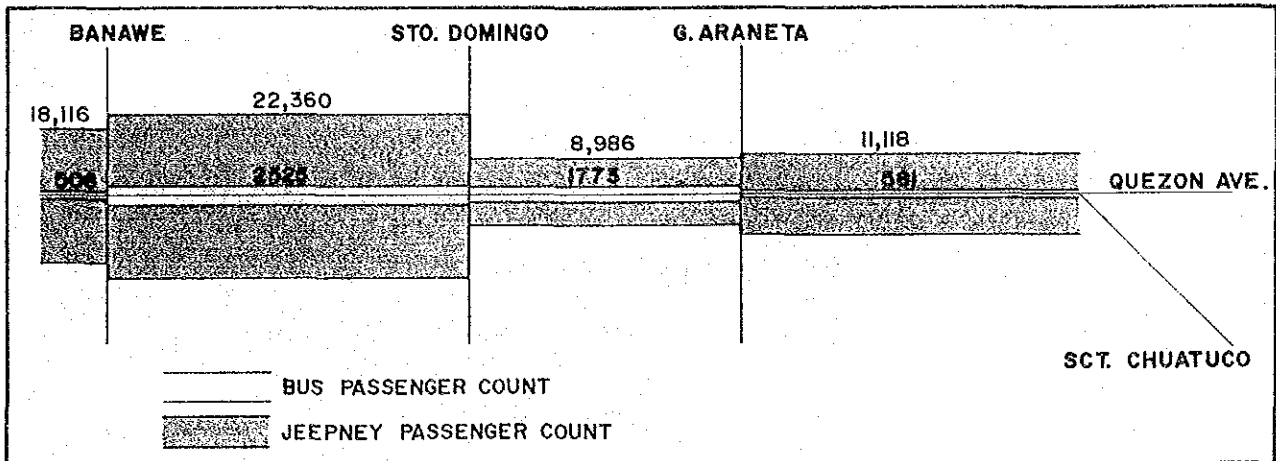
Traffic management of the area is relatively uncomplicated due to the light to medium-intensity of the traffic volume experienced. As such, there are no one-way roads in the area. There are computer

-controlled traffic signals installed at two sections along Quezon Avenue only (i.e., in front of Sto. Domingo and Scout Chuatoco/Quezon Avenue intersection). These traffic signals coincides with the location of pedestrian signal lights in the area. However, the present condition of the G. Araneta/Quezon Avenue intersection is the only area which exhibits the lack of traffic management as evidenced by the inadequate pedestrian crossing facility and traffic coordination of right turning vehicles from G. Araneta Avenue.

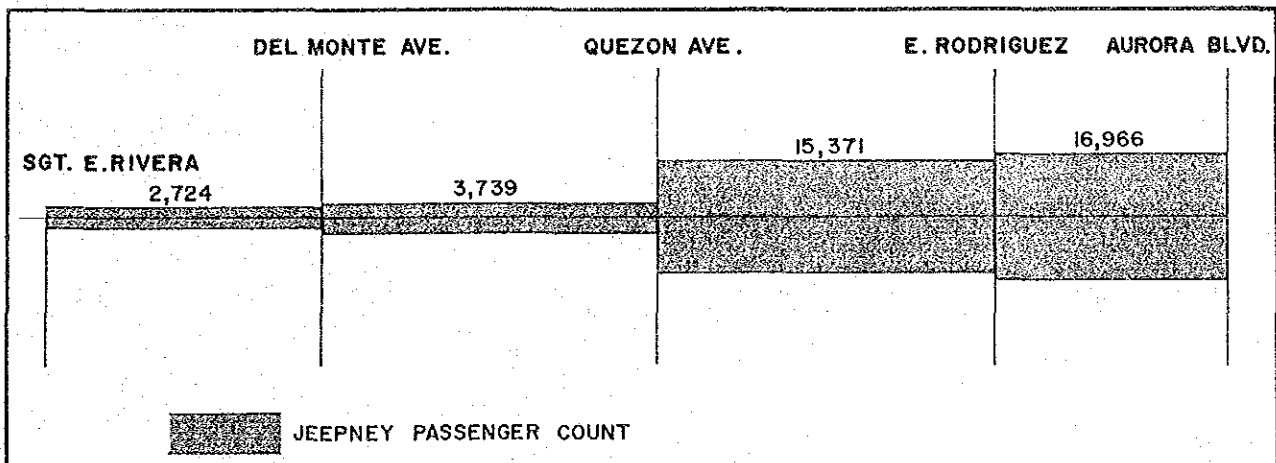
Parking conditions are not problematic. On-road parking is observed in the interior areas but this does not reduce effectivity of the roads as these roads are lightly traversed. On road parking is prohibited along Quezon Avenue and this is observed. Parking is accommodated off-road in the various commercial buildings and in the church yard where car parking capacity is large (approximately 150 parking space units).

Figure 2.7
1983 Jeepney and Bus Passenger Boarding and Alighting

(A) Along Quezon Avenue



(B) Along Gregorio Araneta Avenue



3.0 PREVIOUS STUDIES AND PROPOSALS

3.1 PRECEDENTS

The role of C-3 as a major link in the future has solicited the undertaking of studies. Noteworthy among these studies are the Feasibility Study on C-3 and R-4 and Related Roads as well as the MMETROPLAN.

3.2 FEASIBILITY STUDY ON C-3 AND R-4 AND RELATED ROADS

Based on its analysis of existing and projected traffic conditions, this study justified the need for the construction of C-3. For the study area in particular, it has advocated a grade separation of C-3 (G. Araneta Avenue section) and Quezon Avenue. The Ministry of Public Works and Highways is currently undertaking the construction of C-3 as proposed by the study but with modifications as to the schedule of implementation.

3.3 MMETROPLAN

Metro Manila Transport, Land Use and Development Planning Project for MMETROPLAN (with recommendations revolving on urban planning development) also stressed the need for upgrading G. Araneta Avenue and linking west to south by construction. The study saw C-3 as the major missing link in the highway network which would bring about the following advantages when completed:

- provide effective distributor route
- stimulate commercial and industrial developments/activities in major stress areas
- improve accessibility to Caloocan, San Juan, Kalentong/Mandaluyong
- create use for idle lands.

Table 3.1
Daily Traffic Volume and Traffic
Growth of Each Segment

C-3 Road Segment	Daily Traffic Volume (in 1,000 vehicles)			Traffic Growth	
	1980	1990	2000	1990/1980	2000/1990
South Superhighway- Ayala Avenue	57.5	113.6	161.3	1.98	1.41
Ayala Avenue-J.P. Rizal	40.3	76.1	107.2	1.89	1.41
J.P. Rizal-Boni Avenue	48.1	92.5	130.1	1.92	1.40
Boni Avenue-Shaw Blvd.	42.7	75.8	104.8	1.78	1.38
Shaw Blvd.-Aurora Blvd.	47.0	76.3	107.5	1.62	1.40
Aurora Blvd.-Quezon Avenue	41.0	63.4	88.7	1.55	1.40
Quezon Avenue-G. Araneta/ Sgt. E. Rivera inter- section	40.0	61.1	87.5	1.53	1.43
G. Araneta/Sgt. E. Rivera intersection-A. Bonifacio Avenue	15.6	26.0	38.3	1.67	1.47
A. Bonifacio Avenue-Rizal Avenue	42.8	65.2	92.9	1.52	1.42

4.0 TRANSPORT SYSTEM ANALYSIS

4.1 SPECIFICATION OF THE PROBLEM

As has been stated in Section 1.3, existing transportation problem is minimal. However, a comparison of the area with other similarly-situated busy intersections, that are already in the advanced stages of intensive commercial development, provides a warning on the future problem of congestion and inefficient land use.

Strong potentials for rapid development can be detected from the waiting passengers on the wayside and restaurants, retail shops, and other commercial houses that have sprouted around Timog Avenue/Quezon Avenue. Were it not for the non-completion of C-3, these types of developments would have become visible already at C-3/Quezon. The development of a facility at the C-3/Quezon Avenue would shift the trend at Timog/Quezon to the sites of the planned development.

4.2 PLANNING DIRECTIONS

4.2.1 Public Transportation Aspects

G. Araneta is the most visible segment of C-3. Its southern portion extending from R. Magsaysay to G. Puyat in Makati may never be realized due to rights-of-way problems. The northern arc is nearer to realization following the existing alignment of Emilio Rivera to Bonifacio Avenue, then 5th Avenue to Avenida Rizal and thence R-10.

The junction is proposed grade-separated. Topographical restraints limit choices to depressing C-3 which agrees with the preference of elevating/depressing the circumferential road being the collector road. Grade separation is rather an ambitious project as of now since this may only be necessary after the completion of the whole C-3 alignment.

Limited access is proposed for C-3, in view of the large traffic volume it is to distribute. Routes feeding into C-3 would be at best segregated by C-3 save for certain predetermined through-points and pedestrian facilities provided.

Major demand distribution for 1990 is shown in Figure 4.1. It is interesting to note that with such a distribution, the location of C-3/Quezon Avenue MIA is strategic in that there is a relatively large demand for transfers from G. Araneta to Quezon Avenue.

The impact of C-3 may be gleaned from Figure 4.1 which shows the estimated loading pattern of C-3. When it is constructed, it will soon absorb a traffic volume of more than its capacity in some sections. By 1990, the traffic volume at C-3/Quezon Avenue would be around 65,000 vehicles per day-which is more than 50% of flows now observed in Cubao. Especially when it is extended to Buendia

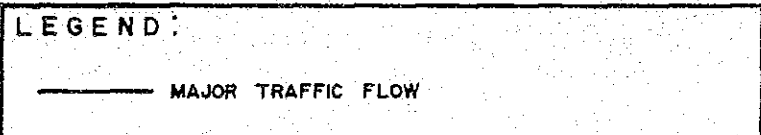
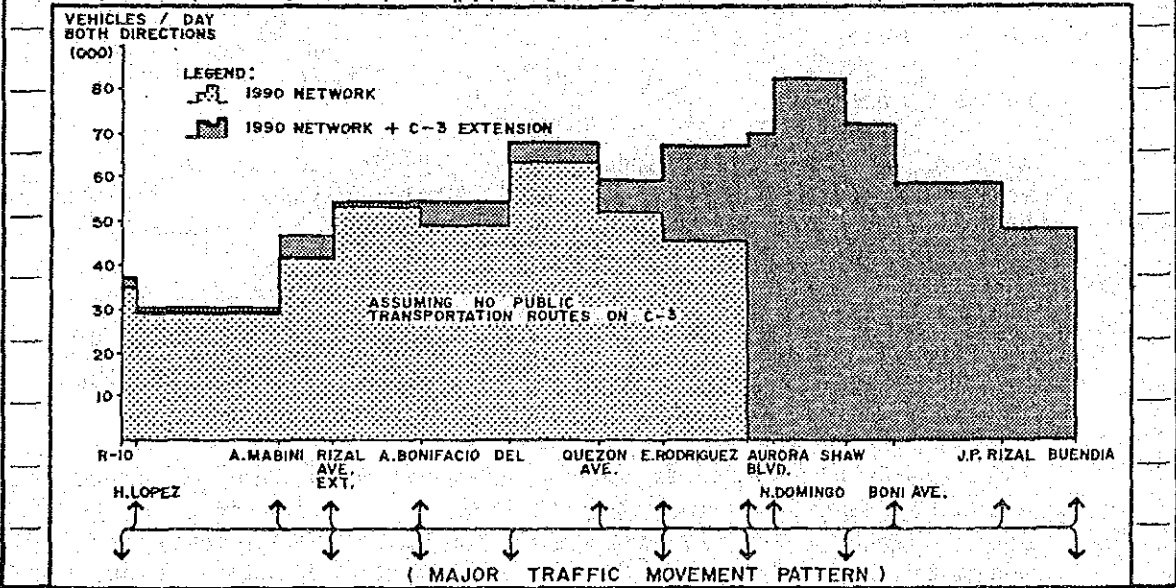
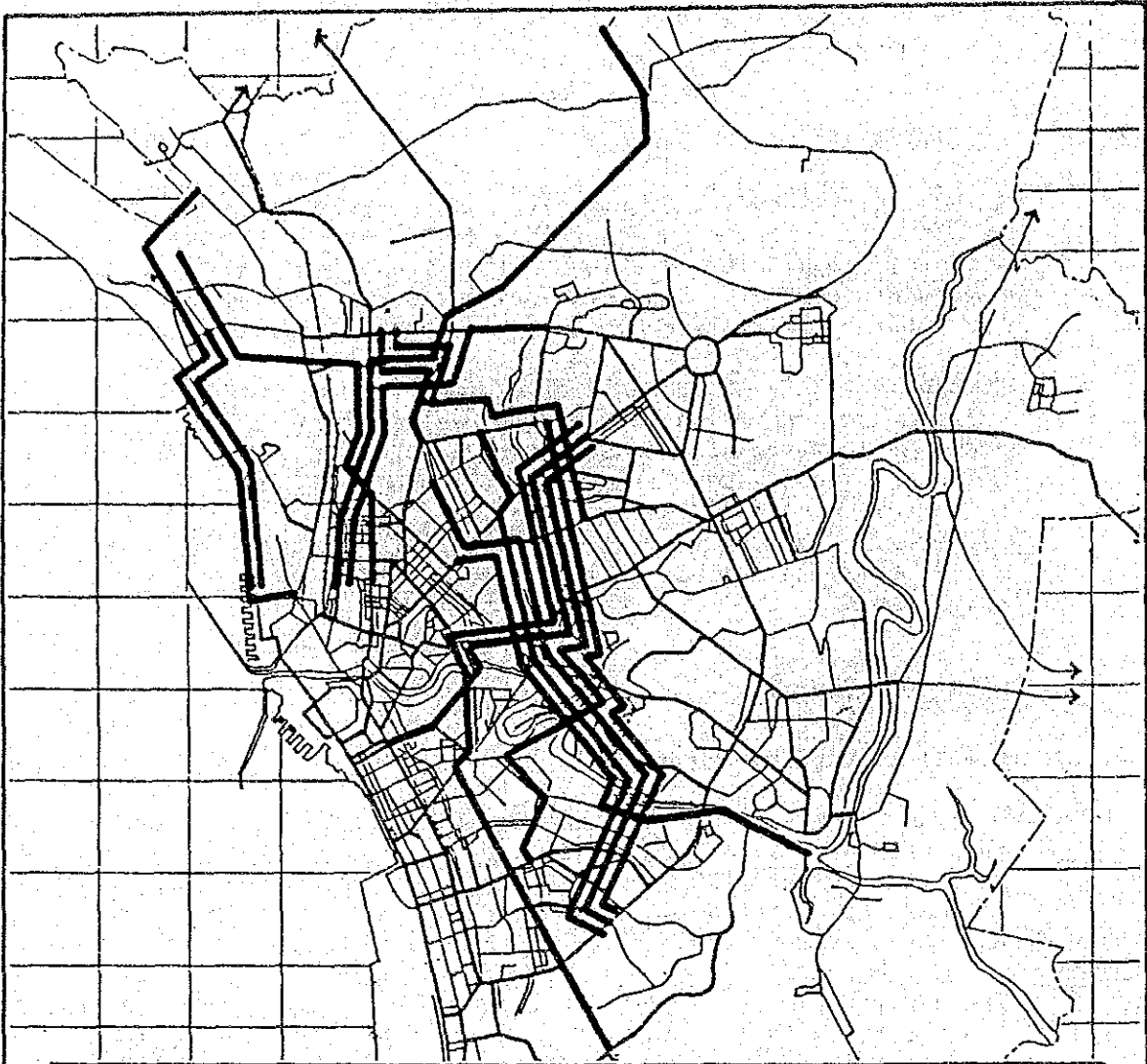


Figure 4.1
Major Traffic Demand
Distribution for C-3, 1990

Avenue, it will be extensively used in its eastern-southern sections. However, it is noteworthy that the loading pattern of C-3 in its northern sections will not change largely even after the extension.

The estimated traffic volume of C-3 is large and almost comparable to that of EDSA or C-2. Therefore, its impact is significant to all the parallel and nearby roads. Especially for the traffic generated and attracted by Makati area, C-3 can play an important role, supported by Makati-Mandaluyong Road when C-3 is not extended.

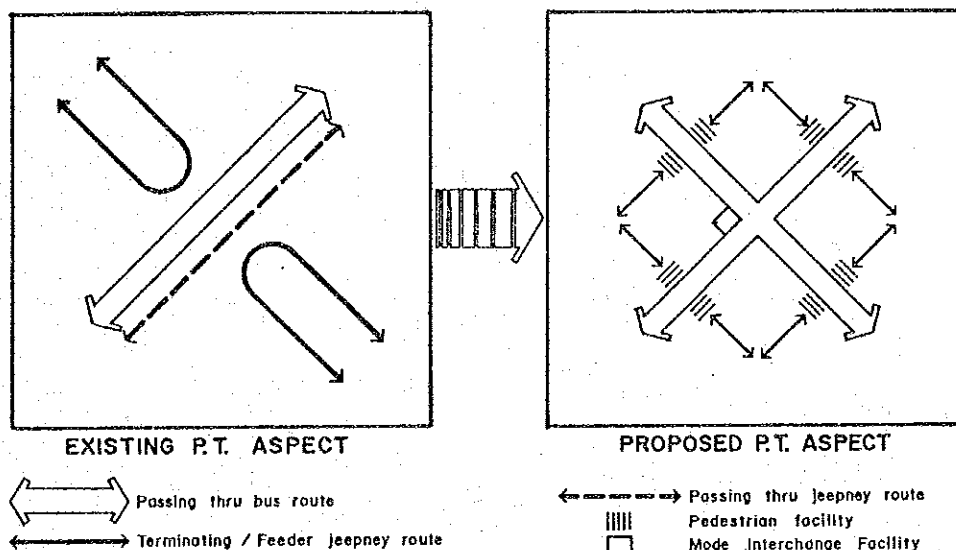
C-3 can absorb various traffic movements from the existing roads. These include:

- from EDSA : Navotas/Malabon/Valenzuela/Caloocan - Makati
- : Quezon City - Makati
- : San Juan/Mandaluyong - Makati (when extended)
- from C-2 : Caloocan/Quezon City South - Makati
- from Rizal Avenue/Dimasalang : Navotas/Malabon/Valenzuela/Caloocan - San Juan/Mandaluyong/Pasig

4.2.2 Route Modification

Route structure improvement study (Technical Report No. 3) advises to limit C-3 for bus routes - especially the passing-through routes. This is to ensure as much throughput as possible from what is anticipated to be a high-speed but heavily-used primary road akin to EDSA. Consequently, jeepney routes will be relegated to feeder service eliminating them along these two major thoroughfares or at least tolerating them at short sections.

Figure 4.2
Public Transport Aspect Concept



4.2.3 Development of Mode Interchange Facility

Figure 4.3 gives a sketch of the proposed mode interchange facility at C-3/Quezon. While the indicated location is not absolute, the availability of vacant land falls on the northwest quadrant formed by the intersection. It is less expensive and easier to develop into a commercial center with corollary terminal facilities. Because of the envisioned grade-separation (with Quezon Avenue depressed and C-3 elevated), a situation similar to A. Mendoza and Recto could emerge with adverse effects to pedestrians.

The series of road constructions programmed by MPWH from 1985 to 1990 leading to the completion of C-3 provides a long window of opportunity for the development of a mode interchange area. The acquisition of the land can therefore be piggybacked with the road implementation and the grade-separation designed to meet the requirements of public transport terminal and pedestrian movements.

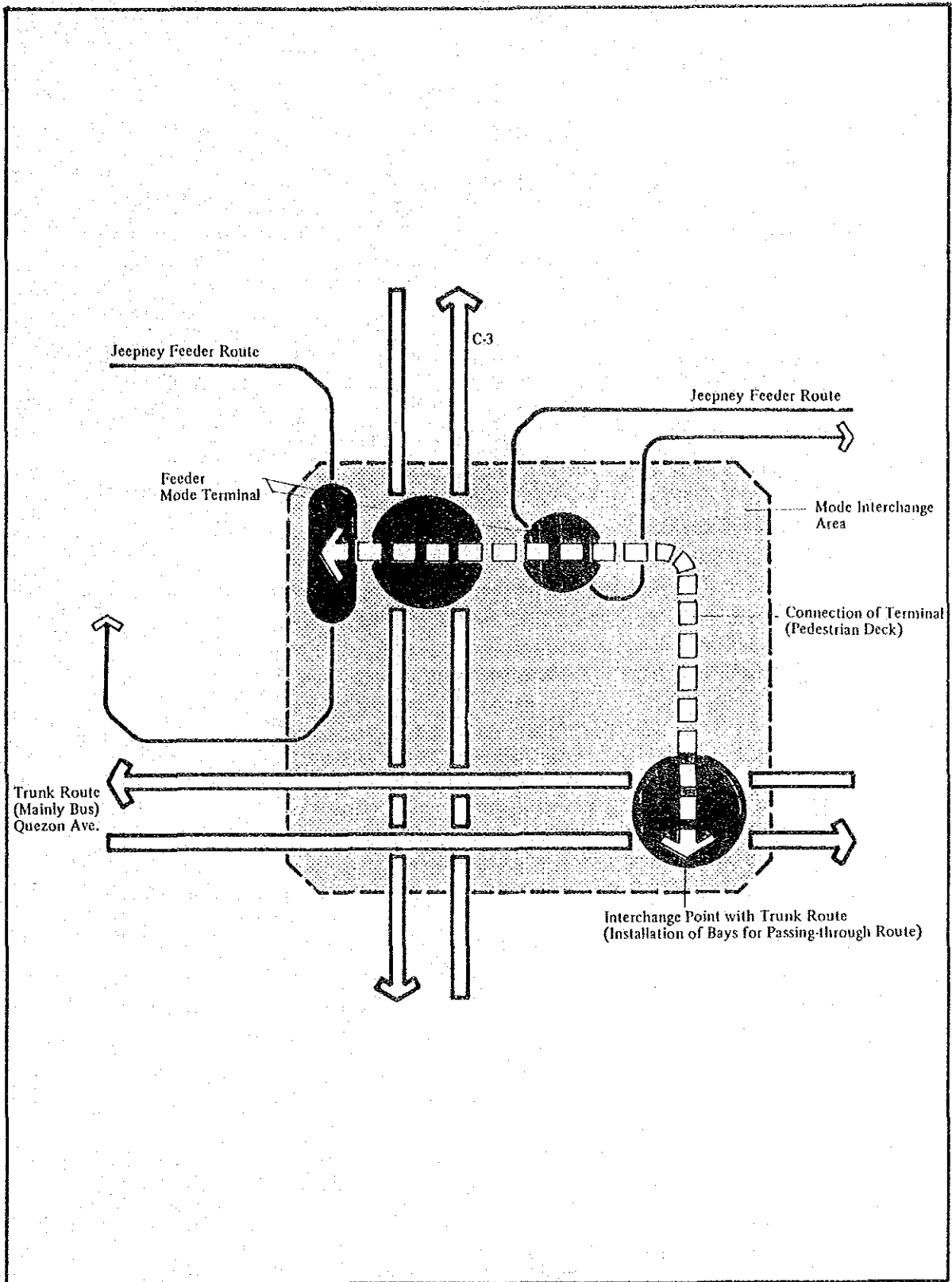


Figure 4.3
C-3/Quezon Avenue
Terminal

5.0 DETAILED PLANNING

5.1 PROPOSED PLAN

The concept of mode interchange facilities for C-3/Quezon Avenue MIA has been developed further as shown in Figures 5.1 to 5.3. The space requirement for the facilities has not been estimated as accurately as other MIAs. However, this prototype plan can be considered for the rest of major intersections along C-3 or other thoroughfares.

While a detailed plan could not be produced, preliminary cost of the MIA project was nevertheless estimated to provide a basis for future planning actions. As shown in Table 5.1, the mode interchange would cost ₱10.3 million. No analysis has been made about the viability of such a terminal at C-3, but it is likely to be marginal without the associated commercial space.

Table 5.1
Costing of C-3/Quezon Avenue MIA
for Long-term Development

Item	Quantity	Unit Cost (P)	Total (P000)	Remarks
C. LONG TERM PLAN				
C.1 Pedestrian Facilities				
1) Pedestrian Overpasses				
a) Across Quezon Avenue	45m	60,000/m	2,700,000	45m(L) x 3.2m(W)
b) Across C-3	45m	60,000/m	2,700,000	45m(L) x 3.2m(W)
		Sub-Total	5,400,000	
C.2 Development of Mode Interchange Facility				
1) Land acquisition	1970m ²	1260/m ²	2,482,200	
2) Compensation	L.S.	500,000	500,000	
3) Earthwork: 1m embankment	1970m ²	177/m ²	348,690	
4) Pavement of Terminal	323m ²	511/m ²	165,053	
5) Sidewalk	120m	536/m	64,320	2m(W)
6) Median island				
a) 2.5m(W)	10m	668/m	6,680	
b) 1.0m(W)	10m	441/m	4,410	
7) Access road pavement	1200m ²	511/m ²	613,200	
8) Lane marking	323m ²	15/m ²	4,845	
9) Traffic signs	4 pcs.	1077/pc.	4,308	
10) Street lights	6 pcs.	4306/pc.	25,836	
11) Administration building and waiting shed	25m ²	2165/m ²	54,125	
12) Fence	100m	450/m	4,500	
13) Drainage	70m	421/m	29,470	
14) Catchbasin	5 pcs.	274/pc.	1,370	
		Sub-Total	4,308,007	
C.3. Utilization of the road space				
1) Provision of bus bays				
a) Removal of sidewalk	144m	154/m	22,176	existing: 2m
b) New sidewalk	168m ₂	536/m ₂	90,048	
c) New road pavement	540m	511/m	275,940	
d) New median	96m	441/m	42,336	1m(W)
e) Pedestrian barrier fence	96m	725/m	69,600	
f) Pedestrian shelter	4 units	29,780	119,120	
		Sub-Total	619,220	
		Long Term Plan Total	10,531,227	

5.2 ECONOMIC CONSEQUENCES

Aside from the usual methodological difficulties involved in the economical evaluation of off-street transport terminals, the analysis of C-3/Quezon MIA suffers from the highly-tentative nature of the traffic data. The resulting economic benefits would be extremely speculative at this stage that a qualitative assessment would suffice.

Facilities developed for mode interchange would include commercial and office facilities. Vertical land usage is advocated for this matter, while horizontal sprawl is constrained to conform to planned development. This development of the mode interchange function would mutually develop the commercial utility of the area as, obviously, pedestrian activity is imposed on the area. Thus the mode interchange function would best be integrated into a commercial facility, each function in a symbolic environment. Strip development would be arrested in favor of planned development control to the mode interchange facility then radiating in larger horizontal floor space and along the major thoroughfares.

The main benefits would arise from the early and planned development of the area, inducing a rise in land values. Urban amenities would be brought nearer to its service/catchment area. On a macroscopic level, Manila and all its users are the beneficiaries. Planned development would avoid costs from inefficiencies of uncontrolled growths.

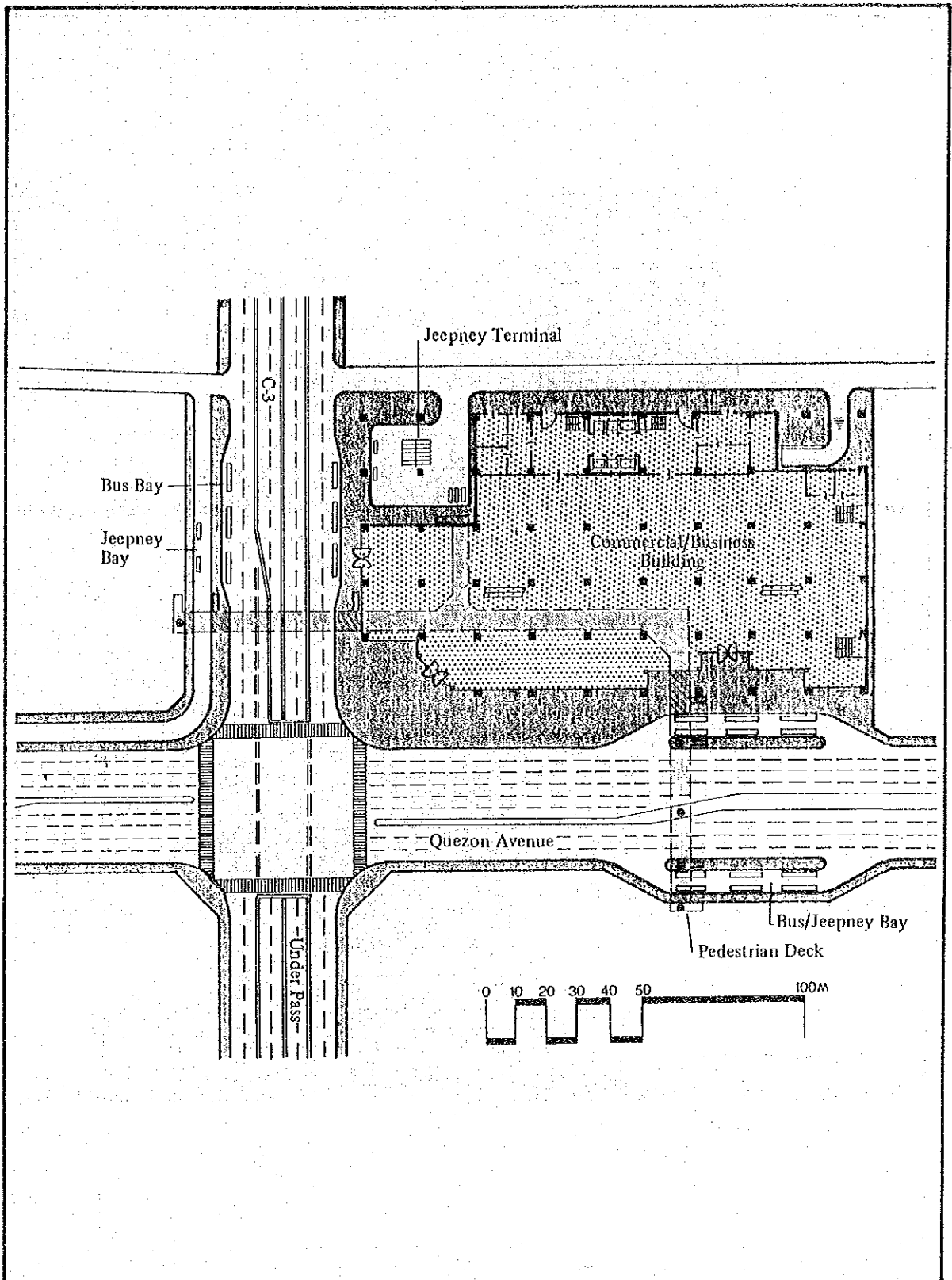


Figure 5.1
 Proposed Plan of Mode
 Interchange Facilities
 for C-3/Quezon Avenue
 Mode Interchange Area

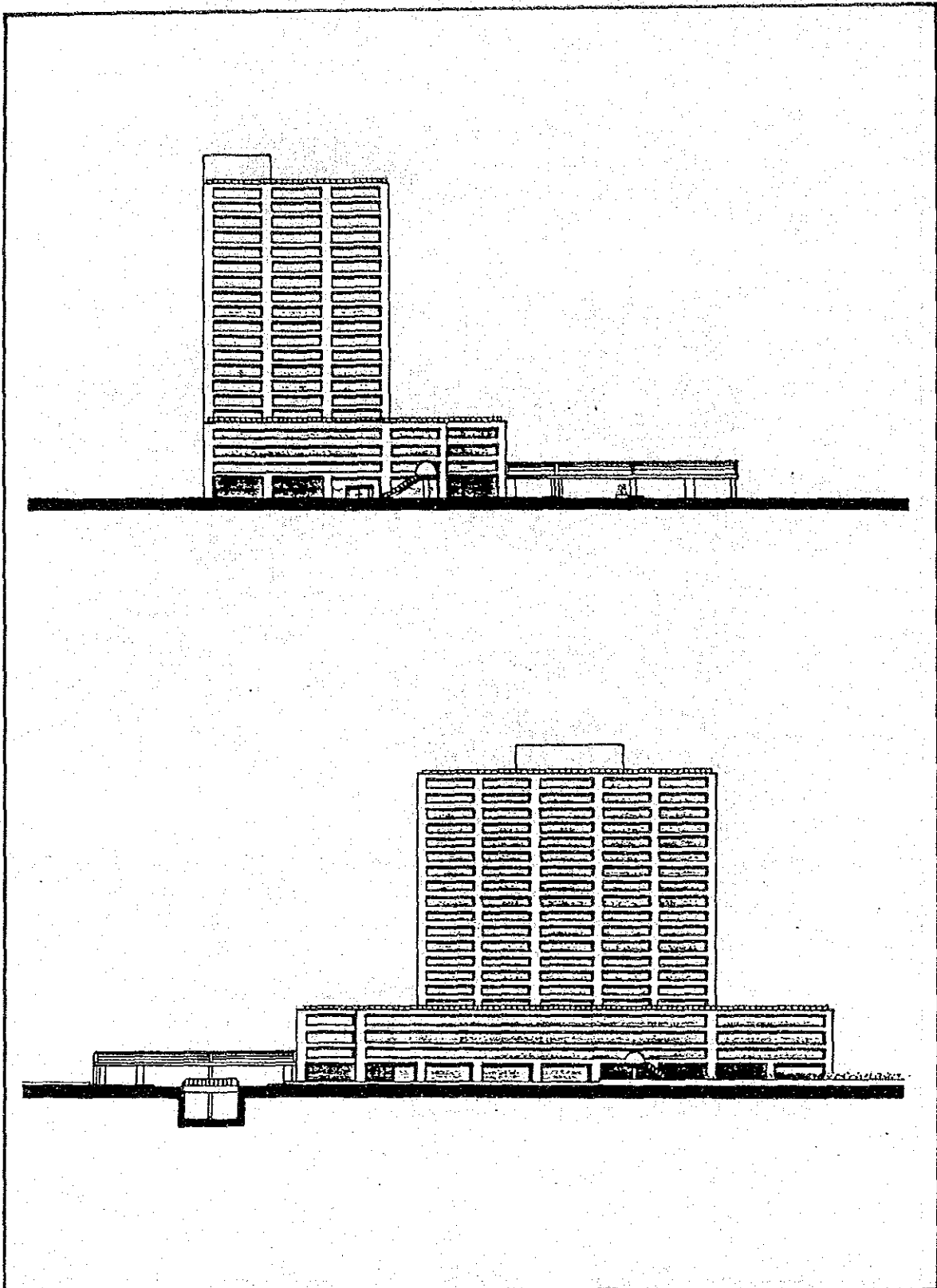


Figure 5.2
Sectional Plan for
C-3/Quezon Avenue
Mode Interchange
Area Terminal

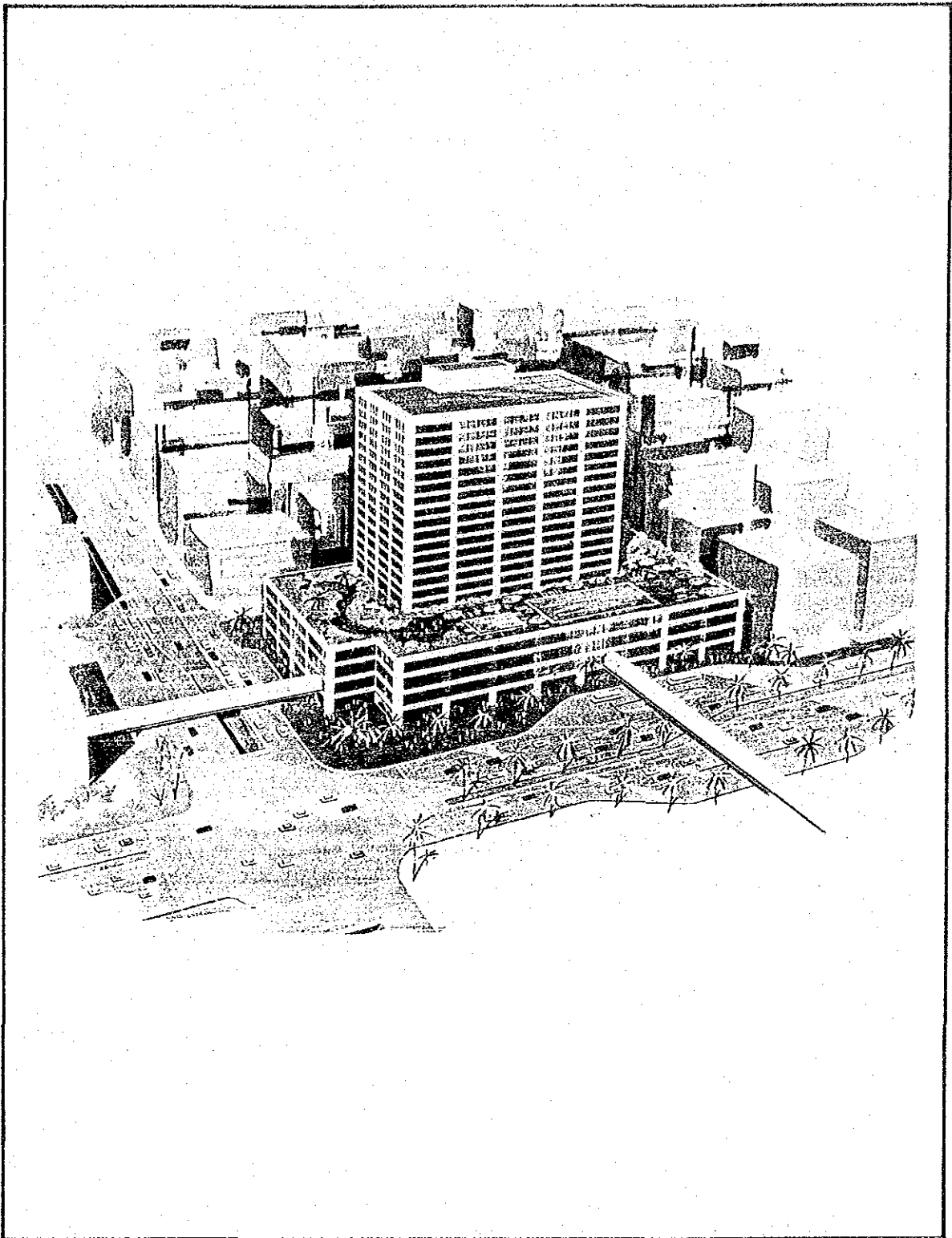


Figure 5.3
Bird's Eye View of Proposed
Mode Interchange Facility for
C-3/Quezon Avenue MIA

JICA