GREATER CAIRO REGION TRANSPORTATION MASTERPLAN STUDY IN THE ARAB REPUBLIC OF EGYPT

EXECUTIVE SUMMARY

JUNE 1989

JAPAN INTERNATIONAL COOPERATION AGENCY

PREFACE

In response to the request of the Government of the Arab Republic of Egypt, the Government of Japan decided to conduct a Transportation Master Plan Study for the Greater Cairo Region, and entrusted the study to the Japan International Cooperation Agency (JICA).

JICA sent to Egypt a study team headed by Mr. Takashi Imai, comprising experts from Yachiyo Engineering Co. Ltd. and Mitsubishi Research Institute Inc., four times from July 1987 to March 1989.

The team held discussions with the officials concerned of the Government of Egypt and of Cairo Governorate, and conducted field surveys. After the team returned to Japan, further studies were made and the present report was prepared.

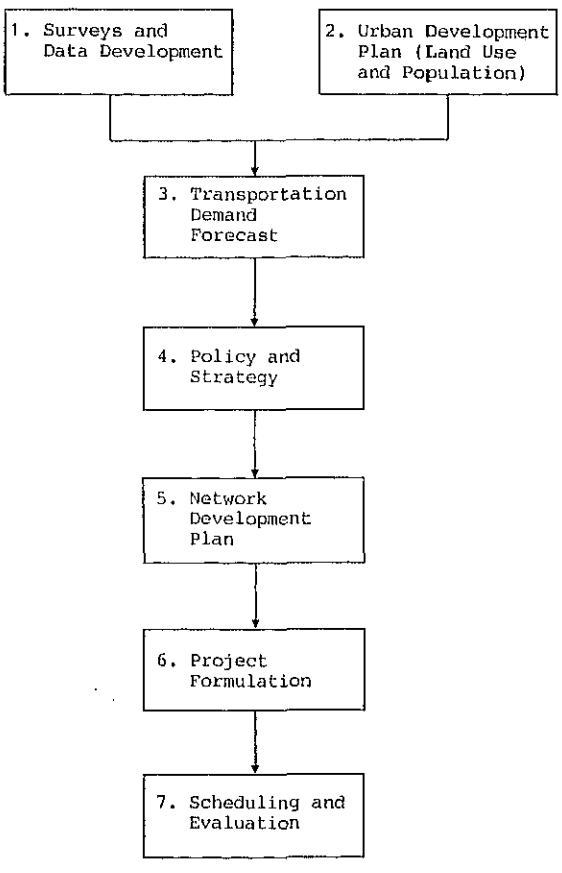
I hope that this report will contribute to the realization of the Master Plan Project and to the promotion of the friendly relations between our two countries.

I wish to express my sincerest appreciation to the officials concerned of the Government of Egypt for their close cooperation extended to the team.

Tokyo, June 1989

Kensuke Yanagiya
President
Japan International Cooperation Agency

Planning Work Flow



Chronology of the Study

1986	4	JICA Contact Mission visit to Cairo
	10	JICA Preliminary Survey Mission visit to Cairo
1987	1	JICA S/W Mission visit to Cairo
	7	Commencement of the Study
		JICA Advisory Committee visit to Cairo
		1st Steering Committee Meeting - Submission of Inception Report - Explanation of Study schedule and methodology
	12	2nd Steering Committee Meeting - Submission of Progress Report I - Socio-economic framework - Traffic survey results
1988	3	JICA Advisory Committee visit to Cairo
		3rd Steering Committee Meeting - Submission of Progress Report II - Present conditions of transportation system - Urgent project proposal
	8	4th Steering Committee Meeting - Transportation demand forecast results - Transportation policy
	10	JICA Advisory Committee visit to Cairo
		5th Steering Committee Meeting - Submission of Interim Report - Road Plan - Public Transport Plan - Masterplan projects
1989	3	JICA Advisory Committee visit to Cairo
		6th Steering Committee Meeting - Submission of Draft Final Report - Masterplan - Scheduling and evaluation
	4	Comments from Egyptian side on D/F Report
	6	Delivery of Final Report

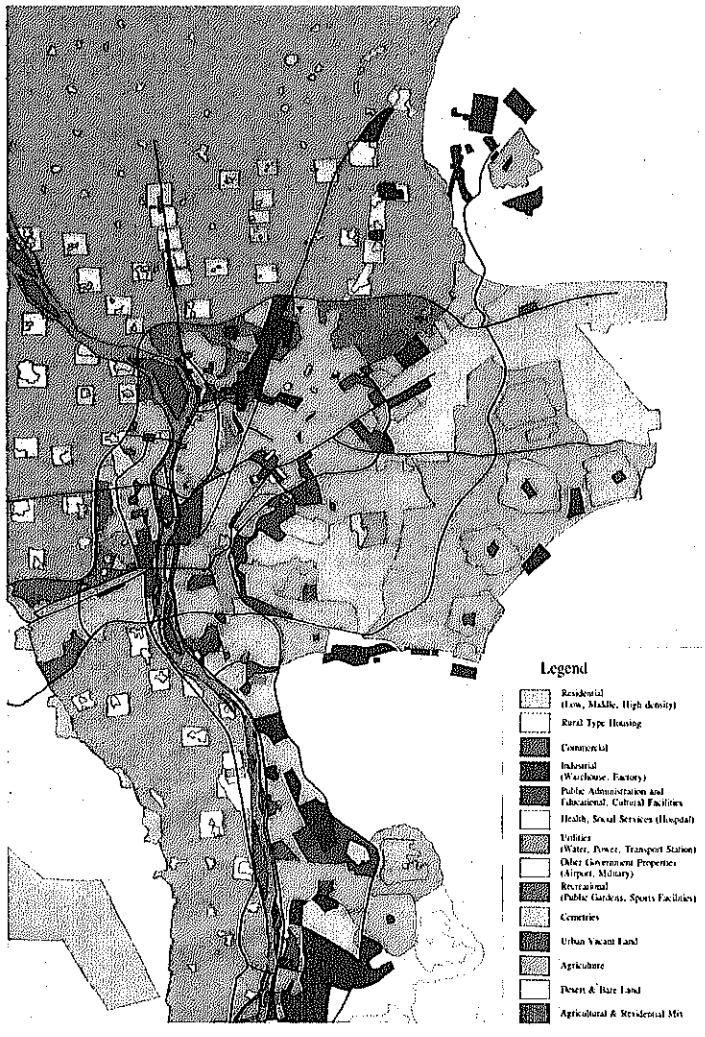
Present Land Use in GCR

1. *Urban Structure of GCMR: Present and Future*

* Land Use

The greater Cairo Metropolitan Region (GCMR) which comprises 42 kisms has a total area of 640 square kilometers, of which 56% is urbanized, with the remaining 12% and 32% taken up respectively by agricultural and unused (mostly desert) land. Spurred by the explosive population growth since the 1960s, the urbanized areas of the Metropolitan Region expanded at an unprecedented speed. The expansion has mainly taken the directions toward Heliopolis and Nasr City, and is now sprawling beyond the airport. In the north and the west of the Region, the supply of housing has always been short of the increasing demand, and informal housing development has been encroaching the outlying agricultural land.

When the Master Scheme prepared by GOPP is put into implementation through the year 2000, the planned ring road will block in the pressures of sprawl from the areas within its confine, and the space for incremental housing needs will be provided in the ten New Settlements and two New Towns planned on the desert fringes of the GCMR. Moreover, business and commercial activities, which are now heavily concentrated in the CBD, will be gradually dispersed to several appropriately placed urban sub centers in the Metropolitan Region. This will alleviate the current traffic overload in the CBD. Industrial agglomerations will continue in the south (Helwan) and the north (Shubra Al Kheima),



Future Land Use

and will be additionally established along the ring road and in the peripheries of the New Settlements.

* Master Scheme

The basic policy of the GOPP Master Scheme is formulated on the following five concepts:

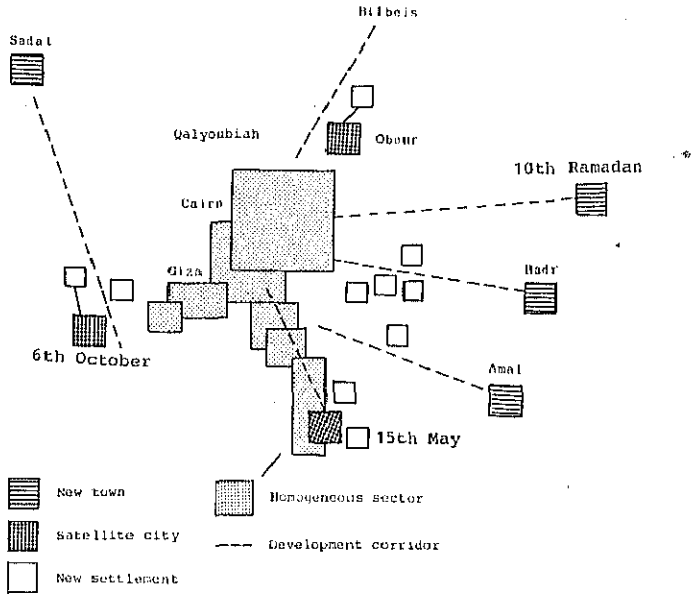
a) Establishment of homogeneous sectors within the Region (self-sufficient urban blocks each comprising a population of 100,000 - 200,000)

b) Development by private investments of New Settlements (suburban cities each with a population of up to 250,000)

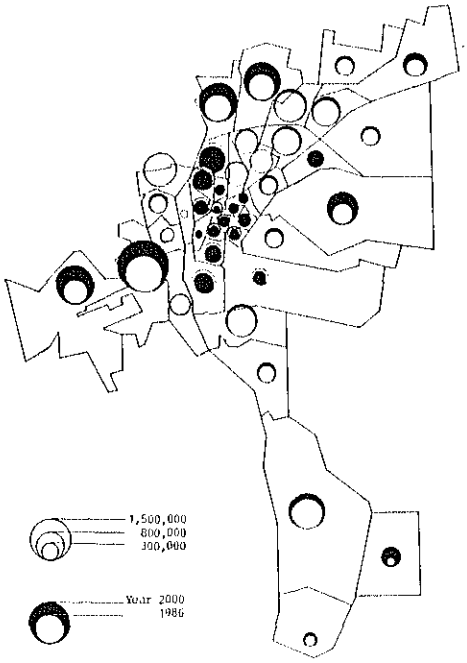
c) Formation of development axes

d) Integration of rural communities within the Greater Cairo Region(GCR)

e) Conservation of agricultural land



Master Scheme Urban Development Concepts



Population Distribution in 1986 and 2000

Item/Year	1987	2000	2000/1987
Population (total)	8,850	13,000	1.47
(above 6)	7,423	10,758	1.45
Employment (total)	2,223	4,000	1.79
Prim. & Sec. industry	875	1,480	1.69
Tertiary industry	1,348	2,519	1.86
Student	2,444	3,494	1.43
Household income (LE/month)	217	280	1.29

* Projected Population

The population of the Greater Cairo Metropolitan Region increased 70% over the past two decades and reached 8.8 million in 1987. Although the growth rate will somewhat slow down, the regional population is expected to reach 13 million, or an increase of 50%, by the year 2000. The bulk of the increase will be absorbed by the Shubra Al Kheima area in the north, the pyramid corridor in the west, and peripheries of the existing urbanized areas like Nasr City and 15th of May City. The resident population of the CBD and its immediate vicinities has been declining and will continue to do so in the future.

Because of the improved employment rate, the number of employment will grow by 90%, a considerably higher rate than the population, while the average household income will increase 30%.

2. Problems in the Central Area

* Land Use in CORPS

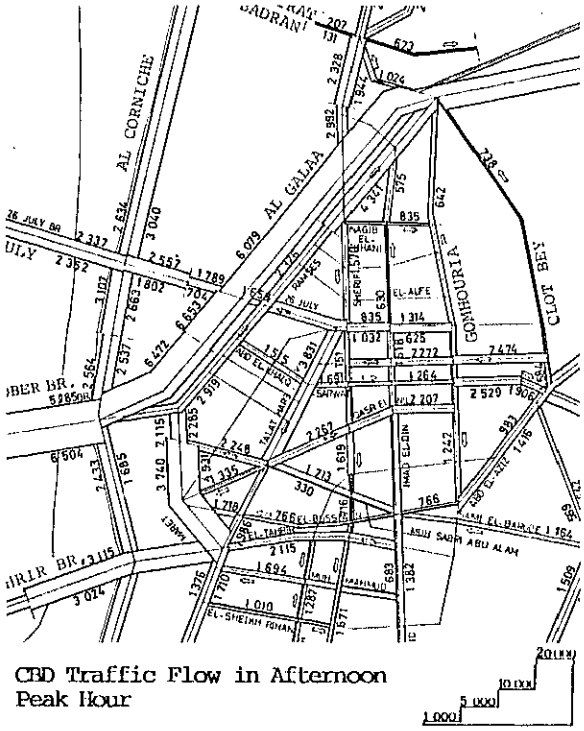
The term CORPS designates the CBD and its immediate environs as enclosed by the three thoroughfares of Cornish, Ramses and Port Said. The detailed land use map of the CORPS is shown in the above figure. The CORPS is the foremost center of business and commerce in the Metropolitan Region. Because government offices, top-class hotels and cultural facilities are also located, person trips are concentrated in this area. In terms of the floor space of the buildings in the CORPS which totals 14.7 million square meters, 48% is used for the residential purpose, followed by 23% for service establishments, 15% for public facilities and 9% for commerce. It is a common practice to use the ground floors of the buildings for business and commerce and upper floors as residences, but in recent years residential floors or buildings in the CORPS have been increasingly converted to business and commercial premises, driving out the inhabitants in the area.

CORPS Land Use Map
(Ground Floor)

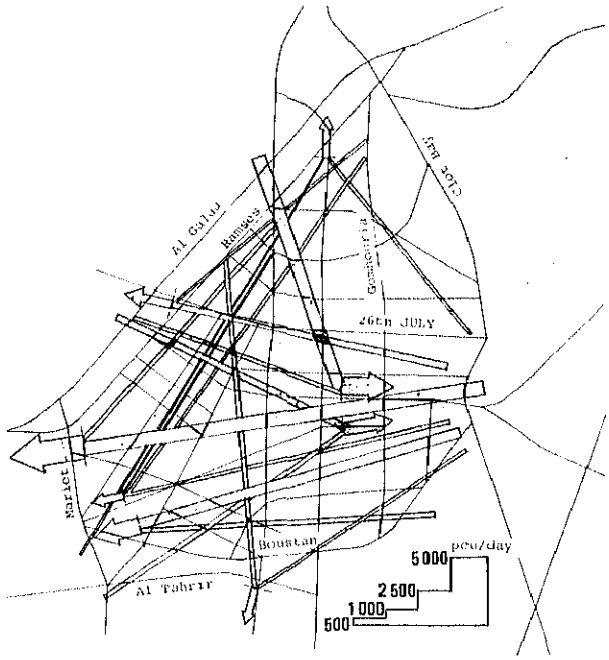
CORPS Land Use Map
(Upper Floors)

* Traffic Volume in CBD

7% of the total trips (excluding trips on foot) in the GCMR take place in the CORPS and the daily motorized traffic numbers 111,000 vehicles. During the peak hours in the morning, heavy traffic congestion is observed everywhere. As a result, the traffic volume per hour is lower than the capacity of thoroughfares in the CORPS: viz., only 3,600 vehicles on 26th of July, 3,800 on Talaat Harb and 2,300 on Qasr Al Nil. Moreover, 14% of the traffic in the CORPS is through traffic which has origins and destinations elsewhere.



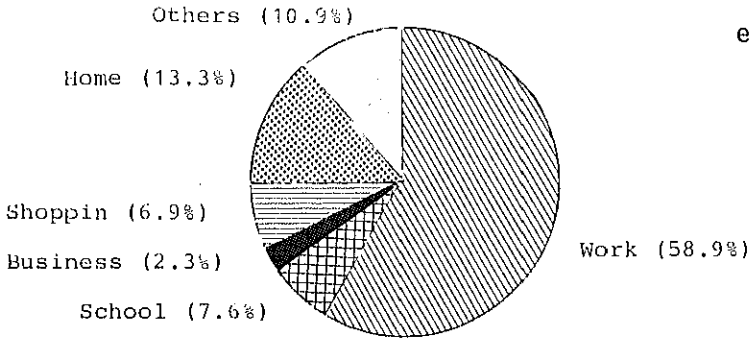
CBD Traffic Flow in Afternoon Peak Hour



CBD Through Traffic Flow, 1985

* Parking

The present structure of the CBD was laid down long before motorization and lacks spaces for parking. The maximum number of parking at one time between 12:00 and 13:00 is estimated to be 33,000 vehicles. The off-road parking spaces available in the CBD accommodate only 14,000 vehicles. Well over one half of vehicles are parked on the roads, obstructing and reducing the flow of motorized traffic to less than the road capacity. 59% of the parked vehicles belong to commuters to work places who keep their cars parked many hours.



CBD Parking Demand Composition by Purpose

* Transportation Problems in CORPS

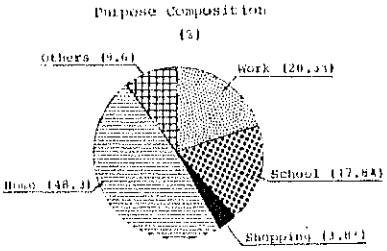
Many of the metropolitan transportation problems are concentrated in the CORPS. The primary cause is the pronounced shortages of roads, parking spaces and terminal facilities, which combine to aggravate the problems.

a) Sizable existence of through traffic
b) Reduction of road capacity by roadside parking
c) Slowdown of speed caused by the hazardous mixture of trams, buses, passenger cars and pedestrians
d) Reduction of safety and speed due to frequent jaywalking
e) Low efficiency of the uncoordinated traffic control at each intersection

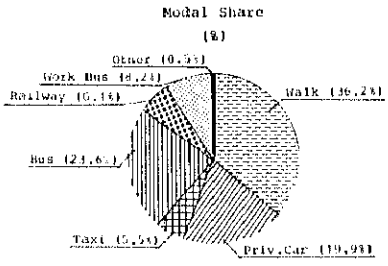
3. Movement of Persons

* Total Trips

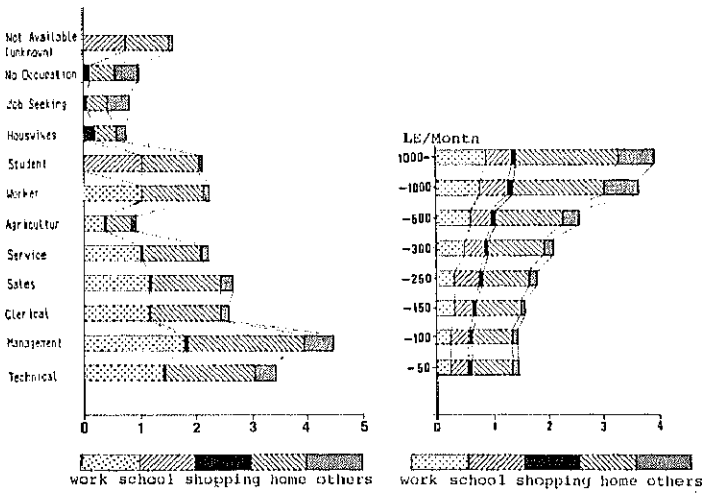
The population (aged 6 years and over, as of 1987) of some 8.8 million residing in the GCMR generates 13.7 million trips per day, or 1.87 trips per person. When those who do not go out are excluded, the daily average rises to 2.75 trips per person. In addition, non-residents generate some 650,000 trips per day within the confine of the GCMR.



Trip Composition by Purpose

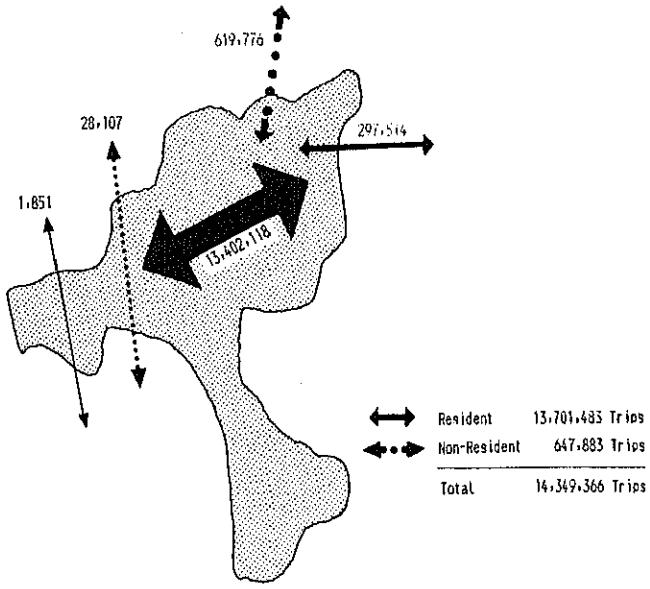


Trip Composition by Mode



Trip Production Rate by Occupation

Trip Production Rate by Income



Total Number of Trips

* Trip Purposes and Means of Transportation

The trip purposes are distributed into commuting to work places (21%), commuting to schools (18%) and going home (48%), which altogether account for nearly 90% of the total trips. These trips are the kinds that take place daily, and make up the bulk of traffic generation during the peak hours.

In terms of the means of transportation, on-foot trips account for 36%, followed by buses (24%), passenger cars(20%) and taxies (6%).

* Trip Generation by Occupation

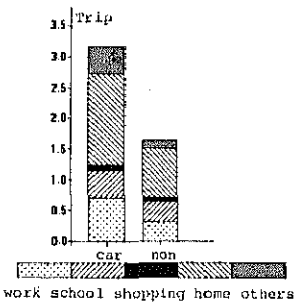
In terms of occupation, mobility is highest among managerial classes (4.5 trips per person per day) and professionals (3.4 trips), while lowest among the economically less active, such as housewives (0.8 trips) and the jobless (0.9 trips).

* Trip Generation by Income

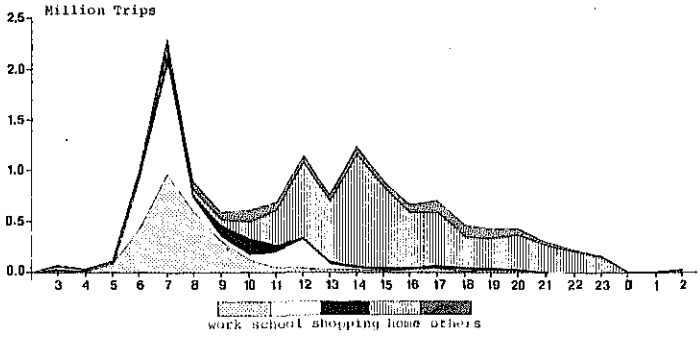
There is a clear tendency of higher mobility among high-income groups. Commuting to work places and other purposes (including the business purpose) have been increasing among the groups with monthly income of more than LE 1,000.

* Trip Generation by Vehicle Ownership

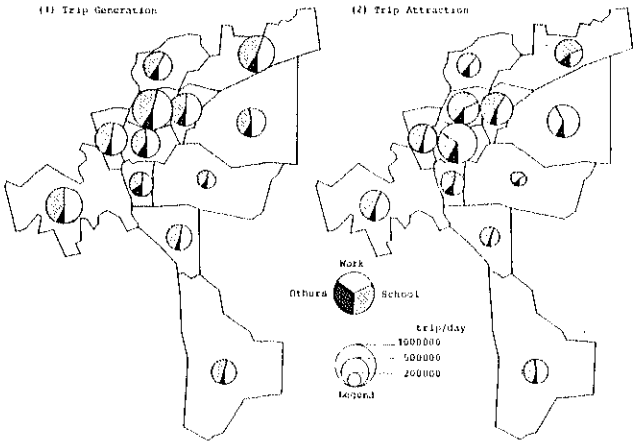
Car owners generate on the average 3.1 trips per day, which is nearly twice as large as those who do not own (1.6 trips).



Trip Production Rate by Car Ownership



Trip Generation by Time and Purpose



Trip Generation and Attraction by Zone and Purpose

* Hourly Distribution of Trip Generation

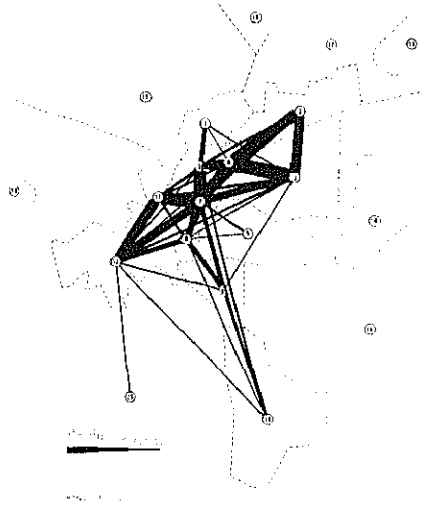
Trip generation peaks during 7:00 - 8:00 in the morning when people commute to work places or schools (2.3 million trips per hour, and the peaking rate of 16.8%). Peaks occur twice during 12:00 - 13:00 and 14:00 - 15:00 in the afternoon, but the trip volume is about 50% of the peak in the morning.

* Trip Generation and Concentration by Zone

The volume of trip generation is roughly correlated with the size of population in each zone, and there is no significant zonal difference in the composition of trip purposes. Trip concentration is correlated with the intensity of economic activities, and large concentration is found in such zones as Central, Masr Al Gadida and Nasr City.

* Distribution of Inter-Zonal Trips

When the Greater Cairo Metropolitan Region is divided into 12 integrated zones, approximately 60% of the total trips occur within each zone. In every zone, a large part of the inter-zonal trips are directed to Central which includes the CBD. The overall pattern is characterized by the strong linkage between the north-eastern zones and the central and southwestern (Giza) zones of the GCMR.



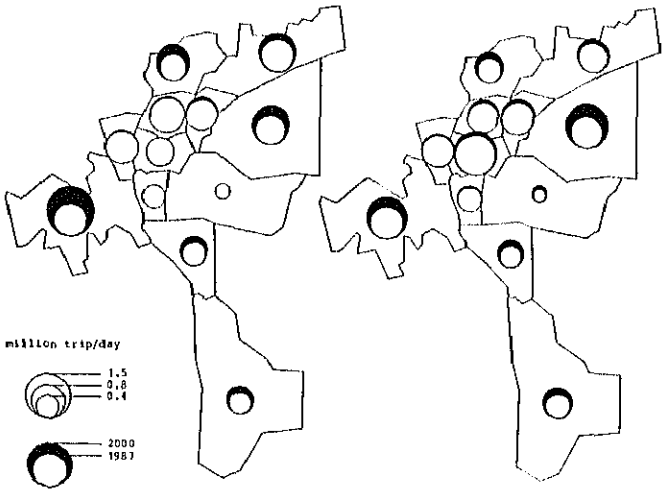
Present Desire Lines

4. *Transportation Demand in 2000*

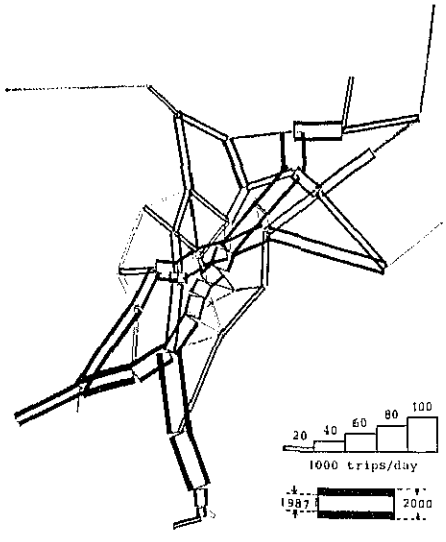
* Growth of Trips

Due to population growth (47%) and increased mobility, the total trips in the GCMR will increase by 60% from 13.8 million in 1987 to 22.2 million in 2000. The number of passenger cars will increase from the present 496,000 units to 1,358,000, and the percentage of households which own cars will rise from 18% to 30%.

	(A) 1987	(B) 2000	(B)/(A)
1. Population (1000)	8856	13000	1.47
2. GDP/Capita (LE at 1987 price)	869	1239	1.43
3. Passenger Car (1000)			
Total	495	1358	2.74
Owned by family	413	1034	2.50
Car owning family rate (%)	46.6	30.7	1.71
4. Trips			
Trip rate	1.87	2.03	1.09
Total trip (1000)	13856	22171	1.60



Trip Generation and Attraction in 1987 and 2000



Future Modal Share based on the Trend shown in the Spider Network

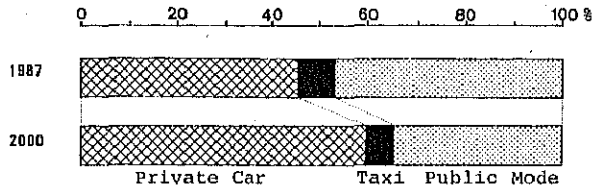
The growth of traffic will be especially high in the peripheral zones of the GCMR where a large population increase is expected. In contrast, the volume of traffic will remain unchanged or even decline in the CBD and its immediate vicinities. Traffic concentration will be observed in zones of high population growth, and also in areas where there are plans to establish urban sub centers or industrial agglomerations.

* Changes in O-D Structure

When the desired lines of trip distribution in the year 2000 are compared with the present pattern, the volume of origins and destinations will greatly increase in those zone pairs which already have sizable O-Ds. The increase of transportation demand will be especially large between Al Marg and the CBD, and between the CBD and Giza along the northeast to southeast corridor. In addition, the demand will nearly double between Shubra Al Kheima and the CBD. When New Settlements are developed toward the east of Nasr City, the transportation demand between these Settlements and Heliopolis and Nasr City will reach more than 200,000 trips.

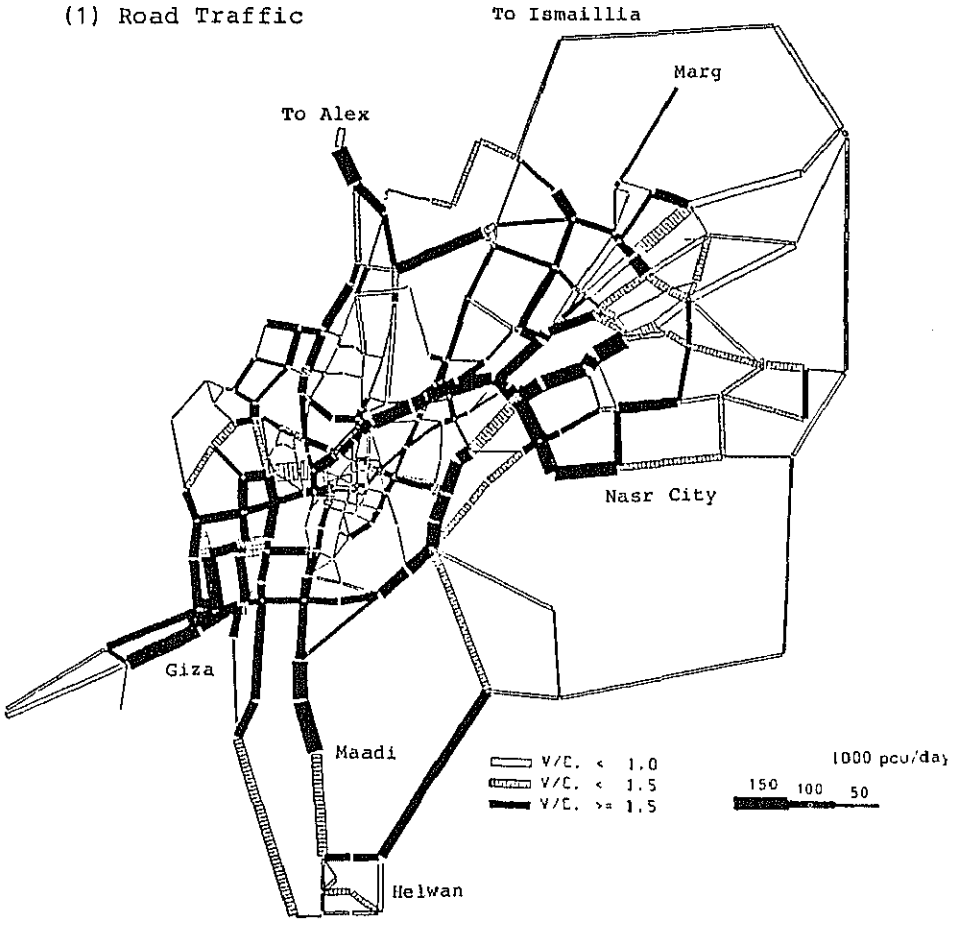
* If the Present Transport Network Should Stay Unchanged Through 2000...

When the means of transportation are classified into personal modes (passenger cars, trucks, company buses, school buses and taxies) and public modes (buses, minibuses, microbuses and rail transit), the present ratio of trips between them is 53 : 47. If the present transport network should stay unchanged and no policy should be enacted to reorient mode selection, the ratio will change to 66 : 34 in 2000.



Modal Share Change from 1987 to 2000

Supposing that two thirds of the total transportation demand use personal modes, the present network (3216 km of roads and 119 km of railways) will not be able to carry the demand effectively, and one third of the network will suffer from congestions due to overload. The transportation demand will be 50% larger than the road capacity in such thoroughfares as Ramses, Salah Salem, Cornish, Pyramid, Sudan and Port Said.



Traffic Volume in Year 2000 Under "Do Nothing" Condition

5. *Transport Policies and Development Guidelines*

* Plan Objectives

Transport planning aims to provide facilities and services which are safe, equitable and economical in meeting the demand. The present Master Plan stresses the following primary objectives:

a) Promotion and support of social and economic development of the GCMR
b) Encouragement of orderly urban development according to planning
c) Improvement of transportation services in newly urbanized areas
d) Provision of diverse transportation services
e) Improvement of economic effects
f) Improvement of urban environment and conservation of historical sites

* Constraints

The largest economic constraint is in the difficulty of mobilizing necessary funds. A masterplan which overlooks this financing constraint ends up as a castle on the sand. Judging from the past performance of investments and plan implementation, the available fund for transport investments in the GCMR through the year 2000 will be in the range of LE 3000 - 6000 million. The important social constraint concerns land acquisition. Even if economically possible, it is not socially tenable to remove a large chunk of the existing physical structures for the sake of new development. It is necessary to avoid such steps which would invite serious turmoils in the local communities.

* Shift from Personal to Public Modes

It is extremely difficult to construct new arterials in the existing urbanized areas like the CBD. There is also a certain limit to how long investments in road construction will be continued to cope with the expanding motorized traffic. Sooner or later, it will become inescapable to adopt policies to facilitate the shift from passenger cars to buses and railways. In the GCMR, the preference of passenger cars is very strong and the price of gasoline is relatively cheap compared with the fares of available public transportation. In order to encourage the shift, it is absolutely essential to introduce strong policy measures which combine the effective control over the use of passenger cars and the improvement of public transportation services.

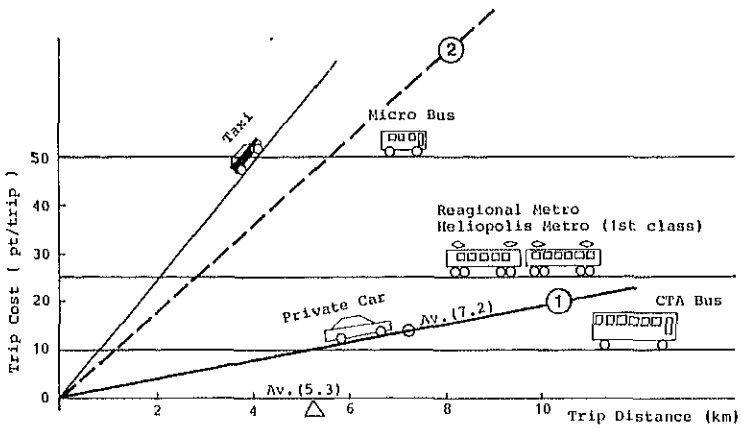
* Basic Strategies of Master Plan

a) Efficient utilization of existing facilities

In view of the financial constraint on investments, it is necessary to efficiently utilize the existing transportation facilities.

b) Facilitation of the shift from personal to public modes

In order to economize investments in transportation development and to efficiently utilize the existing facilities, it is necessary to upgrade the service level of public transportation and discourage the use of passenger cars (e.g., by gasoline tax and strict parking regulations), and thereby facilitate the increased use of public transportation.



Trip Cost by Transportation Mode

c) Discouragement of the use of passenger cars in CBD

In view of the limited road capacity and parking spaces within the CBD, driving of passenger cars into the CBD must be regulated.

d) Introduction of service charges

It is necessary to introduce tolls and charges to roads, bridges and parking lots according to the users pay principle, and thereby to recover funds for future investments.

* Guidelines for Development by Transport Corridor

The Greater Cairo Metropolitan Region is divided into eight sectors by zoning radially from the CBD as its center. By taking into consideration the projected traffic demand for each sector, existing transportation facilities, plan objectives and basic strategies, the following guidelines are prepared for transport development.

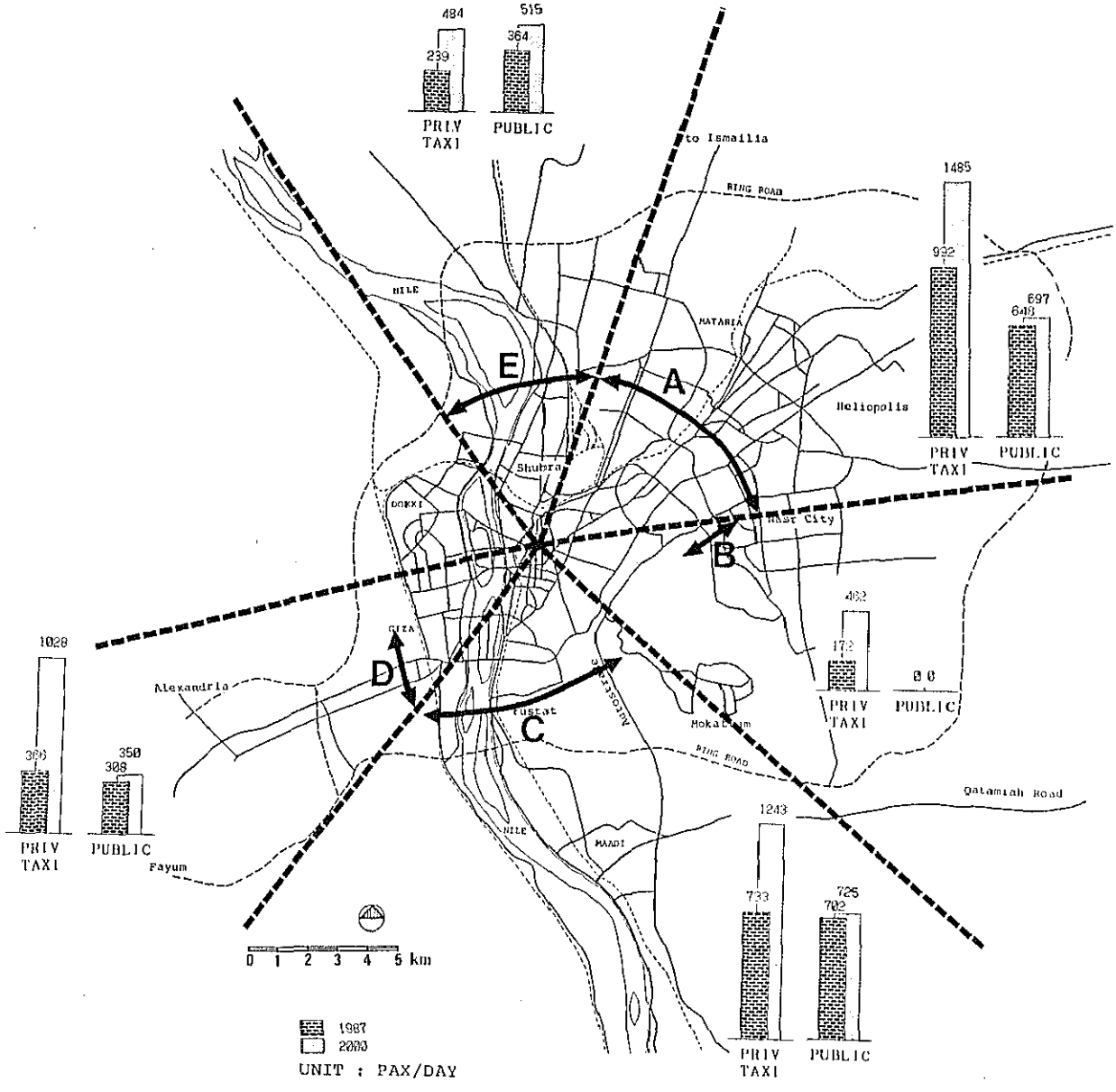
Section A:
- Full Utilization of Regional/HCHD Metro lines
- One more trunk road
- Elevated road

Section B:
- Bus service improvement
- Salah Salem/Autostrade connection

Section C:
- Tram extension to Saiedah Zeinab sta.
- Full utilization of Port Said St.
- Third north-south trunk road

Section D:
- ENR service
- Ring road and its connection
- Railway service along the corridor
- urban metro line No. 1 and 2

Section E:
- ENR service
- Tram improvement
- Shubra st. / Ahmed helmi st. improvement
- urban metro line No. 1, phase I



Directional Transportation Demand Increase by 2000

6. Road Plan

* Basic Policies for Road Development

The system of ring roads and radial roads will be developed on the basis of the following policies.

a) Importance of on-going projects

Construction works need be expedited concerning the ring road, 6th of October and Sekket Al Wayli Streets, the western approach to Rod Al Farag Bridge, etc.

b) Network Development of urban expressways

An urban expressways network will be developed by utilizing the spaces above the existing arterials.

c) Road improvement in older urbanized areas

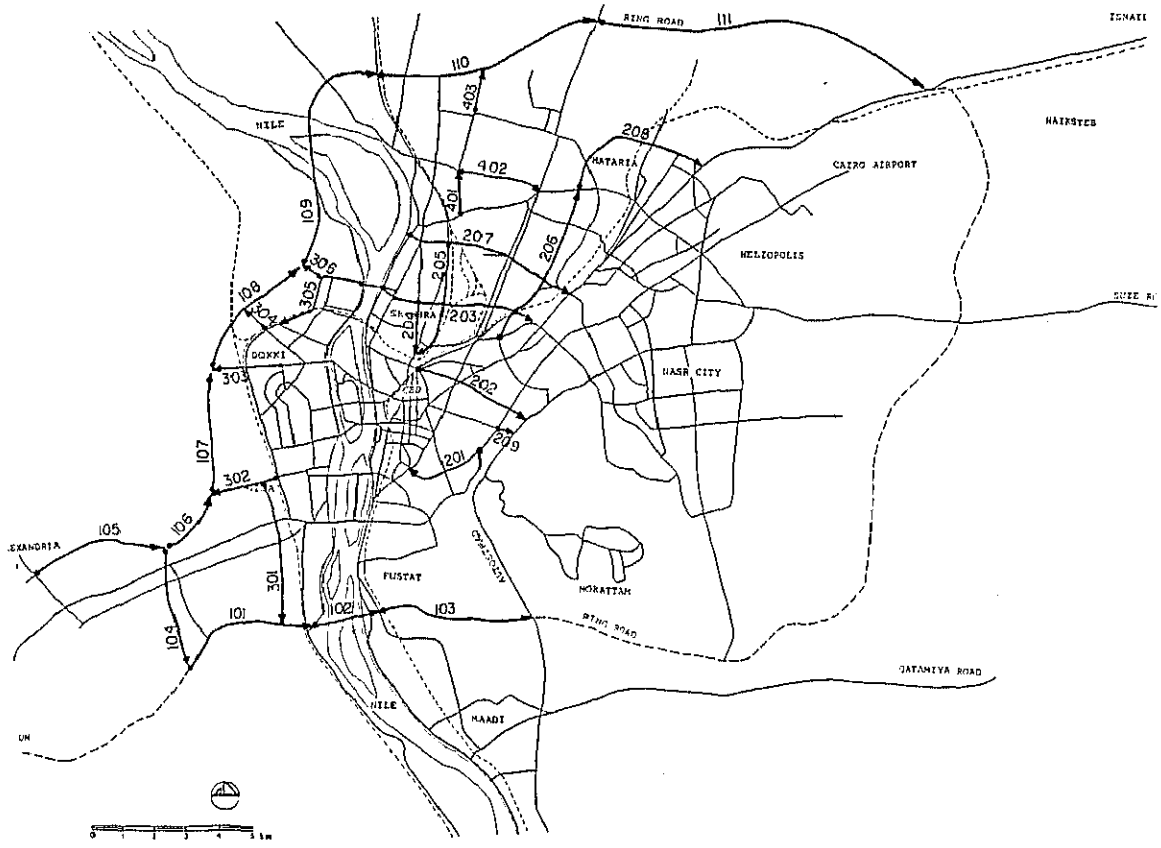
Poorly maintained roads in the Old Islam area lying between Salah Salem and Port Said Streets will be improved.

d) Improvement of access to newly urbanized areas

Arterials will be developed in areas of rapid population growth, such as the area to the west of the ENR in Giza and Shubra Al Kheima

e) Construction of arterial roads to New Settlements

Arterials will be constructed to connect the ring road and New Settlements



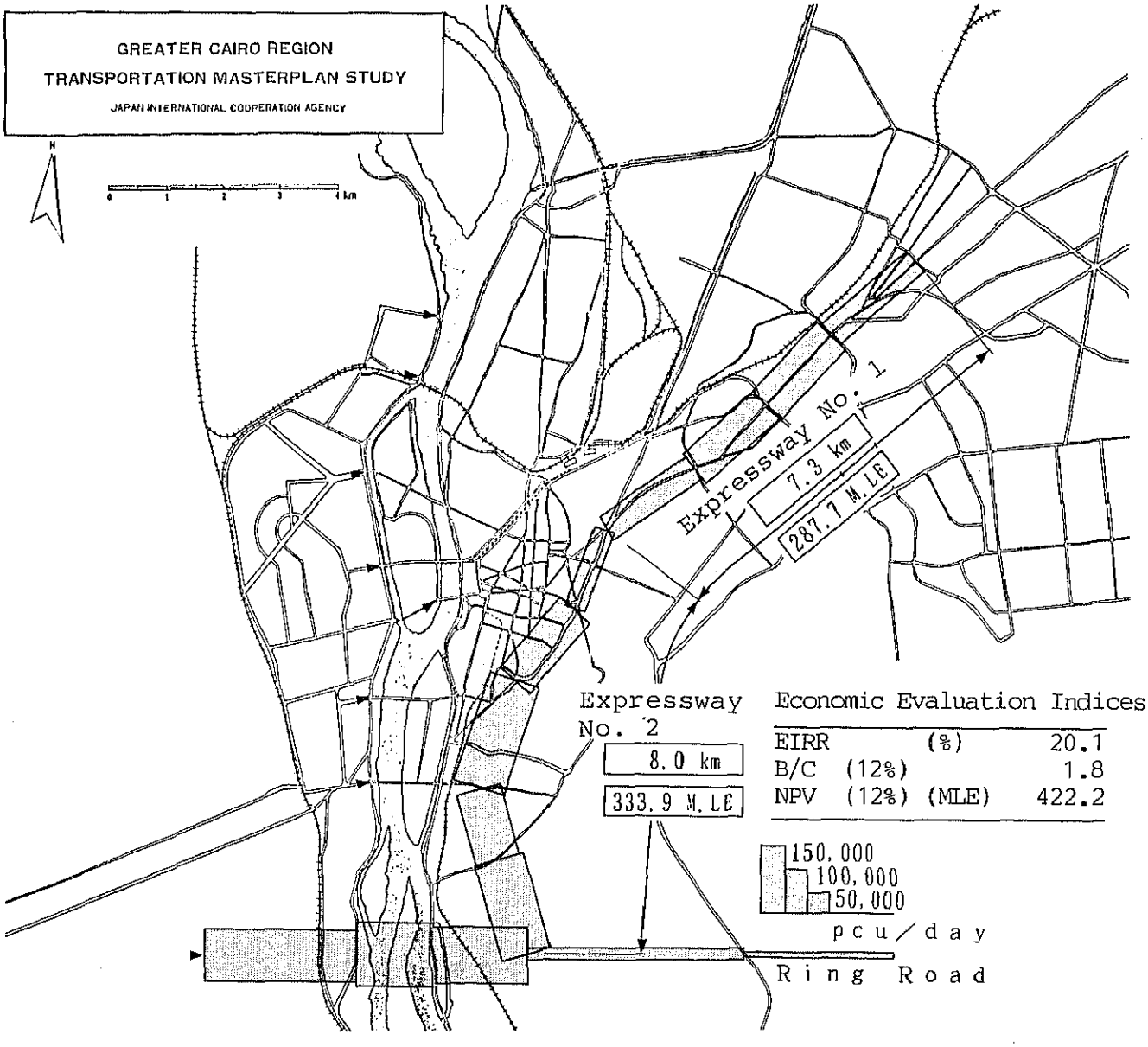
Locations of Non-Elevated Road Projects

* Urban Expressways Network

Because it is difficult to construct new roads in urbanized areas by removing the existing structures in large scale, a plan should be prepared for a network of elevated expressways above the existing arterials. By the year 2000, construction works will be completed in Expwy No. 1 (Ghamra Bridge - Abbasseya), Expwy No. 2 (Maadi - Sayedah Zeinab - Bab Al Shaaria Square) and Expwy No. 3 (Bab Al Shaaria Sq. - Heliopolis).

Expwy No. 2 will strengthen the link between Giza and the CBD, and alleviate the congestion on bridges over the Nile and Cornish Street. The volume of traffic on this section is estimated to grow to more than 100,000 pcu/day. Section No. 3 will strengthen the link between the CBD and Heliopolis Metro, and alleviate the congestion on Ramses, Gueish and Khalifah Al Mamoun The traffic will reach 60,000 - 80,000 pcu/day.

Construction costs are estimated to be LE 334 million for Expwy No. 2 and LE 288 million for Expwy No. 3. The expected economic benefits accruing from the two projects are very large, with the internal rate of return amounting to more than 20%. If the toll for Nos. 2 and 3 is set at LE 1.0, construction costs are recoverable in eight years.



Expressway 2 and 3

7. *Public Transportation Plan*

* Basic Policies

The capacity of the public transportation system must be expanded to meet the rising demand, while the quality of its services need be improved to facilitate the shift of passengers from personal to public modes. Specifically, it is necessary to expedite the construction of Metro lines and Giza Branch, to upgrade Heliopolis Metro and CTA Tram, and to introduce urban transport service to the ENR. With respect to bus services, the the existing fleets must be increased and strengthened, together with the introduction of bus exclusive lanes and deluxe buses.

* Metro Plan

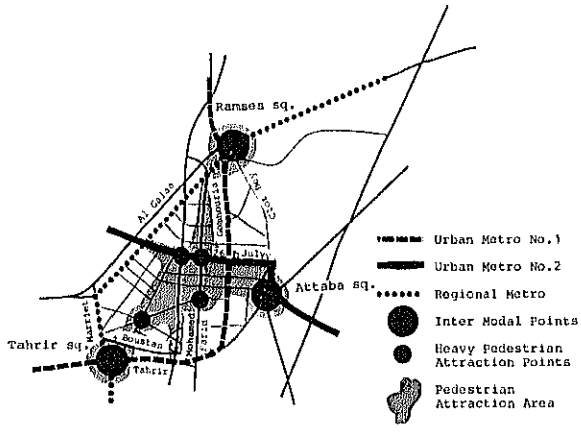
Subways require huge outlays of capital, and it is hard to expect the reasonable financial feasibility, when the paying capacity of the local population is low. Based upon the long-term prospect of the need for a high-density urban railways network, however, it is recommendable to proceed with the Phase I and go on to the Phase II of Metro No. 1, then No. 2 and so on.

Prior to the construction of the Phase I (Shubra Al Kheima - Ramses - Tahrir Square), Shubra Street must be widened in the section between Rod Al Farag and Ramses. This will make it easier to adopt the cut and cover method which is cheaper than the shield method.

There is room for reconsideration concerning the route for the Phase II (Tahrir Sq. - Boulaq Al Dakrour - Giza Station). There are alternatives to the existing plan which takes the route along the ENR line down to Giza Station. One alternative is to extend the planned route further westward after crossing the ENR along the pyramid corridor to service the area where rapid population growth is expected. Another alternative is an entirely new route which will pass underneath Pyramid Street (or Faisal Street) westward to the same area.

* Regional Metro Giza Branch

The Regional Metro line can shorten the headway to two minutes, although the present headway is seven and a half minutes. To fully utilize its capacity, a new extension will be constructed to branch off at Mary Gergis Station toward the Pyramid by crossing the Nile. This branch line will absorb the passenger traffic between the pyramid corridor in Giza and the CBD. This project, together with the ring road and Metro No. 1, will contribute to a sizable expansion of the Nile crossing capacity.



Subway Network in CBD

Line	Length (km)	Person.km (1000)	Person.hr (1000)
Regional Metro	44.0	5,247	136
Urban Metro No. 1 (Phase I)	10.2	1,759	50
Urban Metro No. 2 (Phase II)	7.5	352	10
RM Giza Branch	11.7	992	28
Urban Metro No. 2	7.7	861	24
ENR Giza-Shubra	20.5	242	12
Heliopolis Metro (Main Line)	15.0	1,516	49
Heliopolis Metro (Other Lines)	32.3	978	46
CTA Tram (Port Said Line)	28.2	474	24
CTA Tram (Other Lines)	15.7	318	17

The eastern half of the total length of 11.7 km runs along the ring road, and its right of way must be acquired at the same time as that for the latter. However, the line should be constructed after the areas between the ring road and Pyramid Street are sufficiently urbanized.

* Heliopolis Metro

The Ramses - Roxi - Nozha line where the demand is expected to increase in the future will be operated as the trunk line, and its services will be upgraded by the construction of elevated rails and the improvement of the signal system and station facilities. The speed of service will be raised to 30 km/hour with the frequency of service at every three minutes between Ramses and Roxi and every six minutes between Roxi and Nozha.

When New Settlements (Nos. 1, 3 and 5) are developed, the Suez line (Kobri Al Suez - Mataria) will have to be extended to service the expected demand.

* CTA Tram

With respect to the lines which have exclusive rights of way (Port Said Line, Shubra - Mataria Line, and Ramses - Abd Al Menam Line), the speed of services will be raised by upgrading facilities at railway crossings, signal systems, guard fences and the like. The sections which run on carriage ways and are hard to speed up the services will be gradually abolished to be replaced by metro or bus services.

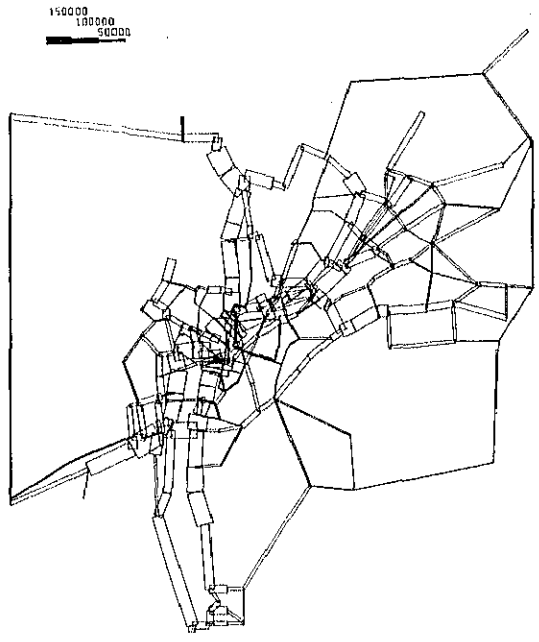
* ENR Line

Urban railway services will be introduced to the section of Giza Station - Cairo Central Station - Shubra Al Kheima. Because this will be done to the extent allowed by the limited capacity of existing rails and stations, the frequency of service will be no higher than four times per hour even during the peak hours of demand. Therefore, investments to improve station facilities and signal systems will be kept to the necessary minimum, while incremental locomotives and wagons will be those to be released from the Al Marg line after the latter's electrification.

* Bus Plan

Bus passengers are estimated to increase from the present 4.0 million to 6.5 million by the year 2000. The fleets need be increased from 1,900 to 2,750 vehicles to meet this increase in demand. Together with the replacement of aged buses, the CTA will have to acquire 330 new units every year.

In order to provide rapid services, bus exclusive lanes will be established on Ramses Street, the Cairo and the Giza side of Cornish Street, and Pyramid Street. Similar lanes can be introduced to Gueish and Ahmed Helmi Streets after the abolishment of tram lines.



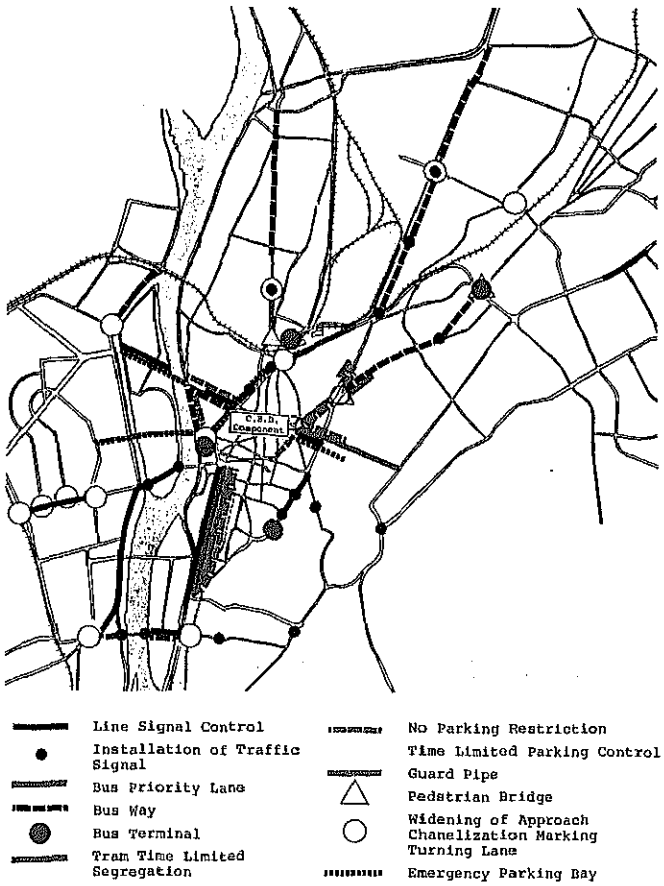
Bus Use Trip Demands in 2000

In order to improve the quality of service, it will be necessary to diversify bus services in addition to regular buses, minibuses and microbuses, by introducing deluxe buses (air-conditioned and all seated) and low-priced, short-trip circular buses within the CBD.

* Urgent Projects

Traffic congestions have been steadily worsening in the central area of GCMR because of frequent pedestrian crossing, road-side parking, street cars, traffic violations and so on. Especially at intersections, inadequate traffic control as well as the shortage of road capacity aggravates the congestion.

After reviewing the existing plans (notably, The Second Urban Transport Project) on the basis of the sample traffic survey, a number of projects are selected for urgent implementation: namely, strengthening and rationalization of signal systems, introduction of bus exclusive lanes, parking regulations, pedestrian overbridges, traffic safety facilities and so on, as shown on the map below. The present Masterplan recommends that these projects be implemented at the earliest opportunity.



CBD Urgent Projects

* Parking Plan

The shortage of parking spaces in the CBD is very serious, as exemplified by the fact that one can observe road-side parking in almost all the streets in the CBD. Moreover, parking in the restricted areas and double parking are common occurrences. Because of the difficulty of land acquisition, it is not very easy to construct off-road parking lots for an expansion of the CBD's parking capacity.

The basic proposal to cope with parking problems is to classify the streets of the CBD into the non-restricted and restricted, and to introduce parking charges by a ticket system in the former streets. The suggested rate is LE 0.5 per half an hour and continuous parking should not exceed three hours. This will help stamp out the incidences of long-time parking by commuters, who will then be persuaded to use public transportation. Supposing that the revenue from parking charges is all invested in constructing off-road parking facilities, it is possible to add a parking building with 1,000 lots every year.

* Long-Term CBD Traffic Regulation Plan

The basic approach is to give precedence to pedestrians and public transportation and restrict the use of private modes within the CBD. In this regard, the following steps are suggested for adoption.

a) Two crossing arterials are selected for exclusive use by pedestrians and circulating public bus services, and are made off-limit for passenger cars to pass or cross.

b) CBD is divided into four blocks by the crossing arterials, and the outer perimeter roads of the CBD give access to each block. All feeder roads within each block are for one-way traffic.

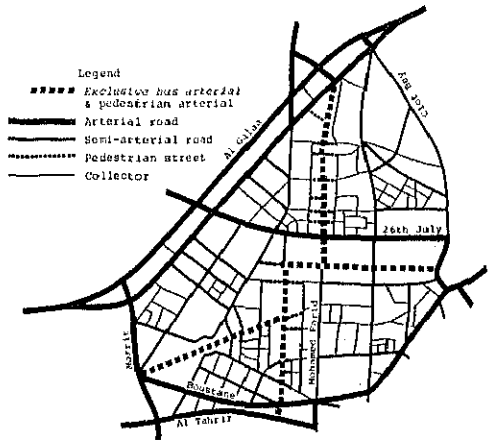
c) Passengers will use either buses running the outer perimeter roads, subways, or the circulating CBD buses to get off at the nearest point to their respective destinations.

The steps indicated above are extremely strict on passenger car users and it will be difficult to implement them as a whole at once. It is suggested to put them in practice in four stages.

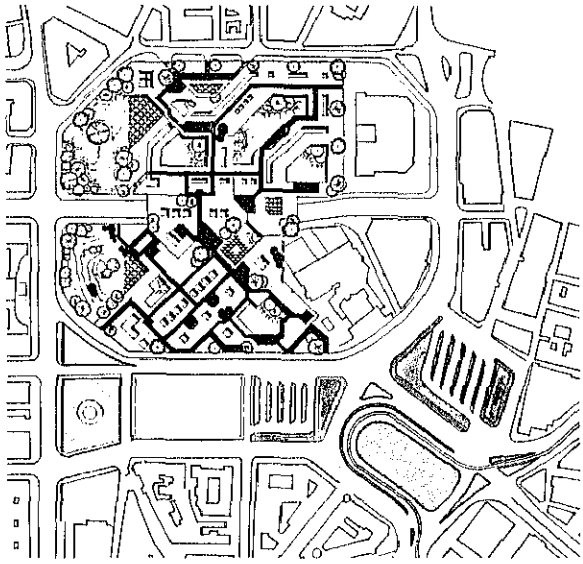
* Azbakiah Attaba Plan

The Azbakiah Attaba area has been an important hub of transportation, and is expected to increase its importance by the completion of the subway and the increase of parking facilities. Azbakiah Attaba Park is one of the few parks in the CBD, and although historically important for Cairo, the park has been steadily losing its ground to parking lots and public buildings. In order to conserve this park and at the same time enable the diversification of land use, multi-grade development is suggested by elevating the park ground, using the ground level below for shopping malls and transportation facilities, and the underground level for parking.

It is recommended to strengthen corridors which connect the bus terminals next to Attaba Square which are going to be expanded and the subway station to be constructed on the west of the park.



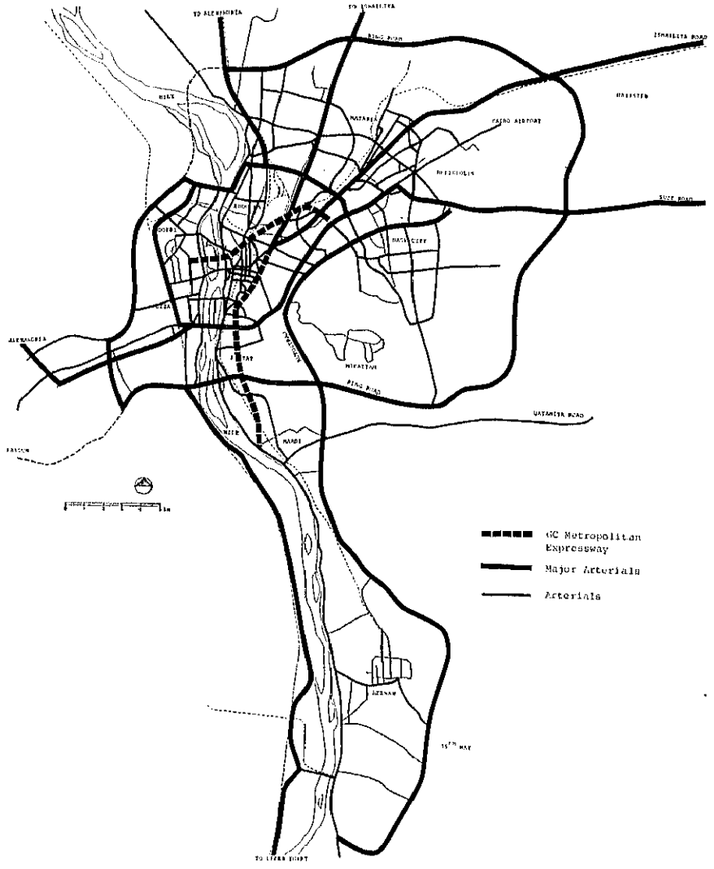
CBD Road Network Proposal



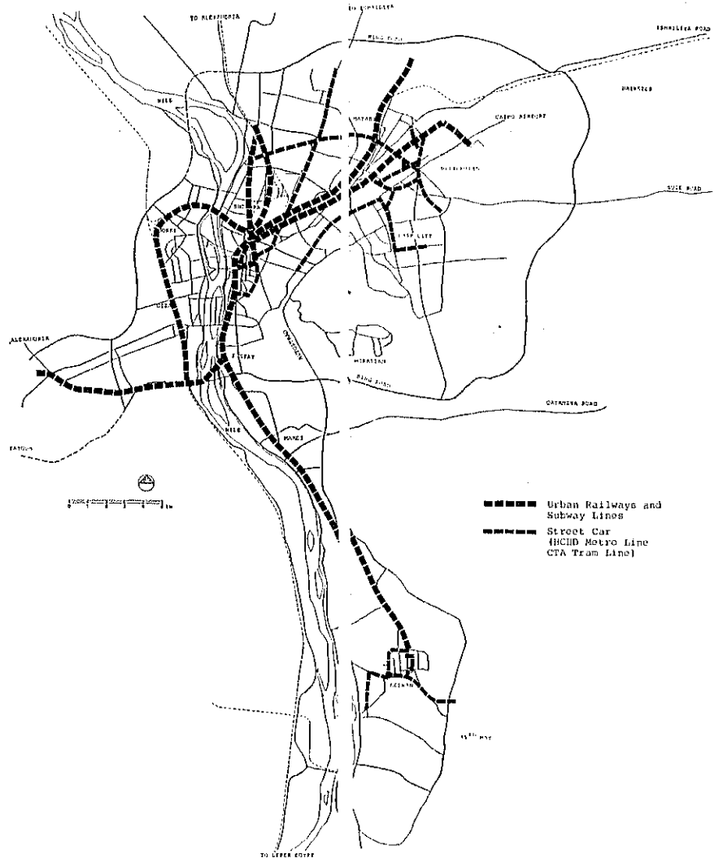
Azbakiah Park Development Image

* Urban Redevelopment and Road Development

The strip of 0.5 to 1.0 km in width and 7 km in length which runs along Port Said Street in the CORPS is densely packed with small buildings and has only a few crossing arterials. In order to expand the physical capacity and improve the quality of transportation, production and living in this strip, it is suggested to launch urban redevelopment which aims to increase spaces for roads and public facilities by multi-grade development. By instituting systems for recovering part of the benefits, like rises in land price, which will accrue from redevelopment, it is possible to generate funds which will finance a large part of development costs. Kamel Sidky and Clot Bay Streets will be upgraded as part of the urban redevelopment.



Year 2000 Masterplan Road Network



Year 2000 Masterplan Railway Network

* Railway Network

Railway services will be strengthened in radial directions by the additions of Urban Metro No. 1 (Phase I) and Regional Metro Giza Branch to the existing Regional Metro, Heliopolis Metro, CTA Tram Lines and National Railways. CTA Tram will be connected to Heliopolis Metro at Mataria, and this will improve railway services for the concentric arc from Nasr City through Shubra via Heliopolis and Mataria.

The Ramses - Nozha line of Heliopolis Metro will be completely separated from the carriage way to enable rapid service. This project and the electrification, and the connection with the subway, of the Al Marg line will substantially increase the transportation capacity in the direction from the CBD toward the northeast which has by far the largest demand.

It should be noted that many tram lines in GCMR have segregated tracks from roadways. To make the tram lines, which are not utilized efficiently at present, be vital and to form the dense railway network, the use of these segregated lines are the easiest and the most practical way. The lines, on which the modernization of the facilities are considered difficult depending on the track condition, should be removed from the view point of the railway network improvement as a whole.

* Road Network

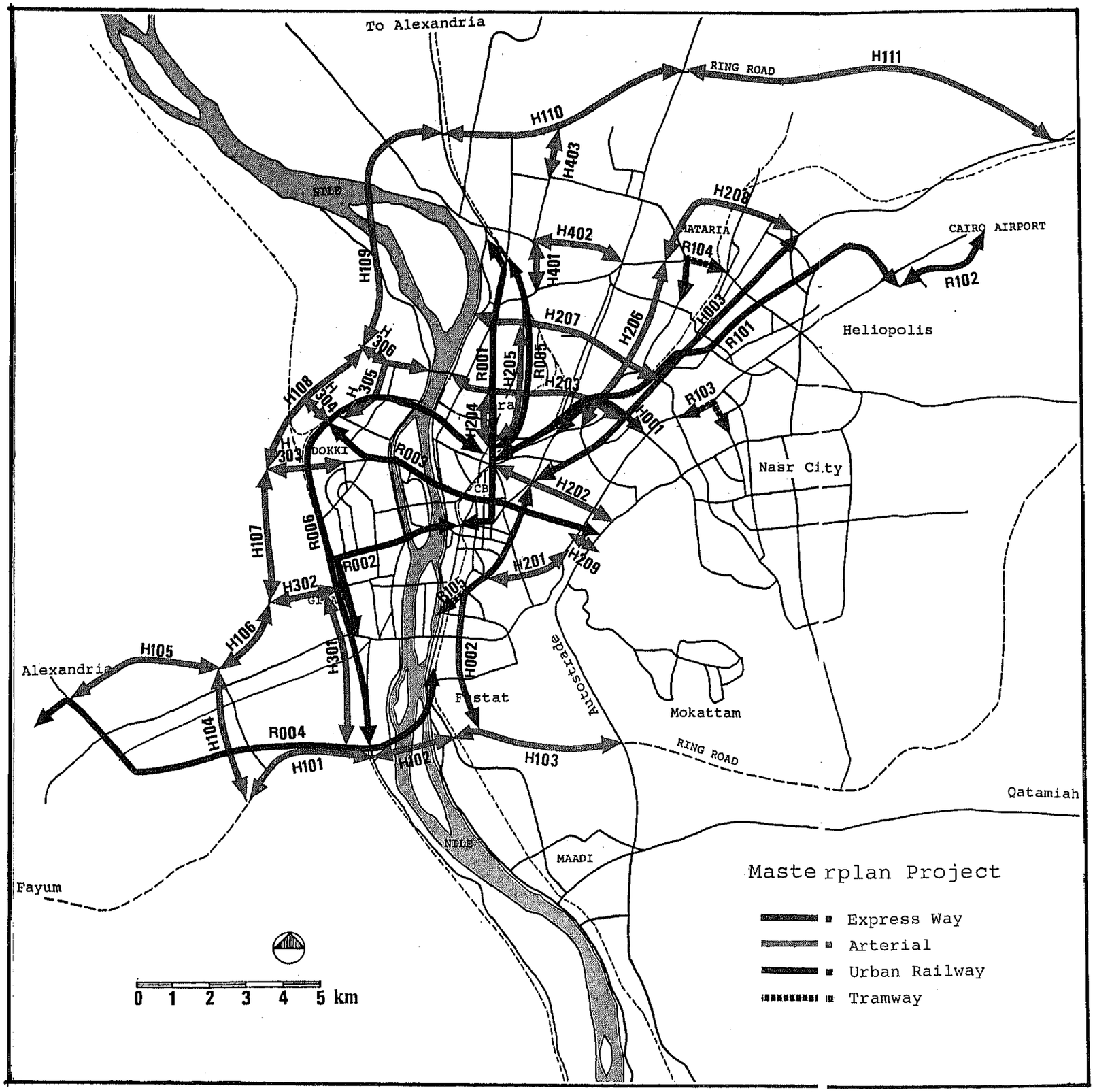
When all the projects recommended by the present Masterplan are implemented, the road network of the GCMR will approach a radial, concentric pattern. To Sudan and Salah Salem Streets will be added two new streets of Sekket Al Wayli and Rod Al Farag to complete the inner ring road. Radial roads basically start from this inner ring to extend outward, connecting to the national road network. The outer ring road will also be completed, except for the section formed by the northern bridge over the Nile.

The urban expressways Nos. 1, 2 and 3 will improve the access of the areas inside the inner ring road to the CBD, and absorb through traffic away from the CBD, alleviating the traffic congestion in the central area. In the zone between the inner and the outer ring road, surface arterials will be developed in accordance with the right of way ordinance of the respective Governorate.

* Bus Network

There are more than 300 bus routes operated by CTA and GCBC at present. In line with the expansion of the railway network, the feeder bus services will become important, however, in future, the bus services will remain as the trunk public transportation mode as well as the railway, because the railway network will not have sufficient density, even if the masterplan network will complete and the trip length will be short caused by the shape of GCMR.

Since the present bus routes were placed following the demand, the bus network is complicated even for the Cairo residents. It is urgent to rearrange these bus routes as the main public transport mode in the capital city. As the facility improvement to achieve this objective, the improvement of the bus terminals especially in CBD is recommended.



Investment Schedule of Masterplan Project

	Project	Cost	Rank
H001	Expwy MEX NO.1	74.1	A
H002	Expwy MEX NO.2	333.8	A
H003	Expwy MEX NO.3	287.8	B
H101	R. Road South in Giza	74.8	A
H102	R. Road South br.	290.8	A
H103	R. Road South Fustat	71.2	A
H104	R. Road North South	51.8	A
H105	R. Road Western Arc.	62.3	A
H106	R. Road Western Arc.	54.3	A
H107	R. Road Western Arc.	71.2	A
H108	R. Road Western Arc.	114.8	A
H109	R. Road North Nile br.	296.0	B
H110	R. Road Qaliubiah	126.4	A
H111	R. Road Al Marg	205.0	A
H201	Salah Salem-Sayedah	39.4	B
H202	Kamel Sidky st.	174.9	A
H203	Rod Al Farag st.	106.4	B
H204	Shubra st.	24.0	A
H205	Ahmed Helmi st.	10.9	A
H206	Ahmed Said st.	76.5	B
H207	Sekket Al Wayli st.	72.4	A
H208	Ahmed Said st. Ext.	73.2	B
H209	Azhar st. Ext.	3.7	A
H301	Giza North-South st.	89.5	B
H302	Sarwat st. Ext.	99.2	A
H303	26th July st. Ext.	39.5	B
H304	Ahmed Orabi st. Ext.	103.8	A
H305	Rod Al Farag west App.	33.3	A
H306	Rod Al Farag west Ext.	67.6	A
H401	Shubra Al Khelma N-S 1	31.7	A
H402	Shubra Al Khelma E-W	69.9	A
H403	Shubra Al Khelma N-S 2	82.4	A
R001	Urban Metro #1,Ph.1	887.5	B
R002	Urban Metro #1,Ph.2	537.3	B
R003	Urban Metro #2	897.7	C
R004	Regional Metro Giza	361.9	B
R005	ENR(Cairo C.-Shubra)	13.9	A
R006	ENR(Cairo C.-Giza)	13.7	A
R101	HCDC Ramses-Nozha Imp.	163.2	A
R102	HCDC Airport Ext.	284.1	C
R103	HCDC Al G.Al Markazi	7.7	A
R104	CTA &HCHD Connection	0.5	A
R105	CTA Tram to S.Zeinab	1.6	A
R106	CTA Tram Ext. Helwan	3.1	A
R107	CTA Tram Improvement	21.2	A
R108	HCHD Metro Improve.	29.0	A
B001	Bus Fleet Increase	115.8	A
B002	Deluxe Bus	56.0	A
B003	Exclusive Bus Lane	0.0	A
C101	Exclusive Bus Road	13.6	A
C102	Bus Rerouting	0.0	A
C103	Bus Terminal	5.4	A
C104	Excl. Pede. Arteerial	0.2	C
C105	Excl. Pede. Street	1.6	C
C106	On-St. Parking System	0.3	A
C107	Off-St. Parking Bldg.	40.1	A
C108	Traffic Regulation	0.5	A
	Total	6765.0	

Implementation Schedule: 1990 | 1995 | 2000 | 2005

(Not Scheduled)

1849.4 | 1963.8 | 2950.4

Note : Design and Land Acquisition
Construction and Rolling Stock

GREATER CAIRO REGION

TRANSPORTATION MASTERPLAN STUDY

JAPAN INTERNATIONAL COOPERATION AGENCY

Masterplan Project List

Project No.	Project Name	Description	Total Cost (M.LE)
H001	Expwy No. 1	6th Oct. Br. extension project from Ghamra Br. to Salah Salem st. 2.3Km, 4 lane road. Interchanges at Ghamra Br. and Abbasseya sq.	74.1
H002	Expwy No. 2	New viaduct construction from Ring Road in Fustat area to Bab Al Shaaria sq. 8.0 Km, 4 lane double deck type viaduct on Port Said st. with junction in Fustat and interchanges on Fustat Road, Salah Salem st., Sayedah Zeinab sq. and Qalaa st.	333.8
H003	Expwy No. 3	New viaduct construction from Bab Al Shaaria sq. to Ismailia Desert Road. 7.3 Km, 4 lane viaduct on Gueish st., Abbasseya st., Khalifah Al Mamoun st. and Gisr Al Suez Road with interchanges on Bab Al Shaaria sq., Gueish sq., Kobri Kobba and Kobba st. One junction with Expwy No.1 (6 Oct. Br. Extension) on Abbasseya sq.	287.8
H101	Ring Road Southern section in Giza	Ring Road between Giza north-south route and Nile south bridge. 4.1 Km, 8 lane with 50m ROW. Main structure: 200m Tersa Canal Br.	74.8
H102	Ring Road Southern section (Nile River Br.)	Main span : 65m + 2 x 115m + 65m = 360m, PC cantilever Type. 8 lane. 1100m west approach viaduct on Upper Egypt Highway, ENR and Zomor Canal, and 550m east approach viaduct on Corniche st. and Maadi Agriculture Road. Interchanges with Upper Egypt Highway and Maadi Agriculture road. Total section length : 2.5Km.	290.8
H103	Ring Road Southern section (Fustat Area)	Ring Road between Maadi Agriculture Road and Autostrade. 3.8 Km, 6 lane with 40m ROW. 250m viaduct between Maadi Agriculture Road and Fustat hill area. Part of the section is under construction.	71.2
H104	Ring Road Giza North-South link	Ring Road between southern section and western arc through Giza built up area. 3.8 Km 6 lane with 40m ROW road construction.	51.8
H105	Ring Road Western Arc	Ring Road between Alexandria Desert Road and Giza North-South Link. 5.5 Km 4 lane with 40m ROW road construction.	62.3
H106	Ring Road Western Arc	Ring Road between Giza North-South Link and Sarwat st. Extension. 2.1 Km 6 lane with 40m ROW road construction.	54.3
H107	Ring Road Western Arc	Ring Road between Sarwat st. Extension and 26 July st. Extension. 4.3 Km 6 lane with 40m ROW road construction.	71.2
H108	Ring Road Western Arc	Ring Road between 26 July st. Extension and Rod Al Farag western approach extension. 4.3 Km 6 lane with 40m ROW road construction. 300m Viaduct on ENR line.	114.8
H109	Ring Road Western Arc (North Nile Rv. Br.)	Ring Road between Rod Al Farag Br. western approach extension and Alexandria Agriculture Road. 8.3 Km 4 lane with 40m ROW road construction. Main span of north Nile River Br.: 85m + 2 x 125m + 85m = 420m and 70m + 4 x 125m + 70m = 640m, PC cantilever type. 600m viaduct for west 1200m viaduct for east approaches.	296.0
H110	Ring Road Northern Arc (Qaliubiah)	Ring Road between Alexandria Agriculture Road and Ismailia Canal. 7.8 Km 4 lane with 40m ROW road construction.	126.4
H111	Ring Road Northern Arc (Al Marg)	Ring Road between Ismailia Canal and Ismailia Desert Road. 12.7 Km 4 lane with 40m ROW road construction. Ismailia Canal Br. has been completed.	205.0
H201	Salah Salem - Sayedah Road	New road construction between Salah Salem and Sayedah Zeinab sq. 3.0 Km 4 lane road with 20m ROW.	39.4
H202	Kamel Sidky st.	Widening of existing 20m (0.4 Km) and 12m (0.7 Km) Kamel Sidky st. to 4 lane 40m ROW from Ramses sq. to Gueish st. and 2.8Km new road construction on the successive section along Old Cairo Wall from Gueish st. to Autostrade.	174.9
H203	Rod Al Farag st.	Improvement of existing 18m - 20m, 1.7 Km Rod Al Farag st. to 4 lane 20m ROW, and 3.6 Km new road construction on the successive section up to Ramses st. in Abbasseya sq.	106.4
H204	Shubra st.	Widening of existing 25m, 1.7 Km Shubra st. (2 lane one-way with single track tram line at the center) from Rod Al Farag st. to North Entrance of Cairo Central Station to 6 lane 40m st. ROW has been secured. No. of buildings to be demolished : 26 bldgs.	24.0
H205	Ahmed Helmi st.	Improvement of existing 4.1 Km Ahmed Helmi st. (25m ROW, 4 lane with segregated tram line at the center) to 6 lane st. from Ismailia Canal Road to North Entrance of Cairo Central Station.	10.9

Masterplan Project List

Project No.	Project Name	Description	Total Cost (M.LE)
H206	Ahmed Said st.	Widening of existing 2.7 Km, 18m ROW, 2 lane Ahmed Said st. from Ramses st. to Sekket Al Wayli st. to 36m ROW, 6 lane st. and 2.8 Km new road construction on the successive section from Sekket Al Wayli st. to Mataria st.	76.5
H207	Sekket Al Wayli st.	Improvement of 1.7Km, 20m ROW, 2 lane Mamalik School road and 2.5 Km, 30m ROW, 4 lane Sekket Al Wayli st. to 30m ROW, 6 lane st. and 1.7 Km new road construction between Ahmed Helmi st. and Port Said st. including a 200m bridge over ENR line.	72.4
H208	Ahmed Said st. Extension	Extension of 6 lane 36m ROW Ahmed Said st. from Mataria st. to Ismailia Desert Road in Ain Shams area by widening of existing 20m ROW Nezoul st. for 1.2 Km, and 20m - 40m ROW Ibrahim st. for 1.8 Km and construction of new road for 3.3 Km.	73.2
H209	Azhar st. Extension	Extension of existing 4 lane Azhar st. from Salah Salem st. to Autostrade for 0.4 Km. ROW : 40m	3.7
H301	Giza North-South Street	4.2 Km, 4 lane with 40m ROW new road construction between Ring Road southern section in Giza and Sarwat st. extension.	89.5
H302	Sarwat st. Extension	Extension of existing 6 lane 40m ROW Sarwat st. from ENR line to Ring Road western arc for 2.3 Km.	99.2
H303	26 July st. Extension	Extension of existing 6 lane 45m 26 July st. from ENR Line to Ring Road western arc for 3.0 Km. 350m Viaduct over ENR line.	39.5
H304	Ahmed Orabi st. Extension	Extension of existing 6 lane 50m ROW Ahmed Orabi st. from ENR Line to Ring Road western arc for 1.6 Km. 350m viaduct over ENR line.	103.8
H305	Rod Al Farag Br. West Approach	4.3 Km, 4 lane, 40m ROW Road improvement from Rod Al Farag Br. to Sudan st. via Wehda st. and Bouhi st. or ENR freight line. 350m viaduct over ENR line.	33.3
H306	Rod Al Farag Br. West Approach Extension	1.3 Km, 4 lane, 40m ROW road construction from Rod Al Farag Br. west approach to Ring Road western arc. 350m viaduct over ENR line.	67.6
H401	Shubra Al Kheima North-South Road (1)	1.3 Km, 4 lane, 40m ROW road construction from Ismailia Canal Road to Shubra Al Kheima East-West Road. 400m new bridge over Ismailia Canal.	31.7
H402	Shubra Al Kheima East- West Road	1.3 Km, 4 lane, 50m ROW road construction from existing Shubra Al Kheima East-West Road to Ismailia Canal west road.	69.9
H403	Shubra Al Kheima North-South Road (2)	1.9 Km, 4 lane, 40m ROW road construction from existing Shubra Al Kheima East-west road to Ring Road Northern Arc.	82.4
		Total	3,312.6
R001	Urban Metro No.1 Phase I	10.2 Km Urban Metro construction from ENR Shubra sta. to Tahrir sq. via Ramses sq. and 12 stations including stations at both ends. Connection with Regional Metro at Tahrir sq. (Sadat sta.).	887.5
R002	Urban Metro No.1 Phase II	4.9 Km Urban Metro Extension up to Boulaq in Giza from Tahrir sq. via Nile Rv., Mesaha st., Abdel Salam st., Cairo University and ENR Boulaq sta.	537.3
R003	Urban Metro No.2	16.5 Km, East-West Urban Metro Construction from ENR Embaba sta. up to Nasr City via Ahmed Orabi st., 26 July st., Azbakiah park, Kamel Sidky st., Salah Salem st. and Autostrade.	897.7
R004	Regional Metro Giza	11.8 Km Regional Metro branch line construction from existing Mary Gergis sta. on the regional metro up to the planned long distance bus terminal in Pyramid area via Dahab Island, Nile Rv. and Ring Road southern section. Connecting station with ENR Giza line.	361.9
R005	Urban Rail Operation (Cairo Central Sta. - Shubra sta.)	Introduction of urban rail operation for 6.5 Km ENR Minouf line from Cairo Central Sta. to Shubra sta. Construction of 3 intermediate stations and improvement of both terminal stations. Single track operation in case of no improvement at Cairo Central Station.	13.9

Masterplan Project List

Project No.	Project Name	Description	Total Cost (M.LE)
R006	Urban Rail Operation (Cairo Central Sta. - New Giza Sta.)	Introduction of urban rail operation for 15.7 Km ENR Giza line from Cairo Central sta. up to new Giza sta. (2.3 Km southwards from present sta.). Construction of 3 intermediate stations and a new Giza station, and improvement of Cairo Central station. The project will allow, together with R006 project, the operation between new Giza sta. to Shubra sta.	13.7
R101	HCHD Metro Ramses - Nozha	Introduction of Urban Rail Operation for 15.4 Km HCHD Metro line from Ramses sta. to Nozha sta. via Roxi sq. by rail improvement and introduction of high speed and scheduled operation. Construction of 4.5 Km viaduct between Roxi sq. and Hegaz sq. Improvement of existing Roxi sta. and installation of automatic signal system.	163.2
R102	HCHD Nozha - Airport Extension	4.3 Km extension of R101 HCHD Metro line from Nozha sta. to Cairo international Airport for air passengers, well-wisher and airport employees. Construction of underground stations below Airport terminal No.1 and 2.	284.1
R103	HCHD Al Gehaz Al Markazi	Construction of 530m viaduct of HCHD Metro and a station on viaduct at Al Gehaz Al Markazi intersection with Salah Salem.	7.7
R104	Connection of CTA Tram and HCHD Metro	Connection of HCHD Metro Mataria line and CTA Tram Mataria line to allow continuous tram operation between Kobri Al Suez and Al Raii. Installation of 300m rail and trolley.	0.5
R105	Extension of CTA Port Said Line	Extension of CTA Port Said Tram Line to Sayedah Zeinab Regional Metro station via Sad Al Barrani st. Construction of 900m rail and trolley.	1.6
R106	Extension of CTA Helwan Line	Extension of CTA Helwan Tram Line to 15th of May City beyond Autostrade and to Regional Metro Helwan station. Construction of 1.7 Km Rail and trolley and a viaduct over Autostrade.	3.1
R107	Small Scale Improvement of CTA Tram Lines	Small scale improvement of CTA tram lines of Ramses st. - Abdel Moneim Riad and Raii - Mataria. Installation of railway crossing signals and fence to promote segregation.	21.2
R108	Small Scale Improvement of HCDC Metro Lines	Small scale improvement of HCHD Metro lines. Installation of railway crossing signals and fence to promote segregation.	29.0
		Total	3,222.4
B001	Increase of Bus Fleet	To meet the future demand, about 1000 buses should be introduced additionally by the year 1999.	115.8
B002	Deluxe Bus	To encourage car users to use bus service, deluxe bus service is introduced, charging higher tariff and prohibiting standing passengers. Initially 200 buses are introduced as a pilot project.	56.0
B003	Bus Exclusive lane	Introduction of exclusive bus-lanes in Ramses st., Galaa st., Al Qasr Al Aini st., and Corniche st. to Maadi and also in Gueish st. and Ahmed Helmi st. after removal of tram line.	0.0
		Total	171.8
C101	Bus Exclusive Road	Introduction of 2.7 Km, 7.0m carriageway, 2 lane (both direction) bus exclusive roads on Emad Al Dine st., Qasr Al Aini st., Sherif st. and Adly st. Installation of bus bays.	13.6
C102	Bus Rerouting	Bus routes rerouting on CBD bus exclusive roads and CBD peripheral streets of Ramses, Galaa, Tahrir, Boustan and Clot Bey.	0.0
C103	Bus Terminal	Construction of 3 bus transfer terminals (total floor area : 0.25 Ha.) at Ramses sq., Tahrir sq. and Attaba st.	5.4
C104	Exclusive Pedestrian Arterials	Introduction of 2.7 Km exclusive pedestrian arterials in CBD along bus exclusive roads, equipped with lighting, vegetation, street furnitures such as benches. Width : 4.5m at both sides of bus lane.	0.2
C105	Exclusive Pedestrian Streets	Introduction of 1.7 Km exclusive pedestrian streets connecting with exclusive pedestrian arterials, equipped with lighting, vegetation, street furnitures such as benches and small parks. Standard width : 6.0m.	1.6
C106	On-street Parking	Establishment of 16.3 Km, 4,140 lots on-street parking spaces on one side of distributors and collectors in CBD. Introduction of parking ticket system for the collection of parking charge.	0.3

Masterplan Project List

C107	Off-street Parking	Construction of a total of 9,860 lots, 24 Ha. floor area multi-storey garages in CBD.	40.1
C108	Traffic Regulations	Establishment of 16.3 Km one way system on collectors and no-parking regulation on 8.7 Km distributors in CBD.	0.5
		Total	61.7
GRAND TOTAL			6768.5

Note: Project Code: X a b c

- Serial number
- Governorate
  - 0 Not defined or located within two or three governorates
  - 1 Cairo Governorate
  - 2 Giza Governorate
  - 3 Qaliubiah Governorate
- Project category
  - H Road
  - R Railway
  - B Bus
  - C CBD

12. Recommendations

* Need of Transportation Demand Control

The primary focus of the future transport policy should be on encouraging a shift from the private to the public transportation means. The movement by passenger cars currently generates 4.1 million trips per day, accounting for 46% of the total trips in the Region. Unless appropriate regulatory measures should be taken, the trips would more than double to 9.2 million in 2000. Taking into consideration the physical limit of the road capacity, at least 20% of the expected demand would have to be absorbed by public transportation.

Because the Region's population has a strong preference of passenger cars, it will be necessary to combine vigorous measures for regulating the use of passenger cars and for improving the serviceability of public transportation means at the same time. For example, fiscal measures like the taxation on car ownership and gasoline consumption, stronger parking regulations, and collection of charges from roadside parking will be effective for the former. The increase and strengthening of bus fleets, introduction of bus exclusive lanes and new deluxe buses, and improvement of transfer facilities will be important to upgrade the Region's bus services. In addition, the improvement and extensions of railway systems will also be necessary to facilitate the shift of passenger road traffic from the private to public modes of transportation.

* Development of Transport Facilities

Because large-scale demolition of the existing buildings and structures are socially as well as economically untenable, the only possible way of increasing the road capacity in the urbanized areas of the Region is to utilize the spaces above the existing roads by building elevated expressways. In addition to the on-going construction of Section No.1 (Ramses Square - Ghamra), it will be necessary to complete Sections No. 2 (Bab Al Shaaria - Sayedah Zeinab - Ring Road) and No. 3(Bab Al Shaaria - Heliopolis) before the year 2000 and to continue extending the network in the next century.

In the long run, restructuring of surface roads will become inevitable, which will involve large-scale removal of buildings. It will be essential to plan such moves as part of urban renewal projects.

Conservation of agricultural land is the national primary objective. In reality, however, the informal housing development in the outlying areas of the Metropolitan Region has been steadily encroaching agricultural land. The provision of water supply, electricity, sewerage and other social infrastructure is extremely inadequate in such areas. It is urgent to draw up street network plans for areas where urbanization will be inescapable (especially the areas within the ring road) and thereby to retain enough right of way for future road development.

With regard to railways, priority must be in upgrading the existing railway transit. For this purpose, it will be necessary to secure enough right of way, electricity and communication facilities, and safety equipment and thereby to increase the frequency and the speed of services.

Investment Amount by Period and Mode

(unit: million LE)

	1990-1994	1995-1999	Total 90-99	Beyond 2000
Road	1483.4	1248.6	2732.0	580.5
Railway	277.1	575.4	852.5	2369.8
Bus	57.9	113.9	171.8	0.0
CBD	30.9	30.9	61.7	0.0
Total	1849.3	1968.8	3818.0	2950.4
(%)	27.3	29.1	56.4	43.6

Necessary Investment Amount by Organization

(unit: million LE)

	Project number	Investment	(%)
MODANC	13	1561.9	23.1
NAT	4	2684.4	39.7
Cairo Gov.	17	1319.8	19.5
Giza Gov.	4	289.6	4.3
Qaliubiah Gov.	3	184.0	2.7
ENR	2	27.6	0.4
HCHD	4	484.0	7.2
CPA	10	217.3	3.2
Total	57	6768.6	100.0

Because the density of the existing network is still far from adequate, it is requisite to open new lines. In already urbanized areas, the bulk of new extensions will have to be subterranean and thus require huge outlays of fund. Prospective projects like Urban Metro Nos. 1 and 2 and Giza branch of Regional Metro must be promoted with a long-term outlook.

* Institutional Development

a) Planning and Information Center

Policy matters are deliberated by the Higher Policies Committee chaired by the Prime Minister, but it will be necessary to establish a permanent Technical Urban Transport Group in one of the transport-related agencies. This Group should be made responsible for periodical reviews of the Masterplan and project priorities. In order to support the Technical Urban Transport Group, it is proposed to set up an Urban Transport Unit within the Transportation Information Center of the Ministry of Transport.

b) Review and Revision of Fare Systems

The operating costs of many agencies which manage public transportation services are larger than fare revenues. Without sound financial standings, it is hard the respective agencies to provide satisfactory services on a continuous basis. Unchecked subsidization discourages their self-help efforts to improve financial positions.

The proposed Technical Urban Transport Group can be charged with such tasks in order to provide vital information and appropriate proposals for deliberation at the Higher Policies Committee.

* Feasibility Studies

The following points are suggested to be examined by the prospective feasibility studies of major construction or improvement projects of roads and railways.

a) Urban Expressways Nos. 2 and 3

In this project, care must be taken to consider the effects on environment and landscape in designing the alignment and facilities. In order to introduce the toll system, it is necessary to examine the organizational setup of a managing body, the toll system, financial planning, appropriate legislation and so forth.

b) Improvement of Kamel Sidky Street

The project would require the removal of from 150 to 300 buildings along the way. In order to minimize adverse social impacts, it will be necessary to conduct project formation as part of an urban renewal program and evaluate its feasibility.

c) Urban Metro No. 1

In view of the changes in social, economic and technical conditions, it is necessary to review and revise the components of the project. From the viewpoint of sound operation, it is important to analyze the relationship between the fare system and the demand and ascertain the financial viability.

d) Improvement of Heliopolis Metro (Ramses - Nozha)

The present Masterplan graded the section of Roxi - Heliopolis Hospital - Nozha as the trunk line and the rest as local lines. The feasibility study however needs to examine other possibilities of grading and compare the demand and costs of alternatives.

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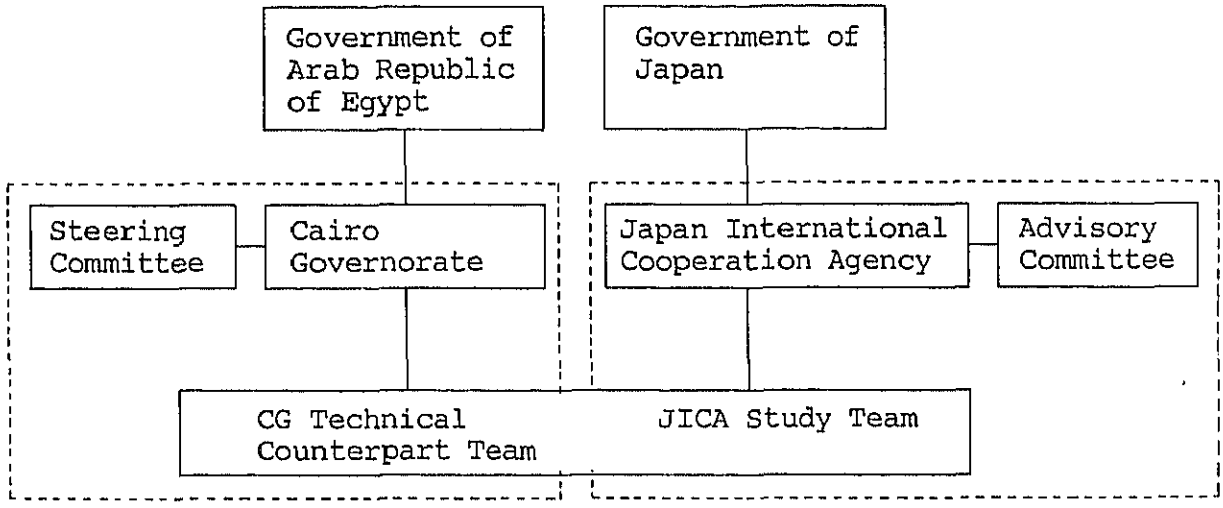

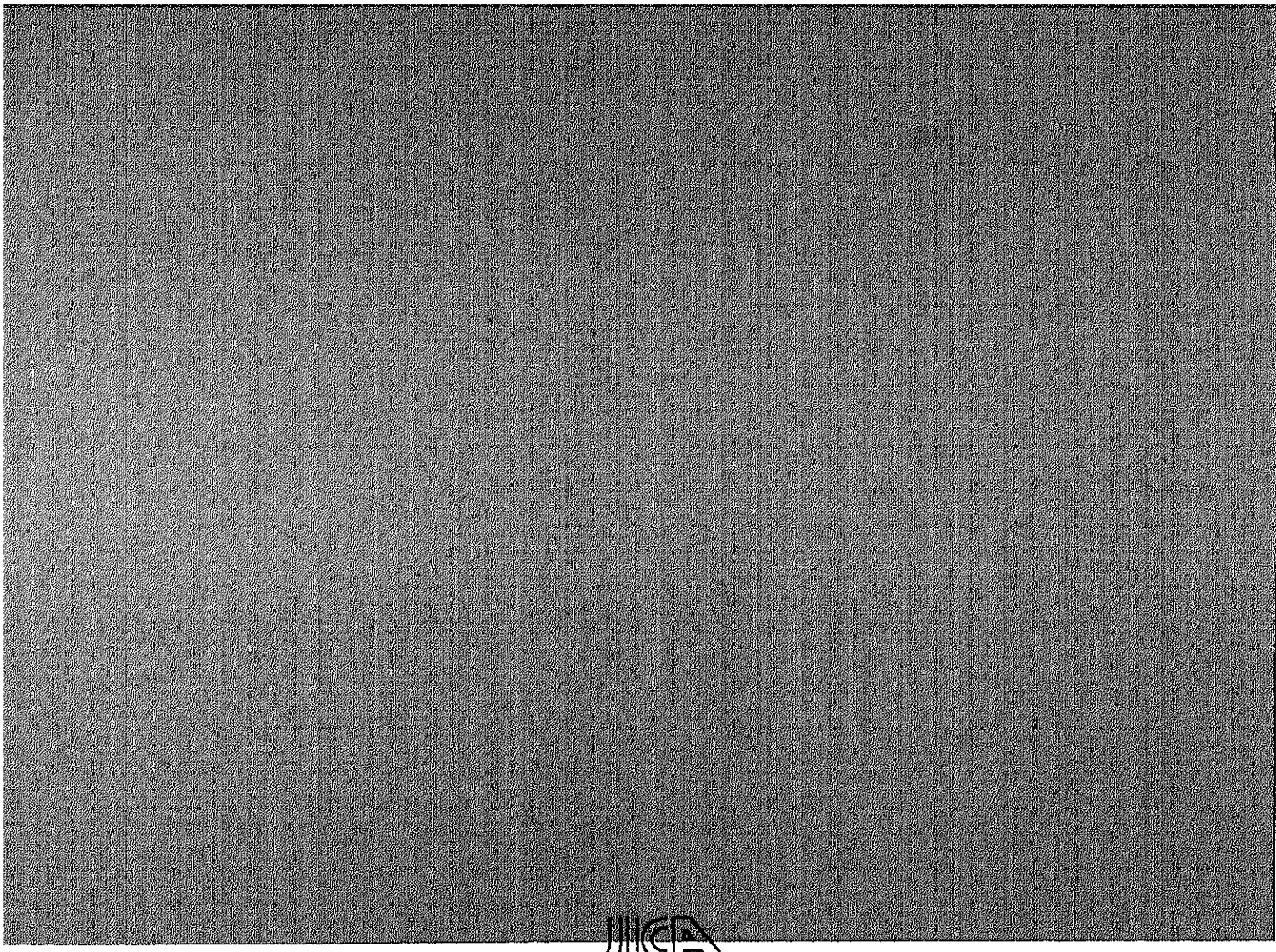

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