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**LOCAL DEVELOPMENT II  
URBAN PROJECT**

Submitted to

**USAID / CAIRO**

Submitted by

**WILBUR SMITH ASSOCIATES**

in association with

PUBLIC ADMINISTRATION SERVICE  
DEVELOPMENT CONSULTING OFFICE

DELOITTE HASKINS AND SELLS  
ENGINEERING AND GEOLOGICAL  
CONSULTING OFFICE

**O&M**  
**NEEDS ASSESSMENT**  
**AUGUST, 1989**

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## INTRODUCTION AND BACKGROUND

### **1. OBJECTIVES AND METHODOLOGY**

#### **1.1 Objectives**

The main objective of O&M task is to develop the local governorate's ability to maintain the rolling stock in good order.

#### **1.2 Methodology**

To achieve this objective the TAC is assisting the governorates and districts in developing adequate nets of well equipped facilities to maintain the rolling stock at the optimum on-the-road availability, and to define for each facility the level of maintenance and repair responsibility. To develop a maintenance management system involves:

- o review and development of local governorate organizations to define the different levels of responsibility and authority and appropriate staffing;
- o identification of training needs and proposal of training programs to develop managerial and technical skills for different staff levels and trades;
- o development of short and long term plans for operation and maintenance of the rolling stock.

### **2. ACHIEVEMENTS TO DATE**

#### **2.1 Reports and Studies**

Under the NUS Project the listed reports and studies, were prepared for USAID, Cairo, and produced in both English and Arabic, by Wilbur Smith and Associates in association with Public Administration Services and Engineering and Geological Consultant Office. The reports and studies are used in the implementation of various projects and training programs.

- o Alexandria CIP Vehicles Repairs, October 1987.
- o Road and Street Maintenance, Suez Governorate, July 1987.
- o Training Manual, Spare Parts Warehousing, Kardex System, July 1987.
- o Egyptian Maintenance Study, July 1985.
- o Recommended Equipment Maintenance Program Improvement for Shoubra El Kheima, December 1984.
- o Special Program for Equipment Maintenance Implementation, Recommendations and Cost Estimates, Cairo Governorate, February 1984.

- o Preventive Maintenance Manual for District Service Vehicles and Equipment December 1983.
- o Recommended Equipment Maintenance Program Improvements for the City of Giza, December 1983.
- o Evaluation and Recommendations on Equipment Maintenance in Alexandria Governorate, January 1983.

## **2.2 Garages and Workshops Facilities**

During the NUS Project and the first two years of the LD II Project, and out of the Block Grants, Special Programs, and Special Projects a total amount of LE 18,975,000 was allocated. Results of the program will be:

- o in Cairo Governorate eight new district garages and three zonal workshops will be operating;
- o in Alexandria Governorate, seven new garages for the six districts and the clean-up emergency fleet, and one new zonal workshop will be operating;
- o the West District upgraded garage in Shoubra El Kheima is operating in good order;
- o although overcrowded, the upgraded two garages in Giza City will be on line;
- o a new central garage and a new district garage and workshop in Port Said will be in place;
- o construction of new garages and workshops, and upgrading of existing ones in Port Said and Suez Governorates are implemented according to the Governorate's investment plans.

## **2.3 Maintenance and Repair Support**

- o The six urban governorates possess large fleets of garbage collection and road maintenance equipment. The technical status of these fleets is unsatisfactory. Table 1 shows the inventory and status of these fleets by governorates. As of March 1989 the on-the-road availability was 59%.
- o To support maintenance and repair of the rolling stock in Cairo and Alexandria Governorates, the following major sub-projects have been implemented.
  - A Special Project costing L.E. 1.027 million for the CIP vehicles repair in Alexandria has started, including the purchase of locally produced spare parts as well as the repair and annual maintenance of the CIP fleet.
  - A modern spare parts warehouse, utilizing the Kardex system, was developed in the Alexandria Central Workshop.
  - An amount of \$ 2.3 millions was allocated to CCBA for the purchase of imported and locally produced spare parts and overhauling of 150 vehicles motors.

Table 1

Inventory and Status of  
Fleets in Urban Governorates  
Provided Through USAID Programs  
(as of March 1989)

Vehicle/Equipment Type	Governorate						Total	I.O.	Need Repair	% Available
	Cairo	Alex.	Giza	Qual.	Suez	Port Said				
Garbage Collection										
Refuse truck side loading	248	103	85	8	10	-	454	255	199	56
Refuse truck rear loading	62	62	-	-	-	18	142	79	63	56
Refuse pick-up truck	229	-	60	-	-	-	289	215	74	74
Refuse Cart	132	33	36	20	-	36	257	103	154	40
Street Cleaning										
Sweepers	10	7	19	-	3	2	41	23	18	56
Flushers	35	15	8	-	8	14	80	59	21	74
Road Maintenance										
Dump trucks	118	17	25	17	23	24	224	146	78	65
Bulldozers	9	12	2	3	6	4	36	18	18	50
Graders	3	-	4	2	4	1	14	10	4	71
Loaders	10	22	8	8	6	14	68	38	30	56
Rollers	-	6	-	1	3	10	20	15	5	75
Compressors	-	6	-	1	-	-	7	2	5	29
Asphalt cutters	2	-	-	-	-	-	2	2	-	100
Mastic mixers	10	-	-	-	-	-	10	5	5	50
Mobile asphalt mixer	-	-	6	-	-	3	9	4	5	44
Low bed trailer	-	1	-	-	-	-	1	1	-	100
Utilities and Others										
Sewage trucks	49	-	9	3	-	-	61	31	30	51
Recovery vehicles	2	-	-	-	-	-	2	2	-	100
Telescopic crane	-	2	-	-	-	-	2	1	1	50
Crane	-	-	-	-	4	1	5	3	2	60
Lorry	-	2	-	-	8	-	10	6	4	60
Lighting tower truck	-	-	7	1	-	-	8	6	2	75
Totals	919	288	269	64	75	127	1742	1024	718	59 %

Source: Data available from USAID  
Data provided by concerned Governorate officials  
TAC field trips

LEGEND: I.O In Operation

## **2.4 Management Systems**

- o Organizations of district garages and zonal and central workshops in Alexandria were reviewed.
- o Proposals for reorganization were submitted to both Alexandria Governorate and CCBA, which were approved and adopted.
- o A comprehensive incentives pay-plan was submitted to both Governorates.
- o Alexandria Central Workshop was provided with a spare parts warehouses utilizing the Kardex system. The CCBA Zonal Workshops in Sayeda Nefisa is in the process of establishing the Kardex system in the warehouse constructed in the zonal workshop.
- o A Special Project for Suez Governorate, to develop a road maintenance capability, was prepared and approved. Implementation of this Special Project will commence soon.
- o A Special Project to develop the Cairo Road Department and Paving Complex, including management development, was prepared and submitted to Cairo Governorate for submission to the ULDC.

## **3. PROJECTED O&M PLANS**

A detailed needs assessment has been prepared for each of the six governorates, and is shown in the following sections of this report. By the end of the LD II Project, in F.Y. 1992, the following will be achieved.

### **3.1 Garages and Workshops Facilities**

A complete garage construction and upgrading program will be implemented. By the Completion of this program, all governorates will have adequate nets of facilities capable of conducting an effective maintenance program.

- o Cairo Governorate will have five zonal garages, five zonal workshops, two new district garages, five upgraded district garages, and a renovated central workshop.
- o Alexandria Governorate will have one new zonal garage, three new district garages, one new zonal workshop, and a renovated central workshop.
- o In Giza City, after some extended deliberations, sites have been selected so that a program for garage and workshop construction and organization can be implemented.
- o In Shoubra El Kheima the construction of the proposed two story garage and maintenance center and the upgrading of the road department garage and workshop will fulfill their needs.
- o Port Said will have three new district garages, one new garage and workshop for the road directorate, one new central garage, two upgraded district garages, and a renovated central workshop.
- o Suez Governorate will have one new district garage, one new Road Directorate garage and workshop, three upgraded district garages and one upgraded central workshop.

### **3.2 Maintenance and Repair Support**

- o Based on the experience obtained in Sayeda Nafisa Zonal Garage in Cairo and El Amreya District Garage in Alexandria, reasonable allocation of funds are proposed in the O & M Needs Assessment plans.
- o It is recognized the funding problems at the Governorate and District level currently inhibit functioning of an effective and efficient maintenance management system because spare parts, lubricants and contract repair cannot be provided within allocated resources. To protect the huge investment represented by the fleet and to service the citizens of the governorates, the fleets should be maintained at a level of at least 75% on-the-road availability.
- o It is recommended that districts that have their own workshops procure, on their own, spare parts needed to carry out all P.M. levels, and simple and level "1" (current) repairs. Table 2 lists different kinds of spare parts to be procured by districts, for P.M. and level "1" repairs. Zonal and central workshops need to procure and stock Spare Parts needed for medium and major repairs.

### **3.3 Management Systems**

The LD II-Urban Project is placing great emphasis on developing O&M management systems. To achieve this goal the following actions are taking place.

- o O&M Team is closely monitoring closely the occupation and implementation of management systems in Sayeda Nafisa Zonal Garage in Cairo, and El Amreya District Garage in Alexandria. Utilizing experience that will be obtained, management systems will be reviewed and then implemented in all governorates.
- o A special Project for the Suez Governorate, to construct and equip a maintenance center, has been prepared and submitted for approval. It is proposed that this facility will be leased to the private sector. The Shoubra El Kheima two story facility may be run on a private sector management basis and may render fueling and maintenance services to both the public and private sector. In Cairo and Alexandria, facilities will be run by the government agencies.
- o The TAC will have the opportunity to test and evaluate the three different management systems mentioned above.

## **4. O&M ALLOCATIONS**

In the LDII-Urban Project operation and maintenance is a major issue. It is being proposed that governorates allocate not less than 40% of their LDII allocations and districts no less than 35% for O&M activities. It is also recommended that procurement of new vehicles and equipment and imported spare parts be coordinated between governorates and districts. A qualified agency (may be central workshops or CBAs) should carry out the procurement in each governorate.

## **5. O&M BUDGETS**

### **5.1 Resources**

O&M budget resources in governorates and districts are obtained from different sources, namely:

**TABLE 2**

**Spare Parts to be Procured Locally**

**By Districts**

**(Needed for PM and Level I Repairs)**

1. Different tires sizes
2. Batteries
3. Different types of belts
4. Air, fuel and oil filters
5. Hoods
6. Hydraulic hoses
7. Fuel injectors and spark plugs
8. Different types of lights and lamps
9. Side mirrors and glass
10. Carbon brushes for electric generators and starters
11. Gaskets, water and oil seals
12. Belts
13. Radiators and radiator coils
14. Fans
15. Fuel pumps (for gasoline engines)
16. Fuses
17. Greasing fittings
18. Horns
19. Wipers
20. Cut outs (for gasoline engines)
21. Distributors (for gasoline engines)
22. Brake shoes (for transport vehicles)

Source: TAC and garage managers based on experience at new garages in Cairo and Alexandria.

- o Bab I for salaries, overtime and incentives;
- o Bab II for O&M needs (fuels, lubricants, spare parts and repair);
- o Clean-up treasury and services treasury for O&M support;
- o USAID allocations for O&M support.

## **5.2 Budget Limitations**

The current amount of allocations from Bab I cannot cover a reasonably effective incentive pay plan. Bab II allocations are very low. As an example, on implementing PM programs in three districts in Cairo and Alexandria, district garages ran out of lubricants in three months because of budgets not being adequate.

## **5.3 Budget Preparation**

Budget proposals are not worked out precisely and in time. Annual operation, maintenance and repair plans are not well prepared in most districts and workshops. Estimates are not based on actual experience and projected needs. It is recommended that annual budget proposals to be prepared and submitted no later than November each year. By well developed plans and budget proposals districts, CBA's and technical departments must convince financial and planning authorities of their needs. In case districts and workshops receives less fund allocations through Bab I and II than realistic budget proposals justify, then other resources must be found to support O&M activities.

## **6. LD II O&M PROGRAM OUTPUTS**

Implementation of the O&M Program, as detailed in the following sections, will produce such outputs as:

- o an integrated plan for vehicles and equipment maintenance in each governorate;
- o implementation of defined levels of maintenance for garages, zonal workshops, central workshops, and private sector contractors;
- o completion of current garage construction programs;
- o trained staff to improve efficiency and effectiveness.
- o application of the experience gained in the Alexandria Special Project for Up-grade Repair of the CIP Fleet in other governorates;
- o up-grade of the management and technical skills of garages and workshops staff by classroom and on-the-job training programs;
- o improvements in organizations, staff, fixed plant, equipment, methods and procedures in Road Departments in governorates and districts;
- o application of experience gained in the special project for road maintenance in Suez Governorate in other governorates;
- o assistance in the planning and execution of special projects;
- o establishment of Spare Parts Inventory Control System, using the Kardex System, in garages and workshops;

- o redistribution of excess spare parts and spare parts not applicable to current fleet composition based on real needs.

## 7. LEVELS OF MAINTENANCE AND RESPONSIBILITIES

### 7.1 Levels and Responsibilities For Preventive Maintenance (P.M.) For Vehicles And Equipment

- o P.M. for vehicles and equipment is the primary means for keeping the rolling stock functioning in a good order and extending its service life.
- o The "Preventive Maintenance Manual for District Service Vehicles and Equipment" prepared for NUS Project in English and Arabic was distributed to all urban districts. The Manual precisely defines P.M. levels and responsibilities as shown in the following table:

**TABLE 3**

**PM Levels and Responsibilities**

<u>Type of P.M.</u>	<u>P.M. Level</u>	<u>Responsibility of</u>	<u>Place</u>
Daily Maintenance	-	Driver	District Garage
Weekly Maintenance	-	Driver	District Garage
Monthly P.M.	"A"	Drivers & Mechanic	District Workshops
Quarterly P.M.	"B"	Drivers & Mechanic	District Workshops
Scmi-Annual P.M.	"C"	Drivers & Mechanic	District Workshops
Annual P.M.	"D"	Workshops	Zonal, Central Workshop or Private Sector Agents

Source: NUS preventive Maintenance Manual for District Service Vehicles and Equipment

- o The annual P.M. program for each vehicle or equipment will be as shown in the following example:

Month	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
P.M. Level	A	A	B	A	A	C	A	A	B	A	A	D

Accordingly, the complete annual P.M. program for all vehicles and equipment can be planned for each district garage and workshop for levels "A, B & C", and for zonal or central workshops for level "D".

## 7.2 Levels and Responsibilities for Repairs

Levels and responsibilities for repairs are as shown in Table 4

**TABLE 4**

### Level and Responsibilities for Repairs

<u>Repair Level</u>	<u>Type of Work</u>	<u>Responsibility</u>
Simple Repair	Includes adjustments, replacing damaged parts that do not necessitate disassembling any groups or their repair.	District workshop
Level "1" (Current Repairs)	Includes disassembling of 1 or 2 secondary faulty components and installing new (or repaired) components. Repair of components takes place in zonal workshops.	District workshop
Level "2" (Medium Repairs)	Disassembling of 1 or 2 main faulty components or group of components and installing new or repaired groups. Repairs to faulty secondary components. Repair work may include overhauling of engines	Zonal workshop (or Central Workshop if there are no zonal workshops)
Level "3" (Major Repairs)	Includes the repair of more than two main components or groups or the complete overhaul of the vehicle or equipment.	Central workshops or specialized private sector workshops.

Source: Garages and Workshops Training Manual - Pimco 1989

## 8. CONSTRAINTS TO ACHIEVING O&M GOALS

While the O&M Team has received the cooperation of all concerned governorate officials, there are still some constraints to progress.

- o The routine slow moving and long approval procedures delays implementation of projects.
- o All garages, workshops and road maintenance departments are short in technical staff and skilled labor. Low wages and incentive payments are the main reasons.
- o Reviewed organization charts and staff lists must be submitted to the Central Organization of Organization and Management for formal approval.
- o Emphasis must be placed in Governorates to adopt the concept of decentralization of operation and the centralization of maintenance. Coordination between governorates and districts to minimize, as much as possible, the different makes of one type of vehicle or equipment will greatly facilitate maintenance and repair and the procurement and storing of spare parts.

- o O&M sub-committees are not yet formed in governorates except for Alexandria. Sub-committees should be formed with a limited number of members. TAC maintenance specialists should be invited to sub-committees meetings. O&M plans and activities should be coordinated between the various departments and officials.
- o Design of some facilities is handled by district technical staff with inadequate experience.

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## SECTION II

### NEEDS ASSESSMENT FOR CAIRO GOVERNORATE.

#### 1. THE ROLLING STOCK

The Cairo Governorate now consists of five zones and seventeen districts. A new district, namely El Tebeen to the south of Helwan District, may be added.

##### 1.1 Garage Construction and Renovation Program

During the NUS Project, a garage and workshop construction and renovations program was recommended and implemented. On June 9, 1988, a meeting was held in the CCBA to update this program. The meeting was attended by the CCBA Chairman, General Manager and other CCBA Officials. TAC advisors also attended. Subsequent modifications were made to the program. Table 5 shows the updated construction and renovation program and the current status of the program.

##### 1.2 Fleet Inventory and Status

CCBA possesses a large garbage collecting and rescue fleet most of which are CIP vehicles and equipment. Because of the lack of P.M., repair facilities and spare parts, the availability of this fleet is no more than 59%. Table 6 shows the inventory and status of the CIP fleet as of March 1989.

##### 1.3 Spare Parts and Warehouses

o Out of the Governorate investment plan in F.Y. 1988, an amount of \$ 2.3 million, equivalent to L.E. 5,336,000, was allocated for the upgrade of the CIP garbage collecting fleet. This amount is distributed approximately as follows:

purchase of imported spare parts;	L.E. 2,660,000
purchase of locally produced spare parts;	L.E. 1,500,000
repair of 100 Cummins engines in private sector workshops	L.E. 1,176,000
	-----
Total	L.E. 5,336,000

o While this is a very good start, the Governorate and districts will be in need of a continuous flow of spare parts to keep the fleet in good order.

o Existing spare parts warehouses are grossly inadequate in organization, staffing, size, condition and furnishings. Modern warehouses, properly equipped and staffed, with well trained personnel are badly needed. A proper inventory control system has to be developed. A special project to create an effective computerized system is being developed by the CCBA staff with TAC assistance.

##### 1.4 Vehicles and Equipment Replacements

o CIP fleet delivery started in 1979. Table 7 shows the deliveries:

Table 5  
Garage Construction and Renovation Program  
Status as of May 1989  
Cairo Governorate

Facility Name	Zone	Districts	Status	Remarks
A. Implemented -----				
1. Sayeda Nafissa Zonal Garage	West	Central and Abdeen	Completed	Zonal Workshop not yet Staffed or equipped.
2. El Mokattam Zonal Garage	South	South Misr El Kadima Maadi	Under Construction 70% complete	Maadi District Garage not yet contracted.
3. El Kassarat District Garage	North	El Zawya El Hamra District	Under construction 70% complete	-----
4. El Salam Zonal Garage	North East	East El-Salam	Under Construction 20% complete	-----
B. Planned but not yet Implemented -----				
5. El Nozha Zonal Garage	East	Heliopolis Nasr City	First stage will start in 1989.	A new site.
6. Helwan Zonal Garage	South	Helwan El Iebbeen	First stage will start in 1989.	The expansion of the existing site has to be officially assigned
7. El Waily District Garage	East	El Waily	First stage may start in 1989.	A renovation project.
8. Rod El Farag District Garage	North East	Zeitoun	First stage may start in 1989.	New project.
9. West District Garage.	West	West	Work may start in 1989.	A renovation project.
10. El Sahel District Garage.	North	El Sahel	Work to be completed in 1990	A renovation project.
11. Rod El Farag District Garage.	North	Rod El Farag	Work to be completed in 1990	A renovation project.

Sources: CCBA and TAC consultations.

Table 6  
Fleet Inventory and Status  
Cairo Governorate  
(as to March 1989)

Vehicle/Equipment Type	Total	In Operation	Need Repairs			% Available
			Level 1	Level 2	Level 3	
<b>Garbage Collection</b> -----						
Refuse truck, side loading	248	135	72	20	21	54
Refuse truck, rear loading	62	30	12	10	10	48
Refuse pick-ups	229	160	38	21	10	70
Refuse Carts	132	60	12	20	40	45
<b>Street Cleaning</b> -----						
Sweepers	10	6	1	2	1	60
Flushers	35	26	6	2	1	74
<b>Road Maintenance</b> -----						
Dump trucks	118	77	20	15	6	65
Bulldozers	9	4	-	2	3	44
Graders	3	3	-	-	-	100
Loaders	10	5	1	2	2	50
Asphalt cutters	2	2	-	-	-	100
Mastic mixers	10	5	2	3	-	50
<b>Utilities and others</b> -----						
Sewage truck	49	25	11	6	7	51
Recovery vehicle	2	2	-	-	-	100
10 ton lorry	1	1	-	-	-	100
<b>Total</b>	<b>920</b>	<b>541</b>	<b>175</b>	<b>103</b>	<b>101</b>	<b>59</b>

Source: Data provided by CCBA  
TAC field visits

**TABLE 7**  
**CIP FLEET DELIVERIES**  
**CAIRO GOVERNORATE**

<u>YEAR</u>	<u>NUMBER</u>	<u>TYPE</u>
1979	10	Leaches/IH, Refuse, 16 cubic yards.
	35	Truxmores/IH, Refuse, 23 cubic yards.
	46	Dump Trucks/IH
1981	25	Truxmores/IH, Refuse, 23 cubic yards
1982	36	Truxmores/IH, Refuse, 23 cubic yards
	10	Dump Trucks/IH
1983	36	Truxmores/IH, Refuse, 23 cubic yards
1984	44	Truxmores/IH, Refuse, 23 cubic yards
	36	Dump Trucks/IH
	44	Truxmores/IH, Refuse compaction, 2 cubic yards
1985	36	Cedec/Ford, Refuse, 23 cubic yards
	24	GMC, Refuse, 25 cubic yards
	77	GMC Refuse compaction, 2 cubic yards
	459	Total number of pieces.

Source: Governorate Records.

- o As the economic life of a vehicle is approximately 10 years, a vehicle replacement program has to be initiated. To replace the entire garbage collection fleet by 1996 will cost more than L.E. 90 millions which may not be covered by the LDII investment plan funds. Replacements included in Table 8 are for the already written off pieces and the urgent needs.

### **1.5 Preventive Maintenance and Repairs**

- o Paragraph 7 Section I indicates P.M. and repair levels and responsibilities. When the P.M. program was implemented in Central District, the district ran out of lubricants in only three months. The actual annual needs to implement effective P.M. in Cairo districts is estimated as L.E. 60,000 including lubricants, oils and fuel and air filters. Adequate budgets have to be allocated to achieve effective P.M.
- o It is planned that a 150 faulty Cummins engines will be overhauled. One hundred engines will be repaired in qualified private sector workshops. This will cover most of the accumulated faulty engines through the last years. A repair plan for the expected needed repairs should be prepared annually.

### **1.6 Garages and Workshops Management**

TAC has assigned two maintenance specialists to assist CCBA in organizing and managing El Sayeda Nafissa Zonal Garage. An adequate organization was proposed, approved and submitted to DOA for formal approval. O&M plans are prepared and implementation of these plans started. Although, there are shortages in staff, equipment, lubricants and spare parts, progress has been achieved and an increasing on-the-road availability of vehicles and equipment has resulted. Experience obtained in El Sayeda Nafissa Garage will be evaluated and then applied in the other newly constructed Zonal and District Garages.

### **1.7 Training**

In cooperation with CCBA and the TAC Training Group, a comprehensive training program consisting of the following courses is planned.

- o Garages and Workshops Management for engineers . It is a three weeks training course. The course was run once, 22 engineers attended this course. Two more courses are planned to be run in 1989
- o A Kardex System Warehousing course for spare parts engineers and storekeepers was run once in Cairo. Additional courses will be held.
- o Courses to upgrade skills of different craft trades is also planned and will be executed during 1989.
- o OJT will be carried out in garages, workshops, and zonal spare parts warehouses to upgrade skills of P.M. teams and spare parts storekeepers.

Table 8  
List of Vehicles and Equipment Needed  
in F.Y. 1989 to 1992  
Cairo Governorate

Items	Number of items		Total Number	Unit Price in L.E (Thousands)	Total Price in L.E. Thousands	Total Price In \$ * Thousands
	For districts (17 districts)	for Each zone				
<b>A. FOR ROAD SECTIONS IN DISTRICTS:</b>						
Motorcycle	1	-	17	3	51	-
Vibrating roller 4-6 tons	1	-	17	150	2250	970
Vibating roller 1.1/2 ton (all Walk behind type)	1	-	17	50	850	366
5 ton dump truck	2	-	34	50	1700	733
Air compressor complete with hoses & hammers	1	-	17	70	1190	513
Asphalt cutter	-	1	5	150	750	323
Mobile mastic mixer	1	-	17	20	340	147
Sub-Total For Road Equipment					7431	3,052
<b>B. GARBAGE COLLECTION VEHICLES &amp; EQUIPMENT:</b>						
Compactor dozers	3( for CCBA )		3	255	765	330
Refuse compacting Truck 25 Cu.yards	1	4(for CCBA)	21	250	5250	2,263
Refuse compacting Vehicle 5 Cu.yards	9( for CCBA )		9	70	360	155
Sub-Total For Garbage Collection					6645	2,748
Grand Total					14076	5,800

Source: CCBA needs reports.

\* US \$ change rate is L.E. 2.32

## 2. STREETS AND FOOTPATHS

### 2.1. The Governorate Road Directorate Paving Complex

- o The Road Directorate in Cairo Governorate has a well equipped paving complex in El Zawya El Hamra. The complex includes a 150 TPH asphalt mixing plant with all accessories. The plant is comparatively new and in very good working condition. The complex has what appears to be sufficient transport and paving equipment and vehicles.
  - o This complex provides for paving new roads, major road repairs, and for payment furnishing districts with asphalt mixtures for minor repairs and maintenance.
  - o The complex is not working at full capacity due to low skill levels and low pay scales. The budget does not provide adequately for purchase of spare parts and vehicle and equipment maintenance and repair .
  - o In March 1986, the Governorate Local Council approved a project to run the complex on a private sector management basis as a productive project. A special project to develop the complex was prepared and submitted to Cairo Governorate in December 1988 for approval processing. This special project will include:
    - developing the organization and management system of the complex;
    - the purchase of new equipment;
    - develop the road testing laboratory;
    - the repair of faulty vehicles and equipment and the purchase of needed spare parts.
  - o The complex is located in a heavily populated area. The complex pollutes this area with dust, fumes and smoke. Access to the complex is congested with traffic. The site is not adequate in size for the scope of operations required.
  - o Some time ago, it was proposed to transfer the complex to a site by the Cairo Autostrad on the outskirts of the City. A special project could be considered for the transfer of the complex to a more convenient and environmentally appropriate site. Such a project may include:
    - transfer the asphalt plant to the new site;
    - construct a new garage and workshop for vehicles and equipment.
- The current site may be made use of by either upgrading the adjacent garages and Central Workshop; or selling the site to the private sector or local inhabitants to cover part (may be all) of the cost of such a special project.
- o Although the complex has much good equipment , it is still in need of additional items. Table 9 shows the inventory and status of the paving complex fleet and equipment. The asphalt complex will need the following additional vehicles and equipment:

Table 9  
 Road Vehicles/Equipment Inventory  
 and Status  
 (In the Asphalt Paving Complex)  
 Cairo Governorate

Vehicles/Equip. Type	Total No.	Status		
		Operable	Medium Repair	Major Repair
Hot Asphalt Transport Tanker-Nasr	2	1	1	-
Concrete Mixer 1/2 cu mt	4	2	2	-
Tile Producing Machine	3	2	1	-
Concrete Curbstone Machine	1	1	-	-
Dump Trucks (15 tons)	10	9	1	-
Motor Graders	2	1	-	1
Rollers-Galion	2	-	1	1
Loaders	4	1	1	2
Mobile Workshop	2	2	-	-
Forklift	2	1	1	-
Bulldozers	2	2	-	-
Lorries- Fu 30	4	3	1	-
Loader-Dumper	1	1	-	-
Dumpers	2	2	-	-
Asphalt Cracker	2	-	1	1
Asphalt Removing Machine	1	1	-	-

Source: Technical Assistance Contractor and CCBA  
 Paving Complex-Road Directorate

- 2 asphalt finishers
- 4 vibrating rollers 3-6 tons
- 2 vibrating rollers 1.1/2 tons (or walk behind type)
- 10 dump trucks 10 tons
- 2 loaders /1 cubic meter
- 1 asphalt removing equipment(cold)
- 2 asphalt cutters

## 2.2 Road Maintenance Sections in District

- o Road maintenance sections in districts depend, for paving and major repairs, on annual contracts. Minor casual repairs are done by their own forces. Asphalt mixtures are obtained from the paving complex against payments from the Bab II budget.
- o Organization and staffing of road maintenance sections in districts is not adequate. A separate report and recommendation will be developed by TAC Road Specialist.
- o While districts have several pieces of equipment, they are short in special road maintenance and repair equipment. Equipment needs are:
  - motorcycles and/or bicycles 17, one for each district;
  - vibrating rollers 3-6 tons 17, one for each district;
  - vibrating rollers 1 1/2 ton 17, one for each district;  
(or walk behind type)
  - 5 tons dump trucks 34, two for each district;
  - asphalt cutter 5, one for each zone;
  - mobile mastic mixer 17, one for each district;
  - air compressor with hoses and pneumatic hammers 17, one for each district;

## 2.3 Road Maintenance Training

Road engineers, supervisors and labor need training. In cooperation with TAC Training Group and the Road Training Center in Nasr City, a complete training program is being developed to cover all training needs.

## 3. O&M PROPOSED ALLOCATIONS

- o As mentioned in section 1, the LDII project is placing great emphasis on O&M. A significant portion of the annual LDII-Urban allocations should go to O&M. In general a minimum of 40% of the Governorate's allocations and 35% of district allocations should go to O&M. Table 10 shows the 1989 LD II allocations for the Governorate and districts and the minimum allocations that should go to O&M activities and priority 1 sub-projects.

Table 10  
O&M Proposed Yearly Allocations  
in L.E.  
 Based on FY 1989 Allocations  
 (COE 10% included)  
 Cairo Governorate

Governorate/Districts	Total LD II Allocations	Proposed O&M Allocations
Governorate	5,324,000	2,129,600
1 Helwan	1,149,808	402,433
2 Heliopolis	721,603	252,561
3 West	705,252	246,838
4 Abdeen	909,442	318,305
5 Central	1,088,775	381,071
6 Waily	868,784	304,074
7 East	1,361,765	476,618
8 Zeitoon	1,419,708	496,898
9 South	1,004,487	351,570
10 Mis El Kadima	744,327	260,514
11 Rod El Farag	861,229	301,430
12 Shoubra	507,011	177,454
13 Nasr City	573,100	200,585
14 El Zawya	1,312,980	459,543
15 El Salam	673,873	235,855
16 Maadi	1,071,588	375,056
17 El Sahel	998,469	349,464
<b>Grand Total</b>	<b>21,296,000</b>	<b>7,719,869</b>

Source: TAC Recommendations.

- o **Table 11** Indicates proposed O&M activities and priority 1 sub-projects, and the allocations needed for each. Cost of activities and sub-projects is based on order of magnitude estimates which will be refined as individual sub-project or actions are further developed.
  
- o 25% of the total Governorate allocations is available in US dollars for the procurement of imported vehicles, equipment and spare parts. **Table 8** shows the proposed allocations for the proposed items to be imported and their approximate cost estimates.

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Table 11  
O&M Proposed Activities and Sub-Projects  
and Annual Budget Allocations  
For F.Y 1989 to 1992  
Cairo Governorate

	Items	Budget Estimates By FY In L.E. Thousands				Remarks
		89 *	90	91	92	
1.	Implementing Garages and Workshop construction and renovation program (see table 5).	2,130	1,600	800	1,160	Out of Governorate allocations
2.	Purchase of shop equipment and tools for new garages and workshops.	-	400	250	-	Out of Governorate allocations
3.	Purchase of office equipment and furniture for new garages and workshops.	-	-	150	200	Out of Governorate allocations
4.	Purchase of shelves, bins, Kardex boxes and cards for spare parts warehouses.	-	130	159	-	Out of Governorate allocations
5.	Purchase of imported spare parts for levels 2&3 repairs (medium and major repairs).	-	-	812	812	equivalent to US \$ 350,000 for each year, out of Governorate's dollar allocations (\$ 1 = L.E. 2,32)
6.	Purchase of locally produced spare parts for P.M.&level 1 repairs.	-	850	850	850	Out of Districts allocations. Each district will allocate L.E.50,000 yearly.
7.	Vehicles and equipment repair by contracting private sector specialized firms.	850	850	850	850	Out of districts allocations. Each district will allocate L.E 50,000 yearly.
8.	Procurement of road maintenance vehicles and equipment, and replacement of written off vehicles and equipment. **	4,740	3,890	3,890	3,890	equivalent to \$2.15 millions for FY 89 1.768 million for the other F.Y.S. See table 8.
Total Priority 1		7,720	7,720	7,761	7,762	

Source: TAC, O&M Recommendations based on discussions with CCBA officials.

\* Actual needs according to Governorate and Districts Investment Plan.

\*\* Actual needs as summarized in "Report of Working Group, Vehicles and Equipment Procurement for FY Investment Plan", Feb.1989. Prices modified for actual prices.

**NEEDS ASSESSMENT FOR  
ALEXANDRIA GOVERNORATE**

**1. THE ROLLING STOCK**

**1.1 Garage Construction Program**

Early in 1984, during the NUS Project, a study was made to define Alexandria's needs for new facilities. A special garages and workshops construction program was developed, financed and implemented. Table 12 shows the current construction program, allocations and status. By the completion of this program, the six districts and the emergency clean-up organization will have adequate facilities to park and maintain their fleets. Still the renovation of the Central Workshop and the Central Garages is badly needed. Renovation can start as soon as Mid-town and West Districts occupy their new facilities in Moharrem Bey Zonal Garage.

**1.2 Fleet Inventory and Status**

Alexandria Governorate possesses a large number of vehicles and equipment, most of which were procured through the CIP. Table 13 shows the inventory and status of this fleet. The on-the-road availability is low because of the lack of spare parts, effective PM, and planned regular repairs.

**1.3 CIP Fleet Upgrade Repair Special Project**

To upgrade the CIP fleet condition, a special project was developed and implementation started. The special project consists of the following:

- o an amount of L.E. 414,895 was allocated for the purchase of locally produced spare parts, mainly tires, batteries, hoods, hoses and paints;
- o an amount of L.E. 308,400 was allocated for a one-time repair program of faulty CIP vehicles and equipment in private sector specialized firms;
- o LE 304,195 was allocated for performing level "D" preventive maintenance by contracting with the concerned private sector companies;
- o the total amount allocated for this Special Project is LE 1,027,000.

**1.4 Spare Parts Inventory Control System**

A modern effective spare parts inventory control system is an urgent need. The Central Workshop was provided with a modern and well equipped spare parts warehouse working with the Kardex System. Moharrem Bey Zonal Garage will be provided with a similar warehouse.

**1.5 Preventive Maintenance and Repairs**

- o PM and repair levels are indicated in paragraph 7 of Section I.
- o A PM program has been established in the new Amreya District Garage. When implementing this program, the district ran out of lubricants in three months. Based on this experience, adequate budget (out of Bab II allocations) has to be allocated to cover the procurement of lubricants, oils filters and other spare parts needed for PM.

Table 12

Garage Construction Program  
Alexandria Governorate

As of May 1989

Name of Facility	Districts	Total Allocations	Status
1. Ras El Soda Garage	El Montaza	547,981	Completed, some construction defects to be corrected
2. El Amreya Garage	El Amreya	988,690	Completed, some storehouse equipment to be furnished
3. Moharrem Bey Zonal Garage	Mid-town West Gomrok	1,849,152	Under construction 75 % complete
4. Semouha Garage	East	987,000	Contract awarded Work on site not started
5. Fuel Stations equipment		78,000	Erected (except Semouha Garage)
6. Shop furniture, tools, equipment and fire fighting equipment for garages		565,500	Supplied
Total		5,016,323	

Source: TAC and Alexandria Governorate's Data

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Table 13

Fleet Inventory and Status  
Alexandria Governorate

(as of March 1989)

Vehicle/Equipment Type	Total	in operation	Need Repair			% available
			Level 1	Level 2	Level 3	
Garbage Collection -----						
Refuse truck, side loading	103	64	16	8	15	62
Refuse truck, rear loading	62	36	3	11	12	58
Refuse carts	33	13	8	7	5	39
Street Cleaning -----						
Sweepers	7	5	1	1	-	71
Flushers	15	14	1	-	-	93
Road Maintenance -----						
Dump trucks	17	15	2	-	-	88
Bulldozers	12	5	2	3	2	42
Loaders	22	10	7	3	2	45
Rollers	6	4	1	1	-	67
Compressors	6	5	1	-	-	83
Low bed trailer	1	1	-	-	-	100
Others -----						
Telescopic crane	2	1	1	-	-	50
Lorry	2	1	1	-	-	50
Totals	288	174	44	34	36	60

Source: Data provided by Housing Department  
TAC field visits and it carried out by TAC

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- o The one-time repair of the CIP fleet mentioned in paragraph 1.3 will cover the repair of a major portion of the accumulated faulty vehicles and equipment. A repair plan for the existing and expected repair needs should be prepared and adequate funds budgeted.

**1.6 Vehicles and Equipment Replacements**

- o The CIP fleet deliveries started in 1979. Table 14 shows the deliveries:

Table 14

**CIP FLEET DELIVERIES**

**ALEXANDRIA GOVERNORATE**

<u>YEAR</u>	<u>NO</u>	<u>TYPE</u>
1979	45	Truxmore, IH Refuse, 23 cubic yards
1982	32	Leaches, IH Refuse, 16 cubic yards
1984	4	Dump Trucks, IH, 12 tons
1985	35	Truxmore, IH, Refuse, 23 cubic yards
	4	Ford Dump Truck, 12 tons
	3	Sweepers, Elgin, IH
1986	30	Leaches, IH, Refuse, 16 cubic yards
	5	Dump Truck, IH, 12 tons
1987	25	Truxmore, IH, Refuse, 23 cubic yards
	4	Sweepers, IH, Elgin
	4	Dump Trucks, Ford, 12 tons
	<u>15</u>	Street Flushers, Ford

**206** Total number of pieces.

Source: Governorate records.

- o The economic life of a vehicle or equipment is approximately ten years. Vehicle and equipment replacements have to start taking place, especially for the 1979 deliveries.
- o Garbage collection vehicles and equipment replacements are discussed and covered in the "Solid Waste Management Strategy Plan" developed by TAC. To replace the whole fleet will consume a large amount of money that may not be covered by the LDH investment funds. Replacement of already written off vehicles and urgent needs are included in Table 15.

**1.7 Garages and Workshops Management**

- o TAC proposed organization charts and staffing for district garages, zonal garages, zonal workshop and the Central Workshop. The organizations were submitted to officials for consideration and to take measures to get formal approval of DOA.
- o As soon as Amreya District Garage moved in the new facility, TAC assigned a maintenance specialist to assist the garage manager in organizing and managing the facility. Operation and maintenance plans were prepared and implementation started. The garage is still short in some key trades. Significant progress has

TABLE 15

O&M Proposed Activities and Sub-projects  
and Annual Budget Allocations  
Alexandria Governorate  
For FY 1989 to 1992

ITEMS	Budget Estimates by FY in LE Thousands				REMARKS
	1989	1990	1991	1992	
1. Upgrading and renovation of the Central Workshop, including purchase of shop equipment and tools.	-	850	-	500	out of Governorate allocations
2. Renovation of a vacated district garage to be used by the Road Directorate and the purchase of shop equipment and tools.	-	-	450	-	out of Governorate allocations
3. Purchase of an asphalt testing lab equipment and tools.	-	-	40	-	out of Governorate allocations
4. Purchase of imported spare parts for levels 2 and 3 repairs (medium and major repairs) for the fleet).	-	348	348	348	equivalent to US\$ 150,000 for each year, and out of the Governorate's allocations. (\$ 1 = L.E. 2.32)
5. Purchase of locally produced spare parts for PM and level 1 repairs	300	300	300	300	out of district's allocations, each district will allocate L.E. 50,000 yearly.
6. Purchase of locally produced spare parts for PM and level 1 repairs of the emergency clean-up fleet	-	70	70	70	out of Governorate allocations.
7. Major repairs for the fleet in specialized private sector workshops to upgrade the fleet condition.	300	300	300	300	out of districts allocations, depending on the condition of the district fleet, each district will allocate LE 50,000.
8. Procurement of road maintenance and garbage collection vehicles and equipment (see table 17) *	2,984	1,734	2,094	2,084	Total amount for 4 years is LE 8,895 thousands out of governorate and districts allocations. Procurement will be in US\$.
Totals	3,584	3,602	3,602	3,602	

Source: O&M Recommendations based on F.Y. 89 Investment plans.

\* Actual needs as summarized in "Report of Working Group, Vehicles and Equipment Procurement for F.Y. Investment Plan, "Feb. 89. Prices modified for actual costs.

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been achieved. On the road availability is increasing. It is up to 78% as of the end of May 1989.

- o Experience obtained in El Amreya Garage will be evaluated and then applied to other newly constructed facilities in Alexandria.

## 1.8 Training

A comprehensive training program has been developed in cooperation with TAC Training Group and Alexandria Governorate concerned officials. Implementation of this training program, which includes the following courses, has started.

- o A three week course on "Garages and Workshops Management" for engineers has run once in Alexandria. Twenty two engineers attended and successfully completed the course. This course will be run once more.
- o A course on "Kardex System Warehousing" was also developed. It was run once. Twenty four engineers and storekeepers attended. It is planned to run this course once more.
- o An OJT on "Kardex System Warehousing" took place in the Central Workshop in May 1989. Further OJT will be needed on the occupation of Moharrem Bey Zonal Garage.
- o To upgrade skills of supervisors, repair and PM crews, training is planned to be run by specialized governmental and private sector training agencies. PM training will take place in new garages and workshops.

## 2. STREETS AND FOOTPATHS

### 2.1 Organization

Road construction and maintenance elements in Alexandria are organized in a Road Directorate at the Governorate level and Road Sections at District level. For construction of new streets and major repair work, they depend on road construction contractors. For casual and minor repairs, annual contractors are given the job. Although Alexandria Governorate owns six air compressor and six vibrating rollers and several dump trucks, no repairs are done by force account. The main responsibility of the road directorate is to award and supervise contractors. Organization, staffing and equipping of the road directorate and sections are not adequate, and need to be reviewed. A separate report and recommendations will be developed by TAC road specialist.

### 2.2 Equipment Needs

To upgrade the road maintenance elements to be able to carry out minor repairs and the maintenance of footpaths, the Governorate needs the following equipment:

- o Motorcycles/bicycles, 7, one for each district and the directorate;
- o Vibrating rollers 3-6 tons, 6, one for each district;
- o Vibrating roller 1 1/2 tons (or walk behind) 6, one for each district;
- o Mobil mastic mixers, 6, one for each district.

### **2.3 Road Maintenance Training**

Road engineers, supervisors, operators and labor need training. In cooperation with the Road Directorate and TAC Training Group, a comprehensive training program is being developed to cover all training needs.

### **3. O&M PROPOSED ALLOCATIONS**

- o As mentioned in Section I, great emphasis is placed on O&M in the LD-II Project. A significant portion of the annual LD-II allocations should go to O&M. In general a minimum of 40% of the Governorate's allocation, and 35% of the Districts' allocations should be allotted for O&M activities and priority I sub-projects. Table 16 indicates the 1989 LD-II allocations for Governorate and districts, and the minimum amounts that should be allotted to O&M.
- o Table 15 shows the proposed O&M activities and priority I sub-projects, and the allocations needed for each. Cost of activities and sub-projects is based on order of magnitude estimates which have to be refined as individual actions or sub-projects are further developed.
- o 25% of the total Governorate annual allocations is available in US dollars for the procurement of imported vehicles, equipment and spare parts. The proposed US dollars allocation items to be imported and their approximate cost estimates are shown in Table 17.

**TABLE 16**  
**Q&M PROPOSED YEARLY ALLOCATIONS**

**IN LE**

**Based on FY 1989 Allocations**

**(GOE 10% included)  
 Alexandria Governorate**

<b><u>Governorate/Districts</u></b>	<b><u>Total LD-II Allocations</u></b>	<b><u>Minimum O&amp;M Allocations</u></b>
Governorate	2,541,000	1,016,400
East District	1,349,779	472,423
Mid-town District	1,305,871	457,055
West District	1,135,268	397,344
El Amreya District	1,343,833	370,341
El Montaza District	1,475,559	516,445
El Gomrok District	1,012,690	354,441
Grand Totals	10,164,000	3,584,449

Source: TAC Recommendations

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TABLE 17

VEHICLES AND EQUIPMENT TO BE  
PROCURED IN FY 1989 THROUGH 1992

Alexandria Governorate

Item	No. of Pieces	Unit Cost In LE Thousands	Total Cost Estimate (\$ 1 = L.E. 2.32)	
			In LE Thousands	In \$ Thousands
<b>A. FOR CIP VEHICLES &amp; EQUIPMENT REPLACEMENT</b> -----				
1. Refuse truck, rear loading	9	220	1,980	853
2. Garbage collection pick-ups	30	60	1,800	776
3. Dump trucks (10 ton)	4	150	600	259
4. Road Sweepers	4	220	880	379
5. Loaders, 1 cubic meter	10	180	1,800	776
Sub-totals			7,060	3,043
<b>B. ROAD MAINTENANCE VEHICLES AND EQUIPMENT</b> -----				
1. Vibrating rollers, 1 1/2 ton (or walk behind type)	6	15	90	39
2. Loaders, 1 cubic meter	2	180	360	155
3. Grader	2	150	300	129
4. Air Compressors complete with hoses and pneumatic hammers	2	70	140	60
5. Dump trucks (10 tons)	2	150	300	127
Sub-total			1,190	512
Grand Total			8,250	3,555

Source: O&M Recommendations based on F.Y. 89 Investment Plan. Quantities modified for actual prices

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## NEEDS ASSESSMENT - GIZA GOVERNORATE (Giza City)

### 1. THE ROLLING STOCK

The urban part of Giza Governorate, Giza City, consists of four districts namely North, South, Central and West. A fifth district, El Haram, will be formed in the near future.

Giza Cleaning and Beautification Authority (GCBA) is responsible for operating and maintaining the clean-up fleet in Giza City, while Giza City is responsible for transport and utilities fleets.

#### 1.1 Governorate Fleet

Giza Governorate (urban part) owns a large number of vehicles and equipment. Estimated values of this fleet is about LE 90 millions. Good care of this fleet is very essential. Table 18 shows the inventory and status of the fleet. To improve on-the-road availability, effective maintenance and repair must be well planned and implemented. Adequate and well equipped and staffed facilities have to be built.

#### 1.2 Existing Garages and Workshops

- o GCBA has a garage and a central workshop in Bein El Sarayat area where all of the garbage collection fleet parks. The garage is overcrowded and exposed to hazards, especially fire. A small fire could result in a disaster for the whole area of Bein El Sarayat. A large number of vehicles and equipment park in the streets around the facility.
- o An amount of LE 692 thousands was allocated for upgrading this facility. As this facility is overcrowded, upgrading went on slowly and the quality of construction was poor.

#### 1.3 Proposed Garages and Workshops Program

Early in May, after lengthy prior discussions and investigations with the Giza City Mayor, the GCBA Chairman and other Local Government officials, a meeting was held in the Governor's office to discuss the garages and workshops situation in Giza. The Governor asked the TAC, in cooperation with GCBA Chairman, to develop an adequate garage and workshop construction program. On May 31, another meeting attended by the GCBA Chairman, Giza Project Implementation Coordinator and TAC Team was held and the following program for sites available to GCBA was agreed upon.

- o Construct a new facility on an area of approximately 30,000 square meters, adjacent to the composting plant by the Cairo Alexandria Desert Road. The facility will contain:
  - a parking area for vehicles and equipment that will serve both West and El Haram Districts;
  - one fuel station;
  - a zonal workshop to carry out PM levels A, B and C, and level 1 repairs;

Table 18

Fleet Inventory and Status  
Giza Governorate

(as of March 1989)

Vehicle/Equipment Type	Total	In Operation	Need Repair			% available
			Level 1	Level 2	Level 3	
Garbage Collection -----						
Refuse truck	85	45	15	12	13	53
Refuse pick-ups	60	55	2	3	-	92
Refuse carts	36	20	-	7	9	56
Dump trucks	117	68	7	12	30	58
Compactor dozer	3	3	-	-	-	100
Street Cleaning -----						
Sweepers	29	19	4	6	-	66
Flushers	26	20	1	3	2	77
Road Maintenance -----						
Dump Truck	28	21	-	-	7	75
Bull-dozers	2	1	-	1	-	50
Graders	7	5	-	1	1	71
Loaders	34	27	2	3	2	79
Rollers	22	20	-	2	-	91
Asphalt cutter	4	4	-	-	-	100
Finisher	1	1	-	-	-	100
Mobile asphalt mixer	6	3	-	3	-	50
Utilities and Others -----						
Sewage truck	37	28	2	5	2	76
Excavator	1	1	-	-	-	100
Crane	6	4	-	2	-	67
Fork lift	3	2	-	1	-	67
Transport vehicle	25	20	-	3	2	80
Lorry	19	14	-	3	2	74
Pick-ups	186	146	10	15	15	78
Tractor	2	2	-	-	-	100
Lighting tower truck	13	11	-	2	-	85
Totals	749	540	43	81	85	72

Source: Data provided by GCBA officials. TAC field visits.

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- a central warehouse working with a modern Kardex system.
- o Construct a new facility on an area of 15,000 square meters within the assigned area (714 feddans) for a new landfill in Bani Youssef. This facility will include:
  - a parking area for vehicles and equipment that will serve South District;
  - one fuel station;
  - one serve station; and
  - a small workshop to carry out PM levels A, B, and C and level 1 repairs.
- o Develop Giza Garage (Bein El Sarayat) to accommodate:
  - vehicles and equipment that serve both Central and North Districts;
  - a fuel and service station;
  - a zonal workshop to carry out PM level A, B, C and D and repair levels 1 and 2;
  - a zonal spare parts warehouse.

#### 1.4 Vehicles and Equipment Replacement

The first shipment of the CIP fleet was received in 1979. Table 19 shows the CIP deliveries:

**TABLE 19**  
**CIP FLEET DELIVERIES**  
**GIZA GOVERNORATE**

<u>YEAR</u>	<u>NO</u>	<u>TYPE</u>
1979	15	Truxmores, IH, 23 cubic yards
	25	Dump Trucks, IH, 12 tons
1980	10	Sweepers, IH
	10	Dump Trucks, IH, 12 tons
	8	Flushers, IH
	7	Lighting Tower Truck, Ford
	2	Truck (fitted with a 3 t crane), Mack
	8	Refuse Truck, Mack 25 cubic yards
1983	3	Loaders, J.D.
	8	Loader, IH
1984	6	Asphalt mixer (10 TPH)
	9	Sweepers, G.M.C.
1986	60	Refuse pick-up, Ford 6 cubic yards
	3	Sewage truck, Ford
	2	Bulldozers, REX
	4	Graders, Galion
1987	7	Lighting Tower Truck, Ford
	6	Sewage Truck, Ford

193 Total number of pieces

Source: Governorate records.

- o Replacement of the 1979 shipment is due, as the economic life of these vehicles and equipment is approximately 10 years.

### **1.5 Garages and Workshops Management**

- o It is essential to develop management systems in GCBA garages and workshops. Inadequate organizations, insufficient staff, and lack of PM and repair planning adversely effect the performance of the Giza Garage.
- o To implement the proposed garage and workshop program detailed herein, it is essential to develop new organizations and staffing tables for the three proposed facilities. TAC specialists will work closely with GCBA officials on this issue. Developed organizations have to be sent to DOA for formal approval.

### **1.6 Training**

- o There is a great need to train garage and workshop managers. Operation, PM and repair planning and implementation will be main topics in this training.
- o Upgrading skills of PM and repair teams is essential.
- o In cooperation with GCBA and TAC Training Group, a comprehensive training program has been developed. Implementation started in May by running a course on "Garages and Workshops Management for Engineers".

## **2. STREETS AND FOOTPATHS:**

### **2.1 Organization**

Road construction and maintenance elements are organized in a Road Department at the city level, and Road Sections in districts. The Road Department is responsible for preparing bid documents, awarding and supervising construction and repair contracts. Casual and minor repairs are done by Road Sections in districts.

### **2.2 Maintenance Facilities**

There are no garages or workshops for the road fleet in the city and districts. There is not enough road maintenance equipment. Table 18 shows the inventory and status of the road maintenance fleet in the city and districts. It is recommended that when the proposed GCBA facilities are constructed, road equipment will park and be serviced and repaired in these facilities.

### **2.3 Organization and Staffing**

TAC Road Specialist is preparing a detailed study and recommendations to develop and upgrade the organization, staffing, equipment and performance of road elements in Giza City.

### **2.4 Training**

In cooperation with TAC Training Group and the Road Training Center in Nasr City, a complete training program is being developed. It will cover the following:

- o management and road engineering technical training for engineers and supervisors;
- o upgrade equipment operator's skills;

- o OJT to upgrade road labor skills.

3. O&M PROPOSED ALLOCATIONS:

- o As great emphasis is placed on O&M actions and priority I sub-projects, it is recommended that a minimum of 40% of the Governorate's allocations, and 35% of the Districts' allocations go to O&M. Table 20 indicates the 1989 LD II allocations for the governorate and districts, and the minimum amounts that should be allocated to O&M.
- o Table 21 shows the proposed O&M actions and sub-projects, and estimated cost for each. Costs are based on order to magnitude estimates that will be refined as individual actions or sub-projects are further developed.
- o 25% of the total Governorate allocations is available in US dollars for the procurement of imported vehicles, equipment and spare parts. This amount is LE 1,936,000 equivalent to \$ 834,500 (at a rate of exchange of 1 dollar equal L.E. 2.32). Table 22 includes items to be imported and their approximate cost estimates.

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Table 20

O&M PROPOSED YEARLY ALLOCATIONS  
 IN LE  
 BASED ON FY 1989 ALLOCATIONS  
 (GOE 10% INCLUDED)

GIZA GOVERNORATE

Governorate/District	LDII Allocations	Minimum O&M Allocations
Governorate	1,936,000	774,400
North	1,300,002	455,001
South	1,300,002	455,001
West	2,207,997	772,799
Central	999,999	349,999
Totals	7,744,000	2,807,200

Source: TAC Recommendations

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Table 21

O&M Proposed Activities and Sub-projects  
and Annual Budget Allocations  
For FY 1989 to 1992

Giza Governorate

Item	Budget Estimates by FY in LE Thousands				Remarks (\$ 1 = L.E. 2.32)
	1989 *	1990	1991	1992	
1. Implement the proposed garage program for GCBA	1,500	1,500	1,500	1000	Priorities will be decided by GCBA depending on available site. Allocations will change accordingly
2. Equip the service station in Imbaba City Garage and maintenance of the administrative building and workshops	150	-	-	-	Out of the City allocations.
3. Procurement of locally produced spare parts for the repair of the fleet	220	220	440	220	Out of Governorate allocations. Total amount LE 1,100,000 equivalent to \$ 474,000
4. Procurement of locally produced spare parts:					
o for GCBA	172	150	150	150	Out of Governorate allocations.
o for Districts	100	100	100	100	Out of Districts allocations.
5. Repair of faulty CIP vehicles and equipment by contracting private section specialized firms					
o for GCBA	150	100	100	150	Out of Governorate allocations
o for Districts	75	75	75	100	Out of Districts allocations.
6. Procurement of vehicles and equipment for GCBA, Districts and Road Department * *	1,440	662	442	1,087	The sum is LE 3,631,000 equivalent to \$ 1,565,000

Source: TAC O&M recommendations based on discussions with GCBA and Giza City Officials.

\* Actual needs. May be changed according to availability of new sites for new garages.

\* \* Actual needs as summarized in "Report of Working Group, Vehicles and Equipment Procurement for F.Y. 89 Investment Plan", February 1989. Prices modified for actual costs.

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Table 22

Vehicles and Equipment to be  
Procured in FY 1989 to 1992

Giza Governorate

Item	No. of Pieces	Unit Price in L.E Thousands	Total Estimated Cost in LE Thousands	Remarks (\$ 1 = L.E. 2.32)
1. Refuse compacting vehicles 25 CU. yards rear loading	8	250	2000	For GCBA replacement
2. Dump Truck (tons)	16	50	800	For GCBA replacement
3. Graders	3	150	450	Items 3,4 and 5 are for road maintenance department and sections
4. Asphalt Cracker	1	150	150	
5. Compressor complete with hoses and pneumatic hammers	3	70	210	
Total	31	-	3610	Equivalent to \$ 1,556,000

Source: O&M recommendation based on F.Y. 89 Investment Plan. Quantities modified for actual prices.

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## NEEDS ASSESSMENT FOR QALIUBIA

### GOVERNORATE

#### Shoubra El Kheima City

## 1. THE ROLLING STOCK

The urban part of Qaliubia Governorate consists of Shoubra El Kheima City and its two districts, namely East and West.

### 1.1 City Fleet

The City and Districts possess a large number of vehicles and equipment, most of them were obtained through the CIP. Inventory and status of this fleet is shown in Table 23. A significant portion of this fleet needs repairs. Only 60% of the fleet is available for on the road use.

### 1.2 Existing Conditions

During the NUS Project, a special project costing LE 240,000 was implemented to renovate, upgrade and equip the City Central Garage. Although the garage and workshop are in good order, it can hardly accommodate the city fleet. West District vehicles and equipment park in the streets around the garage. West District has no garage or workshop, while East District has a small garage of an area of about 1000 square meters, poorly built and equipped. Neither water, electrical supply, nor sewerage are available to the site.

### 1.3 Shoubra El Kheima Two Story Garage

- o After lengthy investigations and discussions, a site of an approximate area 7300 square meters was found to be the only available site for East District. HE the Qaliubia Governor decided to construct a two story garage on this site to include:
  - a district garage and workshop for East District;
  - a central maintenance center for Shoubra El Kheima City that could render services to public and private sector against payment, to raise some revenue to support maintenance of the City fleet;
  - a modern central spare parts warehouse.
- o The O&M Team prepared a preliminary study for this project that was submitted to HE the Governor. HE retained a team of consultants to prepare a technical and economical feasibility study for the project. He also allocated an amount of LE 1.5 millions out of his Investment Plan allocations for FY 1989 to start construction. TAC specialists are monitoring the preparation of the feasibility study.
- o The existing City Garage will be left to West District after constructing the new two story garage mentioned above.

Table 23

Fleet Inventory and Status  
Qaliubia Governorate

(as of March 1989)

Vehicle/Equipment Type	Total	In Operation	Need Repair			% available
			Level 1	Level 2	Level 3	
Garbage Collection .....						
Refuse truck	8	5	1	1	1	63
Refuse costs	20	11	2	3	4	55
Road Maintenance .....						
Dump trucks	17	10	3	2	2	59
Bulldozer	3	2	-	1	-	67
Grader	2	1	-	-	1	50
Loader	8	5	1	1	1	63
Roller	1	1	-	-	-	100
Compressor	1	1	-	-	-	100
Asphalt mixing plant	1	-	-	-	1	0
Utilities and Others .....						
Sewage truck	20	10	4	4	2	50
Fork lift	2	2	-	-	-	100
Lorry	3	2	-	1	-	67
Lighting tower truck	2	2	-	-	-	100
Tractor	4	3	-	1	-	75
Totals	92	55	11	14	12	60

Source: Data provided by Shoubra El Kheima City officials. TAC field trips.

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#### **1.4 Spare Parts and Warehouse**

- o The City has an inadequate spare parts warehouse adjacent to the central workshop.
- o The City is in need of a system of inventory control to include:
  - a central spare parts warehouse in the proposed two story garage;
  - two districts spare parts warehouses in the districts garages;
  - furnishing the warehouse with bins, shelves and Kardex files;
  - training of engineers and store keepers.

#### **1.5 Vehicles and Equipment Purchase**

Shoubra El Kheima City and its two districts need to increase their garbage collection fleet. Equipment acquisition has to be coordinated with the Solid Waste Management plans and projects developed by TAC Solid Waste Management Group. Table 24 shows the urgent needs for new vehicles and equipment and the estimated costs.

#### **1.6 Garages and Workshops Management**

- o To develop operation and maintenance management in Shoubra El Kheima, the current organization has to be reviewed to suit the new proposed garages and workshops system. Pay scales for engineers and skilled labor are very low, and do not encourage new comers to join the garages and workshops.
- o It is intended to managed the new maintenance center on the basis of private sector management. To implement this concept, there are two options that will be considered:
  - to lease the maintenance center to a private sector company or individual capable of managing such workshops; or
  - to form a specialized organization that would work on a private sector management basis and be freed from governmental management regulations and systems.

#### **1.7 Training**

In cooperation with TAC Training Group, a comprehensive training program was developed. Implementation started. This program consists of:

- o a three week course in "Garages and Workshops Management for engineers";
- o a "Kardex System Warehousing" course for spare parts engineers and store keepers;
- o upgrading skills of different trades;
- o OJT performed in garages and spare parts warehouses to upgrade skills of PM 'ams and spare parts store keepers.

## 2. STREETS AND FOOTPATHS

### 2.1 Organization

The Road Department in Shoubra El Kheima City is responsible for all paving and road maintenance in the entire City. There are no Road Sections in districts. The department mainly depends on contractors for paving and major road repairs. The Road Department is newly formed. There is no formal organization for this department.

### 2.2 Facilities

The TAC Road Specialist is preparing a detail study and recommendations to develop and upgrade the organization, staffing, equipping and performance of road elements in Shoubra El Kheima. The Department has an old asphalt mix plant. The Head of the Road Directorate in Qaliubia Governorate stated that it is much cheaper to buy ready made mixtures, and decided not to repair or use this old plant.

### 2.3 Equipment

The Road Department is in need of road maintenance equipment. Inventory and status of road equipment are shown in Table 23. Additional needs and their cost estimates are shown in Table 24.

### 2.4 Training

In cooperation with TAC Training Center in Nasr City, a complete training program is being developed to include the following:

- o management and road engineering technical training for engineers and supervisors;
- o upgrade equipment operator's skills; and
- o OJT to upgrade road labor skills.

## 3. O&M PROPOSED ALLOCATIONS

- o LD-II is placing great emphasis on O&M activities and sub-projects. It is recommended that a minimum of 40% of the Governorate allocations, and 35% from District allocations go to O&M. Table 25 indicates the 1989 LD-II allocations for Governorate and Districts, and to minimum amounts that should be allocated for O&M.
- o Table 26 shows proposed actions and sub-projects and the estimated cost of each for the years 1989 through 1992. Cost estimates are based on order to magnitude that will be refined as individual actions or sub-projects are further developed.
- o Out of the total allocations in Qaliubia, 25% is available in US \$ for the procurement of imported vehicles, equipment and spare parts. This amount is LE 968,000 equivalent to 417,241. Table 24 includes items to be imported and their approximate cost estimates.

TABLE 24

Vehicles, Equipment and Spare Parts  
To be Procured in FY 1989 to 1982  
Shoubra El Kheima City

Item	No. of Pieces		Total No.	Unit Price LE 1,000	Total Cost (Estimated) L.E. 1,000	Remarks ( \$ 1 = L.E. 2.32)	
	East	West					
CLEANING EQUIPMENT							
1. Refuse compacting pick-up	3	3	6	70	420	for districts	
2. Dump vehicle 5 tons	1	-	1	50	50		
3. Loader 1.5 cubic meter	1	1	2	150	300		
4. Vacuum truck	2	1	3	200	600		
5. Imported spare parts	-	-	-	-	265		
ROAD MAINTENANCE EQUIPMENT							
6. Vibrating roller 6-8 tons	-	-	2	150	300		
7. Vibrating roller 1.5 tons (or walk behind type)	-	-	3	50	150		
8. Asphalt cracker	-	-	2	150	300		
9. Dump truck (5 tons)	-	-	3	50	150		
10. Motor grader	-	-	2	150	300		
Totals	7	5	24	-	2835	equivalent to \$ 1,222,000	

Source: O&M recommendation based on F.Y. 89 allocations.

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TABLE 25

O&M PROPOSED YEARLY ALLOCATIONS IN LE  
Based on Fy 1989 Allocations  
(GOE 10% included)  
Shoubra El Kheima City

Governorate/District	LD-II Allocations	O&M Allocation
Governorate	968,000	387,200
East	1,452,000	508,200
West	1,452,000	508,200
Totals	3,872,000	1,503,600

Source: TAC recommendations

nm/O&MNA25

TABLE 26

-----  
 O&M Proposed Activities and Sub-projects  
 and Annual Budget Allocations  
 For FYs 1989 to 1992  
 Shoubra El Kheima City

Item	Budget Estimates by FY in LE Thousands				Remarks (\$ 1 = L.E. 2.32)
	89 *	90	91	92	
1. Construction of a two story garage to include East District garage and workshop and a maintenance center.	1,016	1,016	700	800	LE 508,000 will be paid out of allocations of each district for FY 89 & 90, 350,000 for FY 91 and 400,000 for FY 92 (per HE the Governor).
2. Shop equipment and tools purchase to upgrade West District Workshop.	30	-	-	-	Out of West District funds.
3. Purchase of locally produced spare parts.	75	50	45	75	Out of district funds.
4. Medium and major repairs needed by contracting specialized private sector firms.	95	40	45	45	Out of district funds.
5. Purchase of clean-up and road maintenance vehicles and equipment.	687	812	693	563	Out of district funds. The sum is L.E. 2,755,000 equivalent to \$ 1,187,500
Grand Totals	1,903	1,918	1,503	1,503	

Source: TAC recommendations based on F.Y. 89 investment plan.

\* Actual allocations subject to changes depending on progress in implementing the two story garage project.

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## NEEDS ASSESSMENT - SUEZ GOVERNORATE

### 1. THE ROLLING STOCK

The Suez Governorate consists of four districts, namely El Arbaeen, El Suez, Ataka and El Ganayen.

#### 1.1 Existing Conditions

Except for El Suez District, the existing garages and workshops are old, poorly designed and ill equipped. The same is true for the Governorate's Central Garage and Workshop. El Ganayen District is a newly formed district and has neither garage nor workshop facilities.

- o As El Suez Governorate joined the LD-II project in 1988 and is in great need of other basic services, small amounts of money were allocated out of the LD-II grant for the priority 1 operation and maintenance sub-projects. Greater amounts should be allocated for O&M activities during the next three years.
- o The Suez Governorate and districts possess a large number of vehicles and equipment, but only about 55% of this fleet is in operation. Preventive and corrective maintenance are neither well planned nor performed. Lack of well equipped and staffed workshops and a shortage of spare parts are the main reasons. Table 27 shows the inventory and status of vehicles and equipment in the Governorate.

#### 1.2 Suez Maintenance Center

To upgrade the condition of the Governorate's fleet, HE the Suez Governor proposed the construction and equipping of a maintenance center in Suez to carry out annual PM (level D), and medium and major repairs (levels 2 & 3) for vehicles and equipment. HE committed the Governorate to lease this center to the private sector for operation and management. A special project was prepared and submitted to the Governorate for reviewing and to obtain the approval of the ULDC. This Special Project is anticipated to cost LE 620,000.

#### 1.3 Existing Garages and Workshops and the Current Construction and Upgrading Program

- o El Ganayen District assigned an adequate site for the construction of a district garage and workshop. Layouts have been reviewed by TAC specialists. The District allocated LE 138,000 out of the 1989 investment plan. Larger amounts should be allocated for the following three years. The construction of this garage will cost about LE 800,000.

TABLE 27

-----  
 Total Fleet, Inventory and Status  
 Suez Governorate  
 as of March ( 1989)

Vehicle/Equipment Type	Total	In Operation	Need Repair			% Available
			Level 1	Level 2	Level 3	
Garbage Collection -----						
Refuse trucks	10	6	-	2	2	60
Tractors	30	14	4	6	6	47
Street Cleaning -----						
Sweepers	3	1	1	1	-	33
Flushers	8	3	1	-	4	38
Road Maintenance -----						
Dump Trucks	25	12	3	4	6	48
Bulldozers	6	3	-	2	1	50
Graders	5	3	-	1	1	60
Loaders	9	6	2	-	1	67
Rollers	5	2	1	1	1	40
Finishers	1	1	-	-	-	100
Asphalt mixing plant	1	1	-	-	-	100
Utilities and Others -----						
Cranes	4	2	1	1	-	50
Lorries	30	18	3	4	5	60
Pick-ups and Transportation	72	43	6	8	15	60
Totals	209	115	22	30	42	55

Source: Data provided by Governorate officials.  
 TAC field trips

- o Suez District Garage is in a good condition. It still needs a new service station for washing and lubrication of vehicles and paving the parking area.
- o Ataka District Garage, although in a good shape, needs the upgrading of the service station, the workshops and the administrative building.
- o El Arbaeen District garage is poorly built. The site is very small. It has been agreed that the garage area should be expanded and complete renovation and upgrading undertaken. O&M specialists are working jointly with the district in planning these renovations.
- o Upgrading of the Central Garage and Workshops is also needed. Fuel and service stations are planned to be executed in 1989. Other renovations will take place in the following years.

#### 1.4 Maintenance Support and Equipment Needs

- o All workshops are in need of shop equipment and tools to upgrade the districts' capabilities in performing PM and repairs.
- o Suez Governorate needs to increase its cleaning fleet and to replace old scrapped equipment

#### 1.5 Garages and Workshops Management

- o While implementing the current garage and workshop construction and upgrading programs, management system need to be developed. Operation and maintenance must be planned and performed precisely to improve the condition and availability of the Governorate fleet.
- o Adequate organizations and staffing should be developed and sent to DOA for formal approval. O&M specialists are working closely with the concerned Governorate officials.

#### 1.6 Training

- o Training of garage and workshop managers and engineers is essential. Operation, PM and repair planning and implementation are main required topics.
- o Upgrading skills of PM and repair teams is an urgent need.
- o In cooperation with TAC Training Group, a comprehensive training program has been developed. Managers, engineers, supervisors and different trades will be trained either in Cairo or in Alexandria. OJT will take place in garages and workshops in Suez.

## 2. STREETS AND FOOTPATHS:

### 2.1 Organization

Road construction and maintenance elements are organized in a Road Department at the Governorate level. The department is responsible for all paving and repairs, either executing by force account or by contracting with road construction companies.

### 2.2 Facilities

The Road Department has an inadequate garage and workshop, although there is a suitable number of road construction equipment and vehicles (see Table 27).

### 2.3 Special Project

To develop the capabilities and performance of the Road Department, a special project estimated cost LE 819,796 was prepared and approved. This Special Project includes:

- o Construction and equipping a new garage and workshop for the Road Department and developing a road maintenance management system; and
- o Training engineers, supervisors and labor to upgrade their skills.

## 3. O&M PROPOSED ALLOCATIONS:

As mentioned in section I, great emphasis is placed on O&M actions and priority I sub-projects. It is recommended that a minimum of 40% of the Governorate's allocations, and 35% of the District's allocations should go to O&M. Table 28 indicates the 1989 LD-II allocations for the Governorate and districts, and the minimum amounts that should be allocated for O&M.

Table 29 & 30 show proposed O&M actions and sub-projects and the cost estimate of each based on order of magnitude estimates that will be refined as individual action or sub-projects are further developed.

25% of the total Governorate allocations is available in US dollars for the procurement of vehicles, equipment and spare parts. This amount is LE 605,000 equivalent to \$ 260,776 at a rate of exchange of \$1 equal to L.E. 2.32. Table 30 reflects a requirement of L.E. 707,000 (\$304,741) for procurement of vehicles and equipment.

Table 28

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O&M PROPOSED YEARLY ALLOCATIONS  
 BASED ON FY 1989 ALLOCATIONS  
 (GOE 10% INCLUDED)  
 SUEZ GOVERNORATE

GOVERNORATE/DISTRICT	LD-II ALLOCATIONS	O&M ALLOCATIONS
Governorate	605,000	242,000
Suez	307,824	107,738
El Arbaeen	755,403	264,391
Ataka	417,813	146,234
El Ganayen	333,960	116,886
Totals	2,420,000	877,249

Source: IAC recommendations.

Table 29

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**O&M PROPOSED ACTIVITIES AND SUB-PROJECTS**  
**AND ANNUAL BUDGET ALLOCATIONS**  
**FOR FYs 1989 to 1992**  
**Suez Governorate**

Item	Amount of Estimated Budget by FY in LE Thousands				Remarks
	89 *	90	91	92	
1. Upgrading of the Governorate's Central Garage and Workshop including:  o construction of a fuel and service station; o renovating the existing facility; o expansion of the parking area; and o construction of a spare parts warehouse.	230	50	-	-	out of the governorate allocations
2. Develop Suez District garage including:  o construction of a new service station; o a fire fighting water network; and o paving the parking area.	-	75	75	-	out of district allocations
3. Upgrading of El Arbaeen district garage by:  o expansion and paving of the parking areas; o construction of a service station; o construction of a fire fighting water net; and o upgrading of the administrative building and illumination.	-	85	75	75	out of district allocations
4. Upgrading of Ataka District Garage and the purchase of shop equipment and tools.	147	50	-	-	out of the district allocations
5. Construction of El Ganayen District Garage in the assigned new site.	150	150	150	150	As the district allocations are few, it is advisable that the Governorate should cover the balance of an amount of LE 200,000 over 4 years (LE 50,000 yearly)
6. Procurement of vehicles and equipment for garbage collection	105	94	157	355	see table 30
7. Purchase of spare parts	23	142	142	125	see table 30
8. Purchase of shop equipment and tools	151	82	50	-	see table 30
9. Vehicles and equipment repair in private sector firms	36	147	124	155	see table 30

Source: TAC recommendations based on Governorate Investment Plan for FY 89.

\* Actual allocations for FY 89.

TABLE 30

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 PROPOSED DISTRIBUTION OF O&M ALLOCATIONS  
 ON GOVERNORATE AND DISTRICTS  
 SUEZ GOVERNORATE

FY	SUB-PROJECT NO.	GOVERNORATE	DISTRICTS			
			SUEZ	ARBAEEN	ATAKA	EL GANAYEN
89	Central Garage	230	-	-	-	-
	Ataka Garage	-	-	-	147	-
	El Ganayen Garage	30	-	-	-	120
	Tractors & Trailers	-	35	35	35	-
	Spare Parts	-	23	-	-	-
	Shop Equipment	-	31	120	-	-
	-	-	36	-	-	-
	Sub-totals	260	125	155	182	120
90	Central Workshop	50	-	-	-	-
	Suez Garage	-	75	-	-	-
	Arbaeen Garage	-	-	85	-	-
	Ataka Garage	-	-	-	50	-
	El Ganayen Garage	50	-	-	-	100
	Procurement of vehicles and equipment	-	-	94	-	-
	Spare Parts	50	20	40	16	16
	Shop Equipment	42	-	-	40	-
	Vehicles and equipment repair	50	12	45	40	-
	Sub-totals	242	107	264	146	116
91	Suez Garage	-	75	-	-	-
	Arbaeen Garage	-	-	75	-	-
	El Ganayen Garage	50	-	-	-	100
	Procurement of equipment and vehicles	102	-	55	85	16
	Spare parts	40	32	40	30	-
	Shop equipment	-	-	50	-	-
	Equipment repair	50	-	44	30	-
	Sub-totals	242	107	264	146	116
92	Arbaeen Garage	-	-	75	-	-
	El Ganayen	50	-	-	-	100
	Procurement of vehicles and equipment	112	47	90	86	20
	Spare parts	35	30	35	25	-
	Equipment repair	45	30	45	35	-
		Sub-totals	242	107	245	146

Source: O&M recommendations based on FY 89 Investment Plan and discussions with Governorate Officials.

## NEEDS ASSESSMENT - PORT SAID

### 1. THE ROLLING STOCK

Port Said Governorate consists of five districts namely Port Fouad, El Arab, El Manakh and El Dawahi. As Port Fouad District is located on the eastern side of the Suez Canal, it is rather isolated, and can only be reached by ferry. A degree of independence must be achieved in this district.

#### 1.1 Existing Conditions

Port Said Governorate owns a considerable number of vehicles and equipment as shown in Table 31. 61% of these pieces are in operation. Lack of adequate garages, workshops, spare parts, and effective P.M. and repair programs, affect the status of this fleet.

#### 1.2 Garage Construction Program

The Governorate and Districts early realized their problem. A considerable portion of the investment plan in F.Y. 1989 was allocated to start a complete garage and workshop program to cover the whole city. The Governorate and Districts allocated an amount of L.E. 1,280,000 in F.Y. 1989 to start implementing the program. The program consists of:

- renovation of the central workshops;
- construction of a new central garage;
- construction of two new garages and workshops for El Arab and El Manakh Districts;
- construction of Road Department Garage;
- expansion and completion of El Dawahi District garage and workshop; and
- upgrading of both Port Fouad and East District garages and workshops.

#### 1.3 Spare Parts and Warehouses:

- o Port Said is short of spare parts, especially locally produced items. Reasonable amounts of money should be allocated to procure a continuous flow of spare parts to support P.M. and repair programs.
- o A system of spare parts warehouses is essential. One central and six districts and Road Department stores should be established. A modern Kardex inventory control system should be developed.

#### 1.4 Vehicles and Equipment Purchase

- o Port Said Governorate and districts need to increase their garbage collection and clean-up fleet. Vehicles and equipment acquisition should be coordinated with the Solid Waste Strategy Plan developed by TAC Solid Waste Management Group.

Table 31

Total Fleet, Inventory and Status  
Port Said Governorate

(as of March 1989)

Vehicle/Equipment Type	Total	In Operation	Need Repair			% available
			Level 1	Level 2	Level 3	
Garbage Collection -----						
Refuse trucks	18	13	1	2	2	72
Refuse carts	36	10	6	7	13	28
Tractors	22	12	3	3	4	55
Street Cleaning -----						
Sweepers	2	1	1	-	-	50
Flushers	14	11	1	1	1	79
Road Maintenance -----						
Dump trucks	70	39	9	8	14	56
Bulldozers	4	3	1	-	-	75
Graders	1	1	-	-	-	100
Loaders	14	9	2	2	1	64
Rollers	10	9	1	-	-	90
Hot asphalt transport truck	2	2	-	-	-	100
Mobil asphalt mixer	3	1	-	2	-	33
Utilities and Others -----						
Sewage trucks	25	14	3	3	5	56
Crane	1	1	-	-	-	100
Lorries	18	9	3	3	3	50
Pick-ups	54	45	3	3	3	83
Totals	294	180	34	34	46	61

Source: Data provided by Governorate officials. TAC field trips.

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## **1.5 Garages and Workshops Managements**

- o To develop O&M management, the current organizations and staffing need to be reviewed. Modified organizations have to be submitted to DOA for formal approval.
- o O&M Specialists will work closely with the concerned Governorate Officials to assist in reviewing organizations and developing P.M. and repair programs. It is recommended that the program start with the Central Garage and the Central Workshop.

## **1.6 Training**

- o Training garage and workshop managers and engineers is essential. Operation, P.M. and repair planning and implementation are the main topics.
- o Upgrading skills of P.M. and repair teams is required.
- o In cooperation with TAC Training Group, a comprehensive training program has been developed. Managers, engineers, supervisors and different trades will be trained either in Cairo or Alexandria. OJT will take place in the Central Garage and the Central Workshop in Port Said.

## **2. STREETS AND FOOTPATHS:**

### **2.1 Organization**

The Road Department in Port Said is a newly formed agency. It is not yet completely staffed. Its organization needs to be reviewed. Maintenance and repair of streets and footpaths is not planned on an annual basis. TAC Road Specialist has prepared a detailed study and recommendations to develop and upgrade the organization, staffing, equipping and performance of road elements and department in Port Said. TAC Road Specialist will work closely with the Road Department to implement these recommendations.

### **2.2 Training**

- o Training is planned to take place in the Road Training Center in Nasr City in Cairo. This will include:
  - management and road engineering for engineers and supervisors; and
  - upgrading of equipment operator's skills.
- o OJT to upgrade road labor skills will take place on site when performing road maintenance and repair.

## **3. O&M PROPOSED ALLOCATIONS**

- o It is recommended that a minimum of 40% of the Governorate allocations, and 35% from districts should go O&M activities and sub-projects. Table 32 indicates the 1989 LDII allocation and the minimum that should be allocated for O&M.
- o Proposed activities and sub-projects and the cost estimate for each, for the years 1989 through 1992, are shown in Table 33. Costs are based on order of magnitude estimates and will be refined as individual actions or sub-projects are further developed.

For the procurement of imported vehicles, equipment and spare parts, 25% of the total annual allocations are available in US dollars. The amount is L.E. 726,000 equivalent to 312,931, Table 33 reflects a requirement of L.E. 2,004,000 (\$ 863,793) for procurement of vehicles, equipment and imported spare parts.

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Table 32

O&M Proposed Yealy Allocations in L.E.  
Based on F.Y. 1989 Allocations  
(GOE 10% included)

Port Said Governorate

Governorate/District	LD-II Allocations	O&M Allocations
Governorate	726,000	290,400
Port Fouad	259,501	90,825
El Arab	382,377	133,832
East	315,000	110,250
El Manakh	718,747	251,561
El Dawahi	502,376	175,832
Totals	2,420,000	937,249

Sources: TAC recommendations

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Table 33

O&M Proposed Activities and Sub-projects  
and Annual Budget Allocations  
for F.Y. 1989 to 1992

## Port Said Governorte

Item	Amount of Estimated Budget By FY in LE Thousands				Remarks (\$ 1 = L.E. 2.32)
	89	90	91	92	
1. Establish a spare parts inventory control system including renovation and equipping of spare parts warehouse in the central workshop	-	75	-	-	
2. Renovation of the Central Workshop	220	-	-	-	
3. Construction of El Arab District Garage and purchase of shop equipment and tools	200	200	200	60	New site was inspected and layouts reviewed by O&M specialists
4. Construction of El Manakh District Garage and purchase of shop equipment and tools	200	200	200	60	New site was inspected and layout reviewed by O&M specialists
5. Complete construction of El Dawahi District Garage after expanding the site	250	-	-	-	
6. Upgrading East District Garage including paving, fire fighting water net-work, and purchase of shop equipment and tools	130	50	-	-	
7. Upgrading of Port Fouad District Garage including renovation of the workshop, completion of the service station and the spare parts store	90	60	-	-	
8. Construction of a new Road Department Garage and Workshop. On the completion of this facility, equipment for an asphalt lab will be procured.	290	200	200	50	The new site has been assigned and inspected by O&M Team.
9. Purchase of locally produced spare parts for Governorate and Districts	40	50	50	50	Mainly tires and batteries.
10. Purchase of imported spare parts for Governorate and Districts	-	-	60	60	Mainly spare parts for CIP equipment. Total LE 120,000 equivalent \$ 51,724
11. Repair of Governorate and districts vehicles and equipment by contracting with private firms.	30	65	40	40	Mainly for the clean-up fleet
12. Purchase of vehicles and equipment for the clean-up fleet and the Road Maintenance Department	242	326	443	873	Total LE 1,884,000 equivalent \$ 812,069
Grand Total - Priority 1	1,692	1,226	1,193	1,193	

Source: O&M recommendations based on Governorate investment plan for F.Y. 89 and discussions with Governorate officials

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