

## **CHAPTER 6: TRAFFIC COUNT DATABASE**

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### **6.1 OVERVIEW**

Traffic count survey consists of the following two kinds of survey, traffic count on selected major corridors and traffic count at selected intersections and squares. The main objectives of the traffic count survey are to obtain the existing traffic volume on the major corridors, to analyze the existing traffic condition, to calibrate the existing OD matrices and to obtain turning movement of vehicles at major intersections and squares.

Sixty five (65) locations were chosen for the traffic count survey on designated major corridors. These survey locations included major traffic generators such as the Airport, University and the vicinity of major tourist destinations. Traffic count at thirty three (33) locations, which were selected from major intersections and squares within the Study Area.

Survey hours were basically 16 hours from 6:00 in the morning to 22:00 at night. However, survey hours at locations with high traffic volume were 24 hours from 6:00 in the morning to 6:00 in the morning on the following day. As for intersections, turning movement counts were carried out for 6 hours, 3 hours in morning peak and 3 hours in afternoon peak. Traffic count survey was performed on normal weekday from Monday through Wednesday excluding public holidays.

Vehicle traffic count at 65 corridors was classified into 12 vehicle types as follows:

- Passenger car.
- Taxi (Cairo taxi and intercity taxi).
- Public buses (CTA, GCBC, Governorate and intercity bus).
- Public minibus.
- Private buses (school bus, company and tourist bus).
- Shared taxi.
- Light commodity vehicle (pickup and vans).
- 2 Axles truck.
- 3 Axles truck.
- Heavy truck (over three axles, trailer, semi-trailer).
- 2-wheeler (motorcycle).
- Others (military, police, ambulance and etc.).

On the other hand, vehicle traffic count at 33 intersections was classified into only 6 vehicle types as follows:

- Passenger car and taxi.
- Public and private buses.
- Shared taxi and minibus.
- Pickup and small truck.
- 3 Axles truck and heavy truck
- Others (military, police, ambulance and etc.).

The following outcomes are expected from the traffic count survey.

- Hourly traffic volumes by location, by direction and by vehicle type.
- Vehicle composition.
- Hourly fluctuation of traffic volume.
- Hourly turning movement of vehicles at peak hour bound

## **6.2 TRAFFIC COUNT DATABASE STRUCTURE**

Three tables are required to describe either corridor count or intersection count. Tables 6.2.1 through 6.2.3 explains the database structure of traffic counts at 65 corridors, while Tables 6.2.4 through 6.2.6 describe the database structure of traffic counts at 33 intersections.

As for traffic count at corridors, site number, site code, direction of travel, survey date, counting period, counts of 12 vehicle types during 15-minute period are given in Table 6.2.1 followed by field code description in Tables 6.2.2 and 6.2.3.

A similar file structure is maintained for intersections database with less number of vehicle classes. The file structure is presented in Tables 6.2.4 through 6.2.6.

**Table 6.2.1 Description of Corridor Traffic Count Database**

<b>Structure for Database:</b>			<b>CORRIDOR_COUNTS.DBF</b>		
Number of Data Records:			<b>8,864</b>		
Database File Path:			C:/CREATS DATABASE/TRAFFIC COUNT/CORRIDOR/		
Database Source:			Traffic Counts Survey of CREATS		
<b>Field</b>	<b>Field Name</b>	<b>Type</b>	<b>Width</b>	<b>Coded</b>	<b>Field Description</b>
1	SITE_NO	Numeric	4		Site No
2	SITE_CODE	Character	4	Y	Site Code and Description
3	DIRECTION	Numeric	1	Y	Direction of Travel
4	DAY	Numeric	2		Day of Traffic Count Survey
5	Month	Numeric	2		Month of Traffic Count Survey
6	HOUR	Numeric	2		End of 15-Minute Period (Hour)
7	MIN	Numeric	2		End of 15-Minute Period (Minute)
8	DURATION	Numeric	2	Y	Duration of Traffic Count Survey
9	CAR	Numeric	6		Passenger Car
10	TAXI	Numeric	6		Taxi (Cairo taxi and intercity taxi).
11	BUS_PUB	Numeric	6		Public Bus (CTA, GCBC, Governorate and Intercity Bus)
12	BUS_MINI	Numeric	6		Public Minibus.
13	BUS_PVT	Numeric	6		Private Bus (School Bus, Company and Tourist Bus)
14	TAXI_SHARE	Numeric	6		Shared Taxi
15	PICKUP	Numeric	6		Light Commodity Vehicle (Pickup and Vans)
16	TRUCK_2	Numeric	6		2 Axles Truck
17	TRUCK_3	Numeric	6		3 Axles Truck
18	TRUCK_HVY	Numeric	6		Heavy Truck (More Than Three Axles, Trailer and Semi-Trailer)
19	MOT_CYC	Numeric	6		2-wheeler (Motorcycle)
20	OTHER	Numeric	6		Others (Military, Police, Ambulance and etc.)
21	TOT_VEH	Numeric	8		Total Counted Vehicles During 15-Minute Period

**Table 6.2.2 Field Code Definition of Corridor Traffic Count Database**

Field Codes Used in Database:			CORRIDOR_COUNTS.DBF	
Field	Field Name	Field Description	Code	Field Code Description
2	SITE_CODE	Site Code and Description		See Site Description File: CORRIDOR_SITES.DBF
3	DIRECTION	Direction of Travel		See Site Description File: CORRIDOR_SITES.DBF
8	DURATION	Duration of Traffic Count Survey	16	Traffic Count Survey for 16-Hour Period
			24	Traffic Count Survey for 24-Hour Period

**Table 6.2.3 Description of Corridor Traffic Count Database (Count Sites)**

Structure for Database:		CORRIDOR_SITES.DBF			
Number of Data Records:		<b>130</b>			
Database File Path:		C:/CREATS DATABASE/TRAFFIC COUNT/CORRIDOR/			
Database Source:		Traffic Counts Survey of CREATS			
Field	Field Name	Type	Width	Coded	Field Description
1	COUNT_TYPE	Character	20		Type of Traffic Count
2	SITE_NO	Numeric	3		Site No
3	SITE_CODE	Character	5		Site Code and Description
4	DIRECTION	Numeric	1		Direction of Travel Code
5	DIR_TO	Character	24		Direction of Travel Description
6	DURATION	Numeric	2		Duration of Traffic Count Survey
7	DAY_WEEK	Character	3		Day of the Week
8	SRVY_DAY	Numeric	2		Survey Day
9	SRVY_MONTH	Numeric	2		Survey Month
10	SRVY_YEAR	Numeric	4		Survey Year
11	SITE_NAME	Character	65		Name of Traffic Count Site

**Table 6.2.4 Description of Intersection Traffic Count Database**

<b>Structure for Database:</b>		<b>INTERSECTIONS_COUNTS.DBF</b>			
Number of Data Records:		<b>11,232</b>			
Database File Path:		C:/CREATS DATABASE/TRAFFIC COUNT/INTERSECTION/			
Database Source:		Traffic Counts Survey of CREATS			
Field	Field Name	Type	Width	Coded	Field Description
1	INTRS_CODE	Character	9	Y	Intersection Code
2	TURN_CODE	Character	6	Y	Turning Movement Code
3	END_HR	Numeric	3		End of 15-Minute Period (Hour)
4	END_MIN	Numeric	3		End of 15-Minute Period (Minute)
5	AUTO_TAXI	Numeric	5		Passenger Car and Taxi
6	BUS	Numeric	4		Public and Private Buses
7	MINI_SHTX	Numeric	4		Shared Taxi and Minibus
8	PKUP_TRUK	Numeric	4		Pickup and Small Truck
9	TRUCK	Numeric	3		3-Axle and Heavy Trucks
10	OTHERS	Numeric	4		Others

**Table 6.2.5 Field Code Definition of Intersection Traffic Count Database**

<b>Field Codes Used in Database:</b>			<b>INTERSECTIONS_COUNTS.DBF</b>	
Field	Field Name	Field Description	Code	Field Code Description
1	INTRS_CODE	Intersection Code		See Site Description File: INTERSECTIONS CODE.DBF
2	TURN_CODE	Turning Movement Code		See Site Description File: INTERSECTIONS CODE.DBF

**Table 6.2.6 Description of Intersection Traffic Count Database (Count Sites)**

<b>Structure for Database:</b>		<b>INTERSECTIONS_CODE.DBF</b>			
Number of Data Records:		<b>467</b>			
Database File Path:		C:/CREATS DATABASE/TRAFFIC COUNT/INTERSECTION/			
Database Source:		Traffic Counts Survey of CREATS			
<b>Field</b>	<b>Field Name</b>	<b>Type</b>	<b>Width</b>	<b>Coded</b>	<b>Field Description</b>
1	INTRS_CODE	Character	3		Intersection Code
2	INTRS_NAME	Character	58		Intersection Name
3	SRVY_DAY	Numeric	2		Survey Day
4	SRVY_MONTH	Numeric	2		Survey Month
5	SRVY_YEAR	Numeric	4		Survey Year
6	DAY_WEEK	Character	3		Day of Week
7	TURN_CODE	Character	6		Turning Movement Code
8	TURN_FROM	Character	29		Turning Movement: From Direction
9	TURN_TO	Character	29		Turning Movement: To Direction

## **CHAPTER 7: PUBLIC TRANSPORT DATABASE**

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### **7.1 OVERVIEW**

Public transport services in the Study Area may be categorized as consisting of two generic groupings; namely, formal services and informal services.

- Formal urban public transport services are provided by the public sector. The CTA (Cairo Transport Authority), and its subsidiary GCBC (Greater Cairo Bus Company), provide bus services throughout Greater Cairo (GC) using standard-sized buses and minibuses. The CTA also operates light rail services (tram and Heliopolis metro) as well as the water-borne Nile ferries. Other major elements of the formal sector providing urban public transport services include the Cairo Metro Organization (CMO) and the Egyptian National Railways (ENR). In principal, the formal sector is regulated and information regarding routes, lines, ridership and operating parameters is generally available, although not uniformly in terms of scope and content across all modes.
- The informal sector consists of shared taxis (microbuses) and, in some instances, cooperative minibuses. Shared taxi service is provided by the private sector using microbuses with typical capacities of 11 or 14 seats; however, recently, this mandate has been expanded by Giza Governorate and services are being provided via private-sector cooperative minibuses. Previous studies confirm that the shared taxi mode has evolved as a dominant means of road-based public transport in Cairo. Unfortunately, for this very important mode, only fragmented and, at times, uncertain information exists. Data relating to patronage are lacking. CREATS surveys therefore proved to be the major source of data for informal sector modes.

### **7.2 CTA ROUTES DATABASE**

#### **7.2.1 Overview**

Cairo Transport Authority (CTA) route database is built using the information collected from CTA. The characteristics of around 540 bus routes were specified including fleet and operational data. Data of Cairo Transport Authority, Greater Cairo Bus Company were combined in one route database as shown below.

## **7.2.2 CTA RUOTES Database Structure**

Bus route database is described in Tables 7.2.1, which comprises bus type, line type, line number, line mark, route description, bus garage name, number of working buses, average route length (kilometers), peak headway (minutes), average speed (KPH), average number of passengers per day, average number of passengers per trip, number of stops in one direction, Moniemum and maximum fare.

The bus type is further explained in Table 7.2.2, in which four bus types are defined:

- Cairo Transport Authority (CTA) bus.
- Cairo Transport Authority (CTA) minibus.
- Cairo Transport Authority (CTA) school bus.
- Greater Cairo Bus Company (GCBC) bus.

## **7.3 ON-BOARD SURVEY DATABASE**

### **7.3.1 Overview**

Two shared taxi surveys: the “Terminal Operation Characteristics Survey” and “Route Characteristics Survey”. The database structure of the later survey is addressed in this section, while the former is discussed in Section 7.4. The route characteristics survey was carried out for shared taxi, cooperative minibus and black/white taxi.

- The route characteristics survey for 503 shared taxi lines was conducted using 15 surveyors, who were asked to ride minibuses on the different lines throughout the day (from 06:00 to 24:00 hours). Data noted includes, among others, route alignment and patronage on/off patterns for each line. Some 2,400 bus journeys were surveyed.
- As for the route structure of Cooperative Minibus, a team of surveyors was assigned to ride a representative series of routes to record route alignment and patronage on/off patterns. Execution was similar to that employed for the shared taxi route characteristics survey.
- Some 100 black/white taxi drivers were selected to participate in this survey based on their desire to participate and reading/writing abilities. Each driver was asked to maintain a daily log of commercial activities. Noted information included time of shift, location of home garage as well as frequency and distance of fare passenger trips.



### 7.3.2 On-Board Survey Database Structure

Most of CREATS databases are given a unified file format with an extension of (*DBF*). In some cases, it was difficult to apply this rule such as route characteristics survey. Instead a spreadsheet (Excel 2000 format) is used to describe the survey results. In such a case, the file structure is described using row number and column letter. For instance, the upper part of Table 7.3.1 keeps the same standard file format, while the lower part is divided into 4 columns labeled as *Column*, *Type*, *Coded* and *Column Label*, respectively.

The database of route characteristics survey of shared taxis is saved as Excel format with an extension of (*XLS*), which includes survey date, survey shift time, counting period, number of seats, number of passengers, route description and fare. For each stop during the journey, some information have to be noted:

- Stop number.
- Arrival time at the stop.
- Number of boarding passengers.
- Number of alighting passengers.
- Departure time from the stop.
- Reason of delay.

Therefore, column **M** through column **R**, representing information of one stop, was repeated for the next stops on the surveyed route of shared taxi.

The description of field codes is shown in Table 7.3.2 with only three items to be elaborated, weekday, shift time and reason of delay.

The same file structure was utilized for the route characteristics survey of cooperative minibus and black/white taxi as shown in Tables 7.3.3 and 7.3.4.

The file structure of black/white taxi database is a little bit different from previous two modes although it kept the same concept as shown in Tables 7.3.5 and 7.3.6. Kilometer-counter reading at trip start and trip end was observed in addition to starting time and ending time of each trip. The trip origin and trip destination were also included in the collected data.

## 7.4 SHARED TAXI TERMINAL SURVEY DATABASE

### 7.4.1 Overview

Because of the lack of the operational data on shared taxi in any recent study, all information was collected through field surveys. This service started in GC in the late seventies and early eighties. In Greater Cairo Region, there are three Governorates (Cairo, Giza and Qalyobeya) and also three Traffic Police Directorates, one for each Governorate. Because of some operational problems, different steps were taken to improve the output of this service. Cairo Governorate, for example, took a decision to give the CTA direct supervision of this service for the routes registered in Cairo.

In Giza Governorate, Giza City Council is in charge of the shared taxi service. These two authorities were contacted to collect the available data about the service. Qalyobeya Governorate is organizing this service through the Secretary General of the Governorate. However, most of the Qalyobeya Governorate services are operated locally outside Greater Cairo area.

Two shared taxi surveys, namely "Terminal Operation Characteristics Survey" and "Route Characteristics Survey" were carried out to collect as much accurate and informative data as possible regarding the operation of shared taxi.

In addition to the route characteristics survey, a terminal operation survey was carried out to collect as much accurate and informative data as possible to identify the operational characteristic of this transport mode.

This survey required a team consisted of more than 600 surveyors divided into three groups. Each group had a supervisor, with work extending over three shifts for 18 hours (between 06:00 and 24:00). A total of 149 terminals were included in the survey framework, at which around 113,000 shared taxi departures were monitored.

#### **7.4.2 Shared Taxi Terminal Survey Database Structure**

The database of shared taxi terminal survey utilizes the standard file format as shown in Tables 7.4.1 and 7.4.2. The database includes survey date, terminal code, terminal name, shared taxi type (model), number of seats, destination name, departure time and number of passengers at departure time.

### **7.5 PUBLIC TRANSPORT PASSENGER SURVEY DATABASE**

#### **7.5.1 Overview**

The objective of the public transport passenger survey (PTPS) is to collect additional information on public transport regarding:

- Passengers characteristics per mode by gender, occupation, age, or status for non working people;
- Trips characteristics by purpose, average waiting time, number of used modes from and origin destination trips, access modes to the station;
- Fare characteristics by trip cost, fare type distribution and fare pass period duration by mode;
- Qualitative approach of what passengers are thinking about quality of the public transport offered services; and,
- Willingness of passengers to pay for public transport service improvements.

The public transport modes surveyed were CMO Metro, CTA buses, shared taxis and ENR trains (suburban rail). The field work for the survey was conducted during the period from October 8, 2001 to November 8, 2001 by a team of 15 trained engineers.

A total of 6,125 valid interviews forms have been completed for the four modes. A total of 105 survey locations have been selected for the four selected public transport modes. The survey locations for individual modes are 23 metro stations, 30 bus stations, 40 shared taxi stations and 12 ENR train stations. The distribution of interviewed passengers among different transport modes is shown below.

<b>Mode</b>	<b>No. of Locations</b>	<b>Sample Size</b>
CMO Metro	23	1,780
CTA Bus	30	1,689
Shared Taxi	40	2,274
ENR Rail	12	382

In the case of the metro, bus, and shared taxi modes, passengers were interviewed before boarding. For the rail mode, the survey was conducted within the train going in direction of Greater Cairo, because of the difficulty of finding passengers in some rail stations outside Cairo center.

## **7.5.2 Public Transport Passenger Survey Database Structure**

Public transport passenger survey (PTPS) is housed in a database file, which consists of 1,125 records and follows the standard file structure as shown in Tables 7.5.1 and 7.5.2. A long list of data were included in these files such as transport mode, station, survey date, gender, age, occupation, status for non-working person, trip purpose, trip origin, trip destination, fare type, pass period, ticket/pass cost and employer reimbursement for travel cost. In addition, the passenger was asked to evaluate some measures of level of service such as speed, comfort, headway, crowding and safety. The willingness to pay extra cost for better service was also reported.

The location names for various transport modes are specified in Table 7.5.2, which describe the field codes of Table 7.5.1.

**Table 7.2.1 Description of CTA Routes Database**

<b>Structure for Database:</b>		<b>CTA ROUTES DATA.DBF</b>			
Number of Data Records:		<b>542</b>			
Database File Path:		C:/CREATS DATABASE/PUBLIC TRANSPORT/CTA ROUTES/			
Database Source:		Cairo Transport Authority (CTA) - April 2001			
Field	Field Name	Type	Width	Coded	Field Description
1	BUS_TYPE	Numeric	2	Y	Bus Type
2	LINE_TYPE	Character	9		Line Type
3	LINE_NO	Numeric	7		Line Number
4	LINE_MARK	Character	2		Line Mark
5	MAIN_ROUT	Character	56		Main Route Description
6	GARAGE	Character	14		Garage Name
7	BUS_WORK	Numeric	4		No. of Working Buses
8	ROUT_KM	Numeric	7		Average Length (Km)
9	HEADWAY	Numeric	6		Peak Headway (Min)
10	SPEED	Numeric	6		Average Speed (KPH)
11	PASS_DAY	Numeric	7		Average No. of Passengers per Day
12	PASS_TRIP	Numeric	5		Average No. of Passengers per Trip
13	STOP_NO	Numeric	5		No. of Stops (One Direction)
14	FARE_MIN	Numeric	5		Moniemum or Flat Fare (Pt)
15	FARE_MAX	Numeric	4		Maximum Fare (Pt)

**Table 7.2.2 Field Code Definition of CTA Routes Database**

<b>Field Codes Used in Database:</b>			<b>CTA ROUTES DATA.DBF</b>	
Field	Field Name	Field Description	Code	Field Code Description
1	BUS_TYPE	Bus Type	1	Cairo Transport Authority (CTA) Bus
			2	Cairo Transport Authority (CTA) Minibus
			3	Cairo Transport Authority (CTA) School Bus
			4	Greater Cairo Bus Company (GCBC) Bus

**Table 7.3.1 Description of On-Board Survey Database  
 (Shared Taxi)**

<b>Structure for Database:</b>		<b>ON-BOARD RIDERSHIP SURVEY.XLS</b>	
Spreadsheet Name:		Shared Taxi	
Number of Data Records:		<b>2,429</b>	
Database File Path:		C:/CREATS DATABASE/PUBLIC TRANSPORT/ON-BOARD/	
Database Source:		On-board Ridership Survey of CREATS	
<b>Column</b>	<b>Type</b>	<b>Coded</b>	<b>Column Label</b>
A	Numeric		Date: Day
B	Numeric		Date: Month
C	Numeric	Y	Week Day
D	Numeric	Y	Shift Time
E	Time		Counting Period: From
F	Time		Counting Period: To
G	Numeric		No of seats
H	Numeric		No of Passengers
I	Character		Route: From
J	Character		Route: To
K	Character		Governorate
L	Numeric		Fare (Pt)
M	Numeric		Stop No.
N	Time		Arrival Time at the Stop
O	Numeric		Boarding: Off
P	Numeric		Boarding: On
Q	Time		Departure Time from the stop
R	Numeric	Y	Reason For Delay

**Note:** Columns **M** through **R** are repeated for next stops during an on-board trip

**Table 7.3.2 Field Code Definition of On-Board Survey Database  
 (Shared Taxi)**

Column Codes Used in Spreadsheet:			ON-BOARD RIDERSHIP SURVEY.XLS	
Column	Column Label	Description	Code	Column Code Description
C	Week Day	Day of the Week	1	Saturday
			2	Sunday
			3	Monday
			4	Tuesday
			5	Wednesday
			6	Thursday
			7	Friday
D	Shift Time	Survey Shift Code	1	06 AM - 12 PM
			2	12 PM - 06 PM
			3	06 PM - 12 AM
R	Reason of Delay	Delay Reason	1	Passenger On/Off
			2	Traffic Light
			3	Accident
			4	Traffic Congestion
			5	Pedestrian Crossing
			6	Others

**Table 7.3.3 Description of On-Board Survey Database  
 (Cooperative Minibus)**

<b>Structure for Database:</b>			<b>ON-BOARD RIDERSHIP.XLS</b>
Spreadsheet Name:			Coop-Minibus
Number of Data Records:			<b>13</b>
Database File Path:			C:/CREATS DATABASE/PUBLIC TRANSPORT/ON-BOARD/
Database Source:			On-board Ridership Survey of CREATS
<b>Column</b>	<b>Type</b>	<b>Coded</b>	<b>Column Label</b>
A	Numeric		Date: Day
B	Numeric		Date: Month
C	Numeric	Y	Week Day
D	Numeric	Y	Shift Time
E	Time		Counting Period: From
F	Time		Counting Period: To
G	Numeric		No of seats
H	Numeric		No of Passengers
I	Character		Route: From
J	Character		Route: To
K	Character		Governorate
L	Numeric		Fare (Pt)
M	Numeric		Stop No.
N	Time		Arrival Time at the Stop
O	Numeric		Boarding: Off
P	Numeric		Boarding: On
Q	Time		Departure Time from the stop
R	Numeric	Y	Reason For Delay

**Note:** Columns **M** through **R** are repeated for next stops during an on-board trip

**Table 7.3.4 Field Code Definition of On-Board Survey Database  
 (Cooperative Minibus)**

Column Codes Used in Spreadsheet:			ON-BOARD RIDERSHIP.XLS	
Column	Column Label	Description	Code	Column Code Description
C	Week Day	Day of the Week	1	Saturday
			2	Sunday
			3	Monday
			4	Tuesday
			5	Wednesday
			6	Thursday
			7	Friday
D	Shift Time	Survey Shift Code	1	06 AM - 12 PM
			2	12 PM - 06 PM
			3	06 PM - 12 AM
R	Reason For Delay	Delay Reason	1	Passenger On/Off
			2	Traffic Light
			3	Accident
			4	Traffic Congestion
			5	Pedestrian Crossing
			6	Others



**Table 7.3.5 Description of On-Board Survey Database  
(Black and White Taxi)**

<b>Structure for Database:</b>			<b>ON-BOARD RIDERSHIP.XLS</b>
Spreadsheet Name:			BW Taxi
Number of Data Records:			<b>107</b>
Database File Path:			C:/CREATS DATABASE/PUBLIC TRANSPORT/ON-BOARD/
Database Source:			On-board Ridership Survey of CREATS
Column	Type	Coded	Column Label
A	Numeric		Date: Day
B	Numeric		Date: Month
C	Time		Shift Starting Time
D	Numeric		Location: Home
E	Numeric		Location: Private Garage
F	Numeric		Location: Public Garage
G	Numeric		Counter Reading At The Beginning (Km)
H	Time		Shift Ending Time
I	Numeric		Location: Home
J	Numeric		Location: Private Garage
K	Numeric		Location: Public Garage
L	Numeric		Counter Reading At End (Km)
M	Numeric		Trip No.
N	Numeric	Y	Origin
O	Time		Starting Time
P	Numeric		Counter Reading At The Beginning (Km)
Q	Numeric	Y	Destination
R	Numeric		No. Of Passengers
S	Time		Ending Time
T	Numeric		Counter Reading At End (Km)

**Note:** Columns **M** through **T** are repeated for next trips

**Table 7.3.6 Field Code Definition of On-Board Survey Database  
(Black and White Taxi)**

<b>Column Codes Used in Spreadsheet:</b>			<b>ON-BOARD RIDERSHIP.XLS</b>	
Column	Column Label	Description	Code	Column Code Description
N	Origin	Qism Origin Code at which Passenger Gets On Taxi		See Equivalence Table .....
Q	Destination	Destination Qism Code at which Passenger Gets Off Taxi		See Equivalence Table .....

**Table 7.4.1 Description of Shared Taxi Terminal Survey Database**

<b>Structure for Database:</b>		<b>SHTX_TERMINAL.DBF</b>			
Number of Data Records:		<b>113,028</b>			
Database File Path:		C:/CREATS DATABASE/PUBLIC TRANSPORT/SHTX TERMINAL/			
Database Source:		Terminal Operation Characteristics Survey of CREATS			
Field	Field Name	Type	Width	Coded	Field Description
1	SRVY_DAY	Numeric	2		Survey Day
2	SRVY_MONTH	Numeric	2		Survey Month
3	DAY_WEEK	Numeric	2	Y	Day of the Week
4	SHIFT_CODE	Numeric	2	Y	Survey Shift Code
5	HR_FROM	Numeric	3		Start Hour of Survey Shift
6	MIN_FROM	Numeric	3		Start Minute of Survey Shift
7	HR_TO	Numeric	3		End Hour of Survey Shift
8	MIN_TO	Numeric	3		End Minute of Survey Shift
9	TRMNL_CODE	Numeric	4		Terminal Code
10	TRMNL_NAME	Character	20		Terminal Name
11	PLATE_NO	Numeric	9		Plate No of Surveyed Shared Taxi
12	GVRN	Character	13		Governorate Name in which the Shared Taxi is Registered
13	VEH_TYPE	Character	15		Vehicle Type (Model)
14	NO_SEATS	Numeric	4		No of Seats per Shared Taxi
15	DES_NAME	Character	28		Destination Name
16	DPRT_HR	Numeric	3		Departure Hour
17	DPRT_MIN	Numeric	3		Departure Minute
18	NO_PASS	Numeric	4		No of Passenger at Departure Time

**Table 7.4.2 Field Code Definition of Shared Taxi Terminal Survey Database**

<b>Field Codes Used in Database:</b>			<b>SHTX_TERMINAL.DBF</b>	
Field	Field Name	Field Description	Code	Field Code Description
3	DAY_WEEK	Day of the Week	1	Saturday
			2	Sunday
			3	Monday
			4	Tuesday
			5	Wednesday
			6	Thursday
			7	Friday
4	SHIFT_CODE	Survey Shift Code	1	06 AM - 12 PM
			2	12 PM - 06 PM
			3	06 PM - 12 AM

**Table 7.5.1 Description of Public Transport Passenger Survey Database**

<b>Structure for Database:</b>		<b>PT_PASSENGERS.DBF</b>			
Number of Data Records:		<b>6,125</b>			
Database File Path:		C:/CREATS DATABASE/PUBLIC TRANSPORT/PT PASSENGER/			
Database Source:		Public Transport Passengers Survey of CREATS			
Field	Field Name	Type	Width	Coded	Field Description
1	SMPL_NO	Numeric	6		Sample ID
2	MODE_CODE	Character	2	Y	Mode Code
3	SATATION	Character	4	Y	Station Code
4	DATE	Date	8		Survey Date
5	TIME_HR	Numeric	2		Survey Time (Hr)
6	SEX	Numeric	1	Y	Gender
7	AGE	Numeric	1	Y	Age
8	OCCUP	Numeric	2	Y	Occupation (Working Persons)
9	NW_STATS	Numeric	1	Y	Status of Non-Working Person
10	TRP_PURP	Numeric	1	Y	Trip Reason
11	QISM_ORG	Numeric	4	Y	Qism Code of Origin Station
12	SHKH_ORG	Numeric	2	Y	Shiakha Code of Origin Station
13	QISM_DES	Numeric	4	Y	Qism Code of Destination Station
14	SHKH_DES	Numeric	2	Y	Shiakha Code of Destination Station
15	MODE1	Numeric	2	Y	Transport Mode 1
16	FARE_TYP1	Numeric	1	Y	Fare Type of Mode 1
17	PASS_TIM1	Numeric	1	Y	Pass Period of Mode 1
18	FARE_CST1	Numeric	6		Ticket/Pass Cost of Mode 1 (Piasters)
19	EMPL_SHAR1	Numeric	2	Y	Employer Reimbursement of Mode 1
20	MODE2	Numeric	2	Y	Transport Mode 2
21	FARE_TYP2	Numeric	1	Y	Fare Type of Mode 2
22	PASS_TIM2	Numeric	1	Y	Pass Period of Mode 2
23	FARE_CST2	Numeric	6		Ticket/Pass Cost of Mode 2 (Piasters)
24	EMPL_SHAR2	Numeric	2	Y	Employer Reimbursement of Mode 2
25	MODE3	Numeric	3	Y	Transport Mode 3
26	FARE_TYP3	Numeric	2	Y	Fare Type of Mode 3
27	PASS_TIM3	Numeric	2	Y	Pass Period of Mode 3
28	FARE_CST3	Numeric	6		Ticket/Pass Cost of Mode 3 (Piasters)
29	EMPL_SHAR3	Numeric	2	Y	Employer Reimbursement of Mode 3

**Table 7.5.1 Description of Public Transport Passenger Survey Database (Continued)**

<b>Structure for Database:</b>		<b>PT_PASSENGERS.DBF</b>			
Number of Data Records:		<b>6,125</b>			
Database File Path:		C:/CREATS DATABASE/PUBLIC TRANSPORT/PT PASSENGER/			
Database Source:		Public Transport Passengers Survey of CREATS			
<b>Field</b>	<b>Field Name</b>	<b>Type</b>	<b>Width</b>	<b>Coded</b>	<b>Field Description</b>
30	MODE4	Numeric	2	Y	Transport Mode 4
31	FARE_TYP4	Numeric	1	Y	Fare Type of Mode 4
32	PASS_TIM4	Numeric	1	Y	Pass Period of Mode 4
33	FARE_CST4	Numeric	6		Ticket/Pass Cost of Mode 4 (Piasters)
34	EMPL_SHAR4	Numeric	1	Y	Employer Reimbursement of Mode 4
35	WAIT_TIME	Numeric	2		Average Waiting Time of Current Mode (Minutes)
36	MODE_ID	Numeric	1		Mode Serial of Current Mode
37	ACS_SIGN	Numeric	1	Y	Accessibility to Terminal/Station/Stop: Signs
38	ACS_WALK	Numeric	1	Y	Accessibility to Terminal/Station/Stop: Pedestrian
39	ACS_CHNG	Numeric	1	Y	Accessibility to Terminal/Station/Stop: Intermodal
40	ACS_FEDR	Numeric	1	Y	Accessibility to Terminal/Station/Stop: Feeder
41	ACS_DIST	Numeric	1	Y	Accessibility to Terminal/Station/Stop: Distance
42	PLT_SIGN	Numeric	1	Y	Platform Services for Metro & ENR: Directions
43	PLT_WALK	Numeric	1	Y	Platform Services for Metro & ENR: Pedestrians
44	PLT_GIUD	Numeric	1	Y	Platform Services for Metro & ENR: Instructions
45	PLT_TCKT	Numeric	1	Y	Platform Services for Metro & ENR: Ticket
46	SRVC_SPEED	Numeric	1	Y	Transport Service: Speed
47	SRVC_CMFRT	Numeric	1	Y	Transport Service: Comfort
48	SRVC_HDWY	Numeric	1	Y	Transport Service: Headway
49	SRVC_CROWD	Numeric	1	Y	Transport Service: Crowdedness
50	SRVC_SAFTY	Numeric	1	Y	Transport Service: Safety
51	WILNG_FARE	Numeric	1	Y	Willingness to Pay Extra for Better Service
52	WILNG_WALK	Numeric	1	Y	Willingness to Walk Longer

**Table 7.5.2 Field Code Definition of Public Transport Passenger Survey Database**

Field Codes Used in Database:			PT_PASSENGERS.DBF	
Field	Field Name	Field Description	Code	Field Code Description
2	MODE_CODE	Mode Code	B M R S	Bus Metro ENR Train Shared Taxi
3	SATATION	Station Code	B01 B02 B03 B04 B05 B06 B07 B08 B09 B10 B11 B12 B13 B14 B15 B16 B17 B18 B19 B20 B21 B22 B23 B24 B25 B26 B27 B28 B29 B30	Shobra Hay Gharb Shobra Hay Sharq Mazalat Qanater Mesala Abaseya Nozha El Gedeeda Madinat El Salam (Spiko) Sooq El Oboor Madinat El Oboor Matar Zahraa Madinat Nasr Ramsees Ataba Abdel Moniem Ryad Darasa Sayeda Zeinab Basateen Qalaa Helwan Qatameya Waraq al Hadara Imbaba Libanon Sq. Boolaq El Dakroor Giza Sq. Moneeb Kahraba El Ahram 6th of October City Badrasheen

**Table 7.5.2 Field Code Definition of Public Transport Passenger Survey Database  
 (Continued)**

Field Codes Used in Database:			PT_PASSENGERS.DBF	
Field	Field Name	Field Description	Code	Field Code Description
			M01	Marg on Metro Line 1
			M02	Ezbet El Nakhl on Metro Line 1
			M03	Ain Shams on Metro Line 1
			M04	Matareya on Metro Line 1
			M05	Saraya El Qoba on Metro Line 1
			M06	Kobry El Qoba on Metro Line 1
			M07	Mobarak (Ramsees) on Metro Line 1 and Metro Line 2
			M08	Gamal Abdel Naser on Metro Line 1
			M09	Sadat (Tahreer) on Metro Line 1 and Metro Line 2
			M10	Saad Zaghloul on Metro Line 1
			M11	Sayeda Zeinab on Metro Line 1
			M12	Dar El Salam on Metro Line 1
			M13	Maadi on Metro Line 1
			M14	Wady Hoof on Metro Line 1
			M15	Ain Helwan on Metro Line 1
			M16	Helwan on Metro Line 1
			M17	Shobra on Metro Line 2
			M18	Rood El Farag on Metro Line 2
			M19	Ataba on Metro Line 2
			M20	Bohooth on Metro Line 2
			M21	Cairo University on Metro Line 2
			M22	Giza on Metro Line 2
			M23	Giza Suburbs on Metro Line 2
			R01	Giza Suburbs
			R02	Ramsees
			R03	Shobra El Kheima
			R04	Ain Shams
			R05	Marg al Gadeed
			R06	Qalyob
			R07	Shebeen El Qanater
			R08	Ayat
			R09	Giza
			R10	Marg
			R11	Nikla
			R12	Manashy

**Table 7.5.2 Field Code Definition of Public Transport Passenger Survey Database  
(Continued)**

Field Codes Used in Database:			PT_PASSENGERS.DBF	
Field	Field Name	Field Description	Code	Field Code Description
			S01	15th of May
			S02	Alf Maskan
			S03	Basateen
			S04	Tahreer (Abdel Moneim Reyad)
			S05	Zaweya El Hamra
			S06	Sayeda Eisha
			S07	Abaseya
			S08	Ataba
			S09	Moasasa El Omaleya
			S10	Marg
			S11	Matareya - Kablat
			S12	Mazalat
			S13	Maadi (Shara 9)
			S14	Dar El Salam
			S15	Ramsees
			S16	Rood El Farag
			S17	Roxy
			S18	Abood
			S19	Ain Shams
			S20	Madinat El Salam
			S21	Madinat Nasr ('Hay El Sabei 7)
			S22	MostoRood
			S23	Kobry El Qoba
			S24	Hadaba El Wosta (Moqatam)
			S25	Hay El Ashir (10)
			S26	Mogamaa El Giza
			S27	Moneeb
			S28	Giza Sq.
			S29	Mirfaq El Miyah (Kit Kat)
			S30	Oseem (Waraq)
			S31	Talbeya
			S32	Boolaq El Dakroor
			S33	Imbaba
			S34	Remaya
			S35	Kerdasa
			S36	Qanater
			S37	Shobra Hay Gharb
			S38	Shobra Hay Sharq
			S39	Abu Zaabal
			S40	Qalyob

**Table 7.5.2 Field Code Definition of Public Transport Passenger Survey Database  
(Continued)**

Field Codes Used in Database:			PT_PASSENGERS.DBF	
Field	Field Name	Field Description	Code	Field Code Description
6	SEX	Gender	1	Male
			2	Female
7	AGE	Age	1	< 20 /years
			2	21 - 40 years
			3	41 - 60 years
			4	More than 60 years
			9	No Answer
8	OCCUP	Occupation (Working Persons)	1	Administration
			2	Professional
			3	Tech/ Assist
			4	Clerk
			5	Sales/Service
			6	Farmer/fisher
			7	Craftsman
			8	Production
			9	Unskilled
			10	Student
			11	Housewife
			12	Retired
			13	Jobless
			14	Others
99	No Answer			
9	NW_STATS	Status of Non-Working Person	1	Student (Primary)
			2	Student (Secondary)
			3	Student (High School)
			4	Student (Technical)
			5	Student (University)
			6	Housewife
			7	Retired Person
			8	Jobless
			9	Working Person or No Answer
10	TRP_PURP	Trip Reason	1	To/From Work
			2	To/From School
			3	To/From Others
			9	No Answer
11	QISM_ORG	Qism Code of Origin Station		See Equivalence Table .....
12	SHKH_ORG	Shiakha Code of Origin Station		See Equivalence Table .....
13	QISM_DES	Qism Code of Destination Station		See Equivalence Table .....
14	SHKH_DES	Shiakha Code of Destination Station		See Equivalence Table .....



**Table 7.5.2 Field Code Definition of Public Transport Passenger Survey Database  
(Continued)**

Field Codes Used in Database:			PT_PASSENGERS.DBF	
Field	Field Name	Field Description	Code	Field Code Description
15	MODE1	Transport Mode 1	1	On-Foot
20	MODE2	Transport Mode 2	2	Bicycle
25	MODE3	Transport Mode 3	3	Motorcycle
30	MODE4	Transport Mode 4	4	Private Car Driver
			5	Private Car Passenger
			6	Pickup for Passengers
			7	Taxi
			8	Shared Taxi
			9	Public Minibus
			10	Public Bus
			11	Public A/C Bus
			12	Cooperative Minibus
			13	Company (Work) Car
			14	Factory/Company Bus
			15	School Bus
			16	Truck for Passengers
			17	Nile Bus
			18	Tram
			19	Heliopolis Metro
			20	Underground Metro
			21	ENR Train
			22	Animal Drawn
			23	Others
			99	No Answer
16	FARE_TYP1	Fare Type of Mode 1	1	Ticket
21	FARE_TYP2	Fare Type of Mode 2	2	Student Pass
26	FARE_TYP3	Fare Type of Mode 3	3	Ordinary CTA
31	FARE_TYP4	Fare Type of Mode 4	4	Governmental Pass
			5	Special CTA
			6	Free Pass
			7	Others
17	PASS_TIM1	Pass Period of Mode 1	1	One Month
22	PASS_TIM2	Pass Period of Mode 2	2	Three Months
27	PASS_TIM3	Pass Period of Mode 3	3	Twelve Months
32	PASS_TIM4	Pass Period of Mode 4	4	Free
			5	Others
19	EMPL_SHAR1	Employer Reimbursement of Mode 1	1	Yes
24	EMPL_SHAR2	Employer Reimbursement of Mode 2	2	No
29	EMPL_SHAR3	Employer Reimbursement of Mode 3	3	Partly
34	EMPL_SHAR4	Employer Reimbursement of Mode 4	9	No Answer

**Table 7.5.2 Field Code Definition of Public Transport Passenger Survey Database  
 (Continued)**

Field Codes Used in Database:			PT_PASSENGERS.DBF	
Field	Field Name	Field Description	Code	Field Code Description
37	ACS_SIGN	Accessibility to Terminal/Station/Stop: Signs	1	Very Good
38	ACS_WALK	Accessibility to Terminal/Station/Stop: Pedestrian	2	Good
39	ACS_CHNG	Accessibility to Terminal/Station/Stop: Intermodal	3	Fair
40	ACS_FEDR	Accessibility to Terminal/Station/Stop: Feeder	4	Bad
41	ACS_DIST	Accessibility to Terminal/Station/Stop: Distance	5	Very Bad
42	PLT_SIGN	Platform Services for Metro & ENR: Directions	9	No Answer
43	PLT_WALK	Platform Services for Metro & ENR: Pedestrians		
44	PLT_GIUD	Platform Services for Metro & ENR: Instructions		
45	PLT_TCKT	Platform Services for Metro & ENR: Ticket		
46	SRVC_SPEED	Transport Service: Speed		
47	SRVC_CMFRT	Transport Service: Comfort		
48	SRVC_HDWY	Transport Service: Headway		
49	SRVC_CROWD	Transport Service: Crowdedness		
50	SRVC_SAFTY	Transport Service: Safety		
51	WILNG_FARE	Willingness to Pay Extra for Better Service	1	No Change
			2	Fixed Operation Schedule and Cleaner Buses
			3	More Frequent Schedules and Modernization of Fleet
			4	Guaranteed Seat and New Buses on Major Lines
			5	Improved Ticketing Service
			6	Air-Conditioned Buses
			9	No Answer
52	WILNG_WALK	Willingness to Walk Longer	1	Yes
			2	No

## CHAPTER 8: CARGO DATABASE

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The Cargo Vehicle Survey is one of the important surveys carried out within the Study Area. The survey consists of two inter-related surveys, namely, truck owner interview survey and company survey, which are presented in Sections 8.1 and 8.2, respectively. The two surveys were completed within five months (from August to December, 2001). The period from 1/10/2001 to 15/11/2001 was assigned for conducting all survey works. The Study Team selected this period so that the survey results should reflect traffic conditions in the normal season of the year (school days).

### 8.1 TRUCK ROADSIDE INTERVIEW SURVEY DATABASE

#### 8.1.1 Overview

The truck owner interview survey was carried out to get truck trip movements on normal weekday from Monday through Wednesday excluding public holidays. The truck owner survey was therefore performed on Tuesday, Wednesday, and Thursday since the truck owners were asked regarding trips made during the previous day.

The total number registered trucks within the study area in 2001 is estimated as 171,000 trucks. A total of 3,377 trucks were thus sampled randomly, which accounts for around 2.0 % of the total registered trucks in the study area. The sample distribution is outlined below:

Site	Link Name	Sample Size
1	Salah Salem Corridor	543
2	Autostrad Road	332
3	The Cairo Ring Road	323
4	Fiesal St.	506
5	Bahr El Azam St.	412
6	Port Said Street	368
7	The Cairo Ring Road	489
8	Ismailya Desert Road	404

The collected data can be divided into two data sets. The first one includes the truck and the owner characteristics in terms of:

- Vehicle type.
- The traffic Police Department in which the vehicle is registered.
- Information about the owner and his profile.
- Loading type.
- Load capacity.
- Frequency of weekly trips.

The second data set is concerned with truck movement pattern, i.e., trips made by the truck during the day previous to the survey day. Information on each individual trip has the following items:

- Trip origin and destination.
- Departure and arrival time.
- Trip purpose.
- Facility at destination.
- Type of the transported commodity.
- Loading condition.
- Parking facilities.

The interviewed trucks were classified into five vehicle types:

- Light commodity vehicles (pickup and van).
- 2 Axles trucks.
- 3 Axles trucks.
- Heavy trucks (over three axles, trailer, semi-trailer).
- Other types.

## **8.1.2 Truck Roadside Interview Database Structure**

The Truck Roadside Interview database consists of two files corresponding to two survey forms. Table 8.1.1 describes the database structure of 3,377 interviewed trucks. Truck information such as plate number, starting licensing date, place of truck registration, truck type, loading type, empty weight in kilograms, load capacity, truck ownership type, company activity type, number of working days per week and survey location. The field code definition is illustrated in Table 8.1.2 in which some data fields are detailed and their codes are described. For instance, truck loading type is classified as flat weight, covered truck, tank truck, others for codes 1 through 4, respectively.

Trips done by each truck in a typical weekday are stored in the second database file (TRUCK\_TRIPS.DBF), which consists of 7,606 trips (records) as shown in Table 8.1.3. Trip origin, destination, purpose, starting time, ending time, commodity type,

loading condition, parking type, parking cost and truck type are among the data fields of this database. The filed codes are further explained in Table 8.1.4.

## **8.2 CARGO COMPANIES SURVEY DATABASE**

### **8.2.1 Overview**

The Company Survey aimed at identifying the characteristics of cargo companies and cargo movements to and from the company site. The collected data includes the following items:

- Company characteristics
  - a. Company name and address;
  - b. Company type;
  - c. Company profile;
  - d. Number and types of vehicles owned by the company;
  - e. Number of employees in the company;
  - f. Availability of parking place; and,
  - g. Problems associated with commodity movements.
  
- Cargo handling information
  - a. Commodity type;
  - b. The annual transported volume of each commodity;
  - c. Origin and destination of cargo movements; and,
  - d. The main mode of transport.

Fifty companies were selected within the study area for surveying. These companies represent all sectors of the economy. The final sample covers mainly six different economic sectors, which are:

- Transport, logistics services and packing companies (including small size organizations).
- Food and agriculture production.
- Heavy industry (including chemical and petroleum sector).
- Automotive Industry.
- Construction and construction materials.
- Retail and final distribution sector (including supermarket).

Since the required data for the Company Survey consists of general and annual information, the survey could be carried out during any day of the week.

## **8.2.2 Cargo Companies Survey Database Structure**

The database structure of cargo companies are presented in Tables 8.2.1 through 8.2.4. The first two tables show the profile of sampled companies. Data such as company type, company profile, number of owned trucks, number of employees, availability of parking lot within company property are included in Table 8.2.1 followed by field code description in Table 8.2.2. The activity of each sampled cargo company is presented in Tables 8.2.3 and 8.2.4. Transported commodity is classified into 9 types as shown in Table 8.2.4

**Table 8.1.1 Description of Truck Roadside Interview Survey Database (Form 1)**

<b>Structure for Database:</b>		<b>TRUCK_RSI.DBF</b>			
Number of Data Records:		<b>3,377</b>			
Database File Path:		C:/CREATS DATABASE/CARGO/			
Database Source:		Trucks Roadside Interview Survey of CREATS			
<b>Field</b>	<b>Field Name</b>	<b>Type</b>	<b>Width</b>	<b>Coded</b>	<b>Field Description</b>
1	ID	Character	14		Unique ID Code for Each Interviewed Truck
2	PLATE_NO	Numeric	8		Truck Plate Number of Interviewed Truck
3	GVRN_CODE	Numeric	2	Y	Governorate Code in which the Truck is Registered
4	LICN_DATE	Date	8		Starting Licensing Date
5	LICN_KISM	Numeric	4	Y	Qism Code in which the Truck is Registered
6	LICN_SHKH	Numeric	2	Y	Shiakha Code in which the Truck is Registered
7	TRUCK_TYPE	Numeric	1	Y	Truck Type
8	LOAD_TYPE	Numeric	1	Y	Truck Loading Type
9	EMPTY_WT	Numeric	5		Empty Weight of Truck in Kilograms
10	FULL_CAP	Numeric	5		Load Capacity of Truck in Kilograms
11	PHONE_NO	Character	9		Telephone No. of Truck Owner
12	ADRS_KISM	Numeric	4	Y	Qism Code of Truck Owner Residence
13	ADRS_SHKH	Numeric	2	Y	Shiakha Code of Truck Owner Residence
14	TRCK_OWN	Numeric	1	Y	Truck Ownership Type
15	CMPNY_TYPE	Numeric	1	Y	Company Activity Type
16	TRCK_DAYS	Numeric	1	Y	No. of Working Days per Week for Interviewed Truck
17	LOCATION	Numeric	1		Location Code of Truck Interview Survey

**Table 8.1.2 Field Code Definition of Cargo Roadside Interview Survey Database  
(Form 1)**

Field Codes Used in Database:			TRUCK_RSI.DBF	
Field	Field Name	Field Description	Code	Field Code Description
3	GVRN_CODE	Governorate Code in which the Truck is Registered		See Equivalence Table .....
5	LICN_KISM	Qism Code in which the Truck is Registered		See Equivalence Table .....
6	LICN_SHKH	Shiakha Code in which the Truck is Registered		See Equivalence Table .....
7	TRUCK_TYPE	Truck Type	1 2 3 4 5	Light Commodity Truck Two-Axle Truck Three-Axle Truck More than 3 Axles including Trailers Others
8	LOAD_TYPE	Truck Loading Type	1 2 3 4	Flat Weight Covered Truck Tank Truck Others
12	ADRS_KISM	Qism Code of Truck Owner Residence		See Equivalence Table .....
13	ADRS_SHKH	Shiakha Code of Truck Owner Residence		See Equivalence Table .....
14	TRCK_OWN	Truck Ownership Type	1 2 3	Individual Company Government
15	CMPNY_TYPE	Company Activity Type	1 2 3 4 5 6	Transport Construction Manufacturing Wholesale Retail Others
16	TRCK_DAYS	No. of Working Days per Week for Interviewed Truck	1 2 3 4 5	1 - 2 Days per Week 3 - 4 Days per Week 5 - 6 Days per Week Every Day None
17	LOCATION	Location Code of Truck Interview Survey	1 2 3 4 5 6 7 8	Salah Salem after Sayeda Eisha Autostrad after Maadi Entrance Ring Road before Marg Fiesal St. between Maryoteya St. and Mansoreya St. Bahr El- Azam before Moneeb Bridge Port Said St. bet. Bab Shaareya & Azhar St. Ring Road between Suez and Qatameya Roads Ismailya Desert Road before Oboor Wholesale Market



**Table 8.1.3 Description of Truck Roadside Interview Survey Database (Form 2)**

<b>Structure for Database:</b>		<b>TRUCK_TRIPS.DBF</b>			
Number of Data Records:		<b>7,606</b>			
Database File Path:		C:/CREATS DATABASE/CARGO/			
Database Source:		Trucks Roadside Interview Survey of CREATS			
<b>Field</b>	<b>Field Name</b>	<b>Type</b>	<b>Width</b>	<b>Coded</b>	<b>Field Description</b>
1	ID	Character	14		Unique ID Code for Each Record
2	SUB_SAMPLE	Numeric	1		Serial No of Each Truck Trip
3	PLATE_NO	Numeric	8		Truck Plate Number of Interviewed Truck
4	LOCATION	Numeric	1	Y	Location Code of Truck Interview Survey
5	ORG_KISM	Numeric	4	Y	Qism Origin Code
6	ORG_SHKH	Numeric	6	Y	Shiakha Origin Code
7	ORG_TIME	DateTime	8		Trip Start Time at Origin
8	ORG_AMPM	Numeric	1	Y	AM/PM Tag of Trip Start at Origin
9	DES_KISM	Numeric	4	Y	Qism Destination Code
10	DES_SHKH	Numeric	6	Y	Shiakha Destination Code
11	DES_TIME	DateTime	8	Y	Trip End Time at Destination
12	DES_AMPM	Numeric	1	Y	AM/PM Tag of Trip End at Destination
13	TRIP_PRPS	Numeric	2	Y	Trip Reason
14	DES_FCLTY	Numeric	2	Y	Facility Code at Destination
15	COMM_TYPE	Numeric	2	Y	Commodity Type
16	LOADING	Numeric	1	Y	Loading Condition
17	PARK_TYPE	Numeric	1	Y	Parking Type
18	PARK_COST	Numeric	3		Parking Cost (LE per Month)
19	ORG_ZONE	Numeric	3	Y	Traffic Zone Origin Code
20	DES_ZONE	Numeric	3	Y	Traffic Zone Destination Code
21	EXPF	Numeric	5.2		Expansion Factor of Truck Trip
22	TRUCK_TYPE	Numeric	1	Y	Truck Type

**Table 8.1.4 Field Code Definition of Cargo Roadside Interview Survey Database  
(Form 2)**

Field Codes Used in Database:			TRUCK_TRIPS.DBF	
Field	Field Name	Field Description	Code	Field Code Description
4	LOCATION	Location Code of Truck Interview Survey	1	Salah Salem after Sayeda Eisha
			2	Autostrad after Maadi Entrance
			3	Ring Road before Marg
			4	Fiesal St. between Maryoteya St. and Mansoreya St.
			5	Bahr El Azam before Moneeb Bridge
			6	Port Said St. bet. Bab Shaareya & Azhar St.
			7	Ring Road between Suez and Qatameya Roads
			8	Ismailya Desert Road before Oboor Wholesale Market
5	ORG_KISM	Qism Origin Code		See Equivalence Table .....
6	ORG_SHKH	Shiakha Origin Code		See Equivalence Table .....
8	ORG_AMPM	AM/PM Tag of Trip Start at Origin	1	A.M. Period
			2	P.M. Period
9	DES_KISM	Qism Destination Code		See Equivalence Table .....
10	DES_SHKH	Shiakha Destination Code		See Equivalence Table .....
12	DES_AMPM	AM/PM Tag of Trip End at Destination	1	A.M. Period
			2	P.M. Period
13	TRIP_PRPS	Trip Reason	1	To Work Place
			2	To Home
			3	Selling or Delivering
			4	Buying or Removal
			5	Repair Work
			6	Return to Working Place
			7	Other Business
			8	Private Business
			9	Others
14	DES_FCLTY	Facility Code at Destination	1	Factory
			2	Retail Shop / Wholesale Market
			3	Warehouse
			4	Restaurant / Hotel
			5	Construction Site
			6	Transportation Site
			7	Agricultural Field
			8	Office
			9	Residence
			10	Others

**Table 8.1.4 Field Code Definition of Cargo Roadside Interview Survey Database  
 (Form 2), Continued**

Field Codes Used in Database:			TRUCK_TRIPS.DBF	
Field	Field Name	Field Description	Code	Field Code Description
15	COMM_TYPE	Commodity Type	1 2 3 4 5 6 7 8 9 10 11	Agricultural and Live Stock Food Stuff and Animal Food Solid Fuels Petrol and Petrol Distilled Products Metal Residues and Mining Products Metallurgical Products Raw Materials and Derivations Fertilizers Chemical Products Machines and Vehicles Other Cargo
16	LOADING	Loading Condition	1 2 3 4 5 6 7	Empty Less Than 25% Loaded 25% Loaded 50% Loaded 75% Loaded Full Loaded Over Loaded
17	PARK_TYPE	Parking Type	1 2 3 4 5 6 7	On Street: Free On Street: Paid Off Street: Paid Private Off Street: Free Private Off Street: Paid Public Off Street: Free Public Others
19	ORG_ZONE	Traffic Zone Origin Code		See Equivalence Table .....
20	DES_ZONE	Traffic Zone Destination Code		See Equivalence Table .....
22	TRUCK_TYPE	Truck Type	1 2 3 4 5	Light Commodity Truck Two-Axle Truck Three-Axle Truck More than 3 Axles including Trailers Others

**Table 8.2.1 Description of Cargo Company Profile Survey Database**

<b>Structure for Database:</b>		<b>COMPANY_PROFILE.DBF</b>			
Number of Data Records:		<b>50</b>			
Database File Path:		C:/CREATS DATABASE/CARGO/			
Database Source:		Company Interview Survey of CREATS			
Field	Field Name	Type	Width	Coded	Field Description
1	SRVY_DATE	Date	8		Survey Date
2	KISM_CODE	Numeric	4	Y	Qism Code of Company Address
3	SHKH_CODE	Numeric	2	Y	Shiakha Code of Company Address
4	CMPNY_CODE	Numeric	2		Company Unique Code
5	CMPNY_TYPE	Numeric	1	Y	Company Type
6	CMPNY_PRFL	Numeric	1	Y	Company Profile (Affiliation)
7	VEH_OWN	Numeric	3		Total No of Owned Pickups and Vans
8	AXLE_2	Numeric	3		No of Owned Trucks with Two Axles
9	AXLE_3	Numeric	3		No of Owned Trucks with Three Axles
10	AXLE_MORE	Numeric	4		No of Owned Trucks with More Than Three Axles
11	VEH_OTHR	Numeric	3		No of Other Owned Trucks
12	DRIVER_NO	Numeric	4		No of Drivers Employed by Company
13	EMPLOY_NO	Numeric	4		No of Other Employees (Non Drivers)
14	PARK_LOT	Numeric	1	Y	Availability of Parking Lot Within Company Property
15	PARK_AREA	Numeric	6		Area of Parking Lot Owned by Company (m <sup>2</sup> )
16	PARK_VEH	Numeric	4		No of Parked Vehicles in Company Parking Lot
17	PRK_ON_F	Numeric	1	Y	Code of On-Street Free Parking
18	PRK_ON_P	Numeric	1	Y	Code of On-Street Paid Parking
19	PRK_OF_F	Numeric	1	Y	Code of Off-Street Free Parking
20	PRK_OF_P	Numeric	1	Y	Code of Off-Street Paid Parking
21	PRK_OTHR	Numeric	1	Y	Code of Other Parking
22	PROBREMS	Character	10 0		Description of Transport Problems (Arabic)
23	CMPNY_NAME	Character	31		Company Name (Arabic)
24	KEY_PRSN	Character	29		Name of Contact Person (Arabic)
25	ADDRESS	Character	38		Company Address (Arabic)
26	TELEPHONE1	Character	9		Company Telephone No 1
27	TELEPHONE2	Character	9		Company Telephone No 2

**Table 8.2.2 Field Code Definition of Cargo Company Profile Survey Database**

Field Codes Used in Database:			COMPANY_PROFILE.DBF	
Field	Field Name	Field Description	Code	Field Code Description
2	KISM_CODE	Qism Code of Company Address		See Equivalence Table .....
3	SHKH_CODE	Shiakha Code of Company Address		See Equivalence Table .....
5	CMPNY_TYPE	Company Type	1 2 3 4 5 6 7	Transportation Construction Manufacturing Wholesale Retail Marketing Others
6	CMPNY_PRFL	Company Profile (Affiliation)	1 2 3 4 5	Individual Corporate (Private) Corporate (Public) Government Others
14	PARK_LOT	Availability of Parking Lot Within Company Property	1 2	Company Has Its Own Parking Lot No Parking Lot

**Table 8.2.3 Description of Cargo Company Activity Survey Database**

<b>Structure for Database:</b>		<b>COMPANY_CARGO.DBF</b>			
Number of Data Records:		<b>1,952</b>			
Database File Path:		C:/CREATS DATABASE/CARGO/			
Database Source:		Company Interview Survey of CREATS			
Field	Field Name	Type	Width	Coded	Field Description
1	CMPNY_CODE	Numeric	2		Company Unique Code
2	COMM_NO	Numeric	3		Serial No of Commodity Handling Information
3	COMM_TYPE	Numeric	2	Y	Type of Transported Commodity
4	COMM_VOL	Numeric	8		Annual Tonnage of Transported Commodity
5	COMM_MODE	Numeric	1	Y	Mode Used to Transport Commodity
6	MODE_SHARE	Numeric	3		Mode Share Percentage of Transporting Commodity
7	ORG_SHKH	Numeric	6	Y	Shiakha Origin Code
8	DES_SHKH	Numeric	6	Y	Shiakha Destination Code

**Table 8.2.4 Field Code Definition of Cargo Company Activity Survey Database**

<b>Field Codes Used in Database:</b>			<b>COMPANY_CARGO.DBF</b>	
Field	Field Name	Field Description	Code	Field Code Description
3	COMM_TYPE	Type of Transported Commodity	1 2 3 4 5 6 7 8 9 10 11	Agricultural and Live Stock Food Stuff and Animal Food Solid Fuels Petrol and Petrol Distilled Products Metal Residues and Mining Products Metallurgical Products Raw Materials and Derivations Fertilizers Chemical Products Machines and Vehicles Other Cargo
5	COMM_MODE	Mode Used to Transport Cargo	1 2 3 4 5	Truck Railway Inland Waterway Transport Maritime Transport Air Transport
7	ORG_SHKH	Shiakha Origin Code		See Equivalence Table .....
8	DES_SHKH	Shiakha Destination Code		See Equivalence Table .....

## **CHAPTER 9: TRAVEL SPEED DATABASE**

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### **9.1 OVERVIEW**

Travel speed is one of the fundamental characteristics of the traffic flow on the different road sections of the network. Travel speed deterioration, caused by many reasons, results in traffic delay and may add to road accident assurance. Therefore, any comprehensive traffic study should pay great attention to evaluation of the travel speed conditions on the major traffic arterials within the study area. This can be achieved by performing travel speed survey on a great number of major road sections to obtain the existing travel speeds, to identify the existing bottlenecks and their reasoning.

Ten (10) major corridors plus 10 additional roads were selected to carry out travel speed survey. The survey road sections were finalized based on preliminary field survey. The check points were generally set at the center of the major intersections. The selected 20 routes are described later within file structure of travel speed database.

The test car traveled based on car flow by a floating-car technique. The surveyors recorded the time of passing major points, the stopping time as well as the reasons of congestion (9 items). Regarding the survey hours, each route of 10 major corridors was traveled at least fourteen (14) runs in each direction, four runs during morning peak, four runs during evening peak and six runs during off-peak periods. The other ten additional roads were traveled one round trip by each peak periods.

The survey items are as follows:

- Departure time and arrival time,
- Passing time by each check point,
- Frequency of stops on each road section between successive check points,
- Duration of each stop, and
- Reason for each stop.

The reasons for stop are shown as below:

- Waiting for traffic light to change.
- Traffic accident.
- Crossing of pedestrians.

- Congestion of buses/shared taxies near bus stop.
- Traffic congestion caused by traffic spill-back from upstream.
- Merging from side roads without signal light.
- Diverging to side roads without signal light.
- Influence of the cars turning to the left/right.
- Others (Parking on street, Poor pavement maintenance, Under construction, U-turn point, Vehicle stop due to engine trouble, etc.).

The survey was performed on normal week days, i.e. Monday, Tuesday or Wednesday during the period of Home Interview Survey (HIS) between September 15 and November 15, 2001.

## 9.2 TRAVEL SPEED DATABASE STRUCTURE

It should be mentioned that travel speed database could be not fit within the standard format of CREATS database. The survey results were, therefore, arranged in an alternative file structure, i.e., spreadsheet (*XLS*) instead of database (*DBF*). The survey results are housed in one spreadsheet (TRAVEL SPEED.XLS) with several sheets containing survey data by route and by direction. The description of surveyed routes is kept as the first sheet to help database user tracing the survey output.

Table 9.2.1 presents the structure of “TRAVEL SPEED.XLS” file as shown in the first line followed by spreadsheet names in the second line. Data records are bounded by row 3 through row 156 of each spreadsheet. The data is located in column **B** through column **M** including route number, direction, survey data, departure time, arrival time, stop reason, survey round number and passing time at check point. The first two rows contain number of checking points and distance, respectively.

It should be noted that columns **L** and **M** are repeated for each check point along the surveyed route.

The route number and stop reasons, which are shown in columns **B** and **J**, are detailed in Table 9.2.2.



**Table 9.2.1 Description of Travel Speed Survey Database**

<b>Structure for Database:</b>			<b>TRAVEL SPEED.XLS</b>
Spreadsheet Name:			1D1, 1D2, 2D1, 2D2, 3D1, 3D2, ..., 20D1, 20D2
Number of Data Records:			<b>Row 3 : Row 156</b>
Database File Path:			C:\CREATS DATABASE\TRAVEL SPEED\
Database Source:			Travel Speed Survey of CREATS
Column	Type	Coded	Column Label
B	Numeric	Y	Route No
C	Numeric		Direction No
D	Numeric		Survey Month
E	Numeric		Survey Day
F	Numeric		Departure Time (Hour)
G	Numeric		Departure Time (Minute)
H	Numeric		Arrival Time (Hour)
I	Numeric		Arrival Time (Minute)
J	Numeric	Y	Stop Reason
K	Numeric		Survey Round No
L	Numeric		Passing Time at Check Point (Minute)
M	Numeric		Passing Time at Check Point (Second)
Row 1	Numeric		No of Check Point
Row 2	Numeric		Distance (Km)

**Note:** Columns L and M are repeated for every check point along the surveyed route

**Table 9.2.2 Field Code Definition of Travel Speed Survey Database**

<b>Column Codes Used in Spreadsheet:</b>			<b>TRAVEL SPEED.XLS</b>	
Column	Column Label	Description	Code	Column Code Description
<b>B</b>	Route No	Route Name	R01	Cornish Road (Helwan) - Teret Ismailiya St. - Kablat St. - Abu Bakr Sedeeq - Hussein Kamel Seleem St.
			R02	Gamal Abdel Naser (Abu El Nomros - Giza - Waraq) up to CRR
			R03	6th of October Flyover (Agoosa - Ghamara - Nasr Road)
			R04	Tahreer St. (Dokki) - Geish St. - Abaseya St. - Khaleefa El Maamoon St. - Fareeq Azeez El Masry St. (Up to CRR)

Table 9.2.2 Field Code Definition of Travel Speed Survey Database (Continued)

Column Codes Used in Spreadsheet:			TRAVEL SPEED.XLS	
Column	Column Label	Description	Code	Column Code Description
<b>B</b>			R11	Abdel Moniem Reyad Sq. - Ramsees Sq. - Salah Salem Rd. - Nasr Rd.
			R12	Nasr Rd. - Estad - Maqreezi - Qoba Sq. - Wayly El Ahd - Port Said
			R13	Nasr Rd.- Salah El Deen - Mogharbelin Rd. - Azhar Sq. - Ataba Sq. - Soliman Rd. - Ramsees Sq.
			R14	Ramsees Sq. - Alfy Rd. - Abdel Khaleq Sarwat Rd. - Sami El Barody Rd. - Mohamed Fareed Rd. - Shereef Rd. - Talaat Sq. - Champollion Rd. - Abdel Moniem Reyad Sq.
			R15	Sad Rd. - Beiram El Tonsy Rd. - Mohamed Izz Rd. - Ismail Abaza Rd. - Magles al Shaab Rd. - Sheikh Rd. - Tahreer Sq.
			R16	Sheikh Rehan Rd. - Qasr El Aini Rd. - Falaky Rd. - Mohamed Fareed Rd. - Port Said
			R17	Magles al Shaab Rd.- Port Said Rd. - Mohamed Fareed Rd. - Falaky Rd. - Qasr El Aini Rd.
			R18	Ketkat Sq. - Ahmed Orabi Rd. - Gamiet El Dowal Arabia Rd. - Tahreer Rd. - Sarwat Rd. - Giza Flyover
			R19	Sudan Rd. - Sphinx Sq. - Batal Ahmed Abdel Aziz Rd. - Nasr Sq. - Sudan Rd.
			R20	Gamiet El Dowal Arabia Rd. - 6th October Br. - Tahreer Rd. - Sarwat Rd.
<b>J</b>		Stop Reason	1	Waiting for traffic light to change
			2	Traffic accident
			3	Crossing of pedestrians
			4	Congestion of buses near bus stop
			5	Traffic congestion (traffic spilled back condition)
			6	Merging from alley
			7	Diverging to alley
			8	Influence of the cars turning to the left/right
			9	Others

## **CHAPTER 10: ROAD INVENTORY DATABASE**

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### **10.1 OVERVIEW**

The transport model requires detailed level of network information, the major part of which is related to the road network. The road network, either existing or proposed, is divided into links (road segments) separated by nodes (junctions/intersections), with each link described by a unique set of operating conditions, such as speed, capacity, chainage and physical content. The designation of capacity of a road segment necessitates an input of such characteristics as number of lanes, divided or undivided, road side activity and parking conditions to identify the level of side friction, grades, and intersection conditions.

One objective of the road condition survey is to identify the characteristics of road network to contribute to the network building of the transport model, so that the model should be able to reflect the real road network conditions as much as possible. The other objective is to obtain road surface conditions of major corridors to estimate the average road surface conditions in the Study Area based on these results, which can contribute to the preliminary analysis of road surface conditions in the Study Area.

Based on the road inventory survey, the general physical road inventory elements, such as length, number of lanes, carriageway width, sidewalks, level of roadside frictions, road side parking conditions, number of signalized and unsignalized intersections could be obtained. Since these general physical inventory data are expected to be obtained for major road links to be built in the computerized model, such data are expected to be obtained for all the major inter-Shiakha roads. In total the road inventory survey was carried out for some 65 corridors including the 20 major corridors (public transport routes), for which the travel speed survey was implemented.

The road surface conditions for 20 major public transport routes in the Greater Cairo Metropolitan Area (GCMA) was observed expressed by the Pavement Condition Index (PCI).

## **10.2 ROAD CONDITION DATABASE STRUCTURE**

The road condition database was built using both file structures, i.e. spreadsheet style (**XLS**) for road inventory data and database style (**DBF**) for PCI data. Table 10.2.1 shows the database file structure of road inventory data, which are organized in 65 spreadsheet files, each one corresponding to one route. The route code and number of passed Shiakhas are shown in the first row. The route length and direction are illustrated in the second row, while route description is indicated in the third row.

The general physical road inventory will include the following data for each road section.

- One way or two way.
- Side friction level caused by roadside activities (level 1: high, level 2: medium, level 3: low).
- Roadside parking (yes/no, one side or two sides).
- Pavement width (m).
- Number of intersection and their configuration (three-leg, four-leg or more, roundAbut) and traffic control (signalized/unsignalized).
- Median (yes/no).

In Table 10.2.1, intersection characteristics are indicated in columns **A** through **F**, while road segments characteristics are shown in columns **G** through **R**. The description of coded fields are given in Table 10.2.2. For example, the intersection configuration (see column **D**) may be 3-leg, 4-leg, roundAbut or other depending on its field code value.

Pavement Condition Index (PCI) method was used to depict the pavement condition at the selected road sections. The results, including the deduct points of each distress and the overall PCI value for each section, are then estimated.

The second part of road condition survey was investigating the road surface condition using PCI value for the 20 major public transport routes. PCI database adopts the standard file format as shown in Tables 10.2.3 and 10.2.4. It should be noted that Table 10.2.3 contains many data fields that were used to estimate the Pavement Condition Index (PCI) shown in field number 66. Route description and direction are detailed in Table 10.2.4.

**Table 10.2.1 Description of Road Inventory Survey Database**

<b>Structure for Spreadsheet:</b>		<b>INV-R01.XLS, INV-R02.XLS, ....., INV-R65.XLS</b>
Number of Data Records:		<b>Variable</b>
Database File Path:		C:/CREATS DATABASE/ROAD CONDITION/INVENTROY/
Database Source:		Road Condition Survey of CREATS
Row/Column	Coded	Column Label
<b>1</b>		Route Code and No of Passed Shiakhas
<b>2</b>		Route Length and Direction
<b>3</b>		Description of Route Path
<b>4</b>		Survey Date and Names of Surveyor and Supervisor
<b>A</b>		Intersection No
<b>B</b>		Intersection Name (Description)
<b>C</b>	Y	Intersection Configuration (Going Direction)
<b>D</b>	Y	Intersection Configuration (Coming Direction)
<b>E</b>	Y	Traffic Control System at Intersection (Going Direction)
<b>F</b>	Y	Traffic Control System at Intersection (Coming Direction)
<b>G</b>	Y	Road Segment: One-Way or Two-Way
<b>H</b>	Y	Road Segment: Divided or Undivided
<b>I</b>	Y	Road Segment: Parking Condition (Going Direction)
<b>J</b>	Y	Road Segment: Parking Condition (Coming Direction)
<b>K</b>		Road Segment: Carriageway Width (Coming Direction)
<b>L</b>		Road Segment: Carriageway Width (Going Direction)
<b>M</b>		Road Segment: Sidewalk Width (Going Direction)
<b>N</b>		Road Segment: Sidewalk Width (Coming Direction)
<b>O</b>		Road Segment: Median Width
<b>P</b>	Y	Side Friction Condition
<b>Q</b>	Y	Road Segment Length (meter)
<b>R</b>	Y	Cumulative Length of Road Segments (meter)
<b>S</b>		Remarks

**Table 10.2.2 Field Code Definition of Road Inventory Survey Database**

<b>Column Codes Used in Spreadsheet:</b>		<b>INV-R01.XLS, INV-R02.XLS, ....</b>	
<b>Column</b>	<b>Column Label</b>	<b>Code</b>	<b>Column Code Description</b>
<b>C</b>	Intersection Configuration (Going Direction)	1	Three-Leg Intersection
<b>D</b>	Intersection Configuration (Coming Direction)	2	Four-Leg Intersection
		3	RoundAbut
		4	Other
<b>E</b>	Traffic Control System at Intersection (Going Direction)	1	Signalized
<b>F</b>	Traffic Control System at Intersection (Coming Direction)	2	Un-signalized
<b>G</b>	Road Segment: One-Way or Two-Way	1	One-Way
		2	Two-Way
<b>H</b>	Road Segment: Divided or Undivided (Going Direction)	1	Divided
		2	Undivided
<b>I</b>	Road Segment: Parking Condition (Going Direction)	1	One Side
<b>J</b>	Road Segment: Parking Condition (Coming Direction)	2	Two Sides
		3	No Parking
<b>P</b>	Side Friction Condition	1	Low
<b>Q</b>	Road Segment Length (meter)	2	Medium
<b>R</b>	Cumulative Length of Road Segments (meter)	3	High

**Table 10.2.3 Description of Road Pavement Index (PCI) Database**

<b>Structure for Database:</b>		<b>ROAD_PCI.DBF</b>			
Number of Data Records:		<b>669</b>			
Database File Path:		C:/CREATS DATABASE/ROAD CONDITION/PCI/			
Database Source:		Road Condition Survey of CREATS			
Field	Field Name	Type	Width	Coded	Field Description
1	ROAD_CODE	Character	4	Y	Road Code
2	DIRECTION	Numeric	2	Y	Direction of Survey
3	SECTION	Numeric	3		Surveyed Road Section No
4	WIDTH_M	Numeric	6		Carriageway Width (Meters)
5	FROM_KM	Numeric	3		Start Kilometrage for Surveyed Road Section
6	TO_KM	Numeric	5		End Kilometrage for Surveyed Road Section
7	DV_L01	Character	3		Alligator Cracking: Low Severity
8	DV_M01	Character	3		Alligator Cracking: Medium Severity
9	DV_H01	Character	3		Alligator Cracking: High Severity
10	DV_L02	Character	1		Bleeding: Low Severity
11	DV_M02	Character	2		Bleeding: Medium Severity
12	DV_H02	Character	2		Bleeding: High Severity
13	DV_L03	Character	2		Block Cracking: Low Severity
14	DV_M03	Character	1		Block Cracking: Medium Severity
15	DV_H03	Character	3		Block Cracking: High Severity
16	DV_L04	Character	2		Bumps and Sags: Low Severity*
17	DV_M04	Numeric	3		Bumps and Sags: Medium Severity*
18	DV_H04	Character	3		Bumps and Sags: High Severity*
19	DV_L05	Character	2		Corrugation: Low Severity
20	DV_M05	Numeric	3		Corrugation: Medium Severity
21	DV_H05	Character	3		Corrugation: High Severity
22	DV_L06	Character	2		Depression: Low Severity
23	DV_M06	Numeric	2		Depression: Medium Severity
24	DV_H06	Character	3		Depression: High Severity
25	DV_L07	Character	2		Edge Cracking: Low Severity*
26	DV_M07	Character	2		Edge Cracking: Medium Severity*
27	DV_H07	Character	2		Edge Cracking: High Severity*
28	DV_L08	Character	9		Joint Reflection Cracking: Low Severity*
29	DV_M08	Character	9		Joint Reflection Cracking: Medium Severity*
30	DV_H08	Character	9		Joint Reflection Cracking: High Severity*
31	DV_L09	Character	9		Lane/Shoulder Drop Off: Low Severity*
32	DV_M09	Character	2		Lane/Shoulder Drop Off: Medium Severity*
33	DV_H09	Character	2		Lane/Shoulder Drop Off: High Severity*
34	DV_L10	Character	2		Long & Trans Cracking: Low Severity*
35	DV_M10	Character	2		Long & Trans Cracking: Medium Severity*

**Table 10.2.3 Description of Road Pavement Index (PCI) Database, Continued**

<b>Structure for Database:</b>		<b>ROAD_PCI.DBF</b>			
Number of Data Records:		<b>669</b>			
Database File Path:		C:/CREATS DATABASE/ROAD CONDITION/PCI/			
Database Source:		Road Condition Survey of CREATS			
Field	Field Name	Type	Width	Coded	Field Description
36	DV_H10	Character	3		Long & Trans Cracking: High Severity*
37	DV_L11	Character	3		Patching & Utility Cut Patching: Low Severity
38	DV_M11	Numeric	3		Patching & Utility Cut Patching: Medium Severity
39	DV_H11	Numeric	3		Patching & Utility Cut Patching: High Severity
40	DV_L12	Character	3		Polished Aggregate: Low Severity
41	DV_M12	Character	9		Polished Aggregate: Medium Severity
42	DV_H12	Character	2		Polished Aggregate: High Severity
43	DV_L13	Character	9		Potholes: Low Severity
44	DV_M13	Character	3		Potholes: Medium Severity
45	DV_H13	Character	3		Potholes: High Severity
46	DV_L14	Character	9		Railroad Crossing: Low Severity
47	DV_M14	Character	2		Railroad Crossing: Medium Severity
48	DV_H14	Character	3		Railroad Crossing: High Severity
49	DV_L15	Character	9		Rutting: Low Severity
50	DV_M15	Character	2		Rutting: Medium Severity
51	DV_H15	Character	3		Rutting: High Severity
52	DV_L16	Character	2		Shoving: Low Severity
53	DV_M16	Character	2		Shoving: Medium Severity
54	DV_H16	Character	3		Shoving: High Severity
55	DV_L17	Character	2		Slippage Cracking: Low Severity
56	DV_M17	Character	2		Slippage Cracking: Medium Severity
57	DV_H17	Character	2		Slippage Cracking: High Severity
58	DV_L18	Character	9		Swell: Low Severity
59	DV_M18	Character	9		Swell: Medium Severity
60	DV_H18	Character	2		Swell: High Severity
61	DV_L19	Character	2		Weathering and Raveling: Low Severity
62	DV_M19	Character	3		Weathering and Raveling: Medium Severity
63	DV_H19	Character	3		Weathering and Raveling: High Severity
64	TOTAL_DV	Numeric	4		Total Distress Deduct Value
65	CDV	Numeric	3		Corrected Distress Deduct Value
66	PCI	Numeric	4		Pavement Condition Index

\* All distresses are measured in squared meters except for distresses numbers 4, 7, 8, 9 and 10, which are measured.



**Table 10.2.4 Field Code Definition of Road Pavement Index (PCI) Database**

Field Codes Used in Database:		ROAD_PCI.DBF
Field Name and Description		Description of DIRECTION 1
ROAD_CODE	DISCRPTION	
<b>R01</b>	Cornish Road (Helwan) - Teret Ismailiya St. - Kablat St. - Abu Bakr Sedeeq - Hussein Kamel Seleem St.	Waraq to Abu El Nomros
<b>R02</b>	Gamal Abdel Naser (Abu El Nomros - Giza - Waraq) up to CRR	Nasr Road to Agoosa
<b>R03</b>	6th of October Flyover (Agoosa - Ghamara - Nasr Road)	Dokki Sq. to Ring Road
<b>R04</b>	Tahreer St. (Dokki) - Geish St. - Abaseya St. - Khaleefa El Maamoon St. - Fareeq Azeez El Masry St. (Up to CRR)	Madkhal El Mansoreya to Matar Bus Station
<b>R05</b>	Pyramid area - El Haram St. - Rooda - Salah Salem St. - Orooba St. (Airpot).	Teraat El Ismaileya With Ring Road to Saft El Laban With Ring Road
<b>R06</b>	Saft El Laban - Sarwat St. - Abdel Salam Aaref St. - Gamaa Bridge - Port Said St. - Teret El Howary St. - Horya St. - Petrol Companies Road - Teret Ismailiya Road up to CRR	Helwan to Taqatoa El Suez With Ring Road
<b>R07</b>	Nasr Road (Helwan) - Citadel - Nasr City - Suez Road up CRR	Sayeda Zeinab Sq. to Houndai Service Center
<b>R08</b>	Sayeda Zeinab Sq. - Port Said St. - Komy St. - Khayry St. - Magles El Shaab St. - Emad El Deen St. - Ahmed Helmy St. - Alex. Agr. Road (CRR).	Tahreer Sq. to Moasasa Sq.
<b>R09</b>	Tahreer Sq. - Talat Harb St. - Oraby St. - Shobra St. - Madraset El Mamaleek St. - Korneish St. - Magles El Madina St. - Shobra El Kheima Metro Station	Azhar With Salah Salem to 26 July With Ring Road
<b>R10</b>	26th of July St. (CRR) - Zamalek - Abdel Khaleq Sarwat St. - Opera Sq. - Azhar St. - Gohar El Qaed St. (Salah Salem ST.)	Teraat El Zomor With El Moneeb Br.
<b>R11</b>	Zomor Canal Road from El Moneeb Flyover to Galatma Road	Taqatoa El Mansoreya to Giza Sq.
<b>R12</b>	Feisal St. from Giza Sq. to Mansoreya Canal	Kit Kat Sq. to Feisal Br.
<b>R13</b>	Sudan St. from under Feisal Flyover to Kit Kat Sq.	The End Of Rood El Farag Br. to Rood El Farag Corridor With Ring Road
<b>R14</b>	(CCR) Rood al-Farag Corridor - Moneera - Waraq - Rood al-Farag Bridge up to Korneish El Nile St.	Korneish With Magles El Madina to Ring Road
<b>R15</b>	Intersection between Korneish St. & Magles El Madina St. - Sharqaweya Bridge - Qanater Agriculture Road up to CRR	Korneish El Maadi to Saqr Qoreish
<b>R16</b>	Nahda St. - 275 St. - Nady El Gedeed St. - Laselky St. - Nasr Road	Hay El Sades With El Shaheed Ahmed Shawqy to Khalafawy Sq.
<b>R17</b>	Hay El sads St. - Ismail El Fangary St. - Seket El Wayly St. - Manshyat El Gamal St. - Maamal El Alban Street (Al Khalafawy Sq.)	Ramsees St.Extension With Nasr Road to The End Of Afreqya St
<b>R18</b>	Imtedad Ramsees Street from Nasr Road - Shaheed Ahmed Shawqy St. - Khaleefa El Qaher St. - Mostafa El Nahas St. - End of Afreqya St.	Alf Maskan Sq. to Emarat El Mohandeseen
<b>R19</b>	End of Ibraheem Abu El Naga St. - Abu El Atahya St. - Abas El Aqad St. - El Nozha St. - Shaheed Fareed Semeka St. (Alf Maskan Sq.)	Suez Road to Matar Br.
<b>R20</b>	From Matar Flyover to Cairo-Suez Desert Road (Matar Ring Road)	

## **CHAPTER 11: PARKING DATABASE**

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Traffic management and control in urban areas is highly affected by discrepancy between parking demand and supply especially in down town areas and in the vicinity of activity centers. The traffic congestions and reduction of traffic capacity on most road sections in the Cairo city are primarily caused by inevitable on-street parking. The successfulness of any traffic planning is conditioned by the extent to which the parking requirements are achieved.

Consequently the study of parking demand and supply should be always a basic integral constituent of any traffic study. Good estimates of quantitative parking supply requirements are conditioned by the good awareness About the characteristics of usage of existing parking facilities, i.e. parking durations and turnovers on street, off-street or in parking garages.

The parking survey is classified into two kinds of survey as off-street parking survey and on-street parking survey. The off-street parking survey includes 5 locations for multi-storey garage survey outlined in Section 11.1 and 10 lots for at-grade parking lot survey addressed in Section 11.2. The on-street survey is composed of parking parameter survey on 30 road sections as parking duration and parking turn-over rate (see Section 11.3) and parking occupancy survey in CBD areas (see Section 11.4).

### **11.1 MULTI-STOREY GARAGE INTERVIEW DATABASE**

#### **11.1.1 Overview**

Regarding the multi-storey garages survey, the surveyors were located at entrance and at exit of the garage. The surveyors recorded the plate number of each vehicle, the arrival/exit time and counted the number of vehicles by types. The survey period was 24 hours from 6:00 AM to 6:00 AM in the next morning. The multi-storey garage survey includes garage-user interview survey for 200 samples and the situation of parking facilities in the 5 surveyed garages.

The garage-user interview survey includes the following items:

- Person characteristics, e.g., sex and occupation.
- Parking information, e.g., parking purpose, duration, charge, payer of parking charge, frequency of usage, usage of other garages and any problems on parking, origin place distance and walking distance.

The survey items for the parking facilities survey were as follows:

- Building: parking area and number of stories,
- Parking space: parking capacity, average daily number of parking cars and average parking duration,
- Parking charge: parking charge, ticket issue, and charge collection system.

The parking survey was performed on normal week days, i.e. Monday, Tuesday or Wednesday during the period of Home Interview Survey (HIS) between September 15 and November 15, 2001.

### **11.1.2 GARAGE INTERVIEW Database Structure**

The collected data of multi-storey garage interview survey is stored in a standard file format (GARAGE\_COUNTS.DBF and GARAGE\_INTERVIEWS.DBF) in which around 10,320 and 200 records represent the total number of counted vehicles and the total number of interview records, respectively. Table 11.1.1 shows the database structure of the counted vehicles at different garages. Garage code, direction, survey date, vehicle type, vehicle plate number and number of passengers in the counted vehicle were included in Table 11.1.1. The field code description for garage code, direction and vehicle type are given in Table 11.1.2.

The file structure of the garage-user interview records is given in Table 11.1.3 followed by Table 11.1.4 for field code description.

**Table 11.1.1 Description of Garage Count Database**

<b>Structure for Database:</b>		<b>GARAGE_COUNTS.DBF</b>			
Number of Data Records:		<b>10,329</b>			
Database File Path:		C:/CREATS DATABASE/PARKING/GARAGE/			
Database Source:		Parking Survey of CREATS			
Field	Field Name	Type	Width	Coded	Field Description
1	GRG_CODE	Character	3	Y	Garage Code
2	IN_OUT	Numeric	1	Y	Code for Entering or Exiting the Garage
3	SRVY_DAY	Numeric	2		Survey Day
4	SRVY_MONTH	Numeric	2		Survey Month
5	VEH_SR	Numeric	5		Serial No of Vehicle Entering or Exiting the Garage
6	SRVY_HR	Numeric	2		Survey Hour
7	SRVY_MIN	Numeric	2		Survey Minute
8	PRVT_CAR	Numeric	1	Y	Code for Private Car
9	MICROBUS	Numeric	1	Y	Code for Microbus
10	VAN	Numeric	1	Y	Code for Van
11	OTHERS	Numeric	1	Y	Code for Other Vehicles
12	PLATE_NO	Numeric	8		Plate No of Vehicle
13	OCCUPANCY	Numeric	2		No of Passengers in the Counted Vehicle

**Table 11.1.2 Field Code Definition of Garage Count Database**

<b>Field Codes Used in Database:</b>			<b>GARAGE_COUNTS.DBF</b>	
Field	Field Name	Field Description	Code	Field Code Description
1	GRG_CODE	Garage Name	G01 G03 G04 G05	Opera Garage Gomhoreya Garage Ataba Garage Ramsees Hilton Shopping Center Garage
2	IN_OUT	Code for Entering or Exiting the Garage	1 2	Entering the Garage Exiting the Garage
8	PRVT_CAR	Code for Private Car	0	No Count
9	MICROBUS	Code for Microbus	1	This Vehicle Type is Counted
10	VAN	Code for Van		
11	OTHERS	Code for Other Vehicles		

**Table 11.1.3 Description of Garage Interview Database**

<b>Structure for Database:</b>		<b>GARAGE_INTERVIEWS.DBF</b>			
Number of Data Records:		<b>200</b>			
Database File Path:		C:/CREATS DATABASE/PARKING/GARAGE/			
Database Source:		Parking Survey of CREATS			
Field	Field Name	Type	Width	Coded	Field Description
1	GRG_CODE	Character	11	Y	Garage Code
2	DAY	Numeric	2		Survey Day
3	MONTH	Numeric	2		Survey Month
4	YEAR	Numeric	4		Survey Year
5	Q1	Numeric	1	Y	Gender
6	Q2	Numeric	1	Y	Occupation
7	Q3	Numeric	1	Y	Purpose of Parking
8	Q4_1	Numeric	1	Y	Where Did You Come From: Type of Facility
9	Q4_2	Numeric	1	Y	Where Did You Come From: How Far
10	Q5	Numeric	1	Y	Parking Duration and Charge
11	Q6	Numeric	1	Y	Who Does Pay for Parking Charge this Parking
12	Q7	Numeric	1	Y	How Many Times Do You Use This Garage in a Week
13	Q8	Numeric	1	Y	Can You Use Other Garage if This Garage Is Not Available
14	Q9	Numeric	1	Y	Do You Have Any Problem on Parking

**Table 11.1.4 Field Code Definition of Garage Interview Database**

<b>Field Codes Used in Database:</b>			<b>GARAGE_INTERVIEWS.DBF</b>	
Field	Field Name	Field Description	Code	Field Code Description
1	GRG_CODE	Garage Name	G01 G03 G04 G05	Opera Garage Gomhoreya Garage Ataba Garage Ramsees Hilton Shopping Center Garage
5	Q1	Gender	1 2	Male Female
6	Q2	Occupation	1 2 3 4 5 6	Director and Manager Professional Workers Clerical Workers Sales Workers Services Workers Others
7	Q3	Purpose of Parking	1 2 3 4 5 6	To working Place To school/Institute To Home Business Activity Shopping, Eating and Private Activities Others

**Table 11.1.4 Field Code Definition of Garage Interview Database (Continued)**

Field Codes Used in Database:			GARAGE_INTERVIEWS.DBF	
Field	Field Name	Field Description	Code	Field Code Description
8	Q4_1	Where Did You Come From: Type of Facility	1 2 3 4 5 6	Residence Private Office Government Office School/Institute Shops/Restaurant Others
9	Q4_2	Where Did You Come From: How Far	1 2 3 4 5 6 7	In This Building < 500 m Apart 50 - 100 m Apart 100 - 200 m Apart 200 - 300 m Apart 300 - 400 m Apart > 500 m Apart
10	Q5	Parking Duration and Charge	1 2 3 4 5 6 7	Less than half hour 0.5 - 1.0 hours 1.0 - 1.5 hours 1.5 - 2.0 hours 2.0 - 3.0 hours 3.0 - 5.0 hours > 5.0 hours
11	Q6	Who Does Pay for Parking Charge this Parking	1 2 3	By myself Company Free
12	Q7	How Many Times Do You Use This Garage in a Week	1 2 3 4 5 6 7	Every day except holiday Less than 1 time 1 - 2 times 2 - 3 times 3 - 4 times 4 - 5 times More than 5 times
13	Q8	Can You Use Other Garage if This Garage Is Not Available	1 2 3 4 5 6	Yes, easily Another similar garage On road Others Difficult Impossible
14	Q9	Do You Have Any Problem on Parking	1 2	No problem Problems, Please specify

## 11.2 AT-GRADE PARKING LOT SURVEY DATABASE

### 11.2.1 Overview

The methodology of performing multi-storey garages survey was applied in at-grade parking lot survey. Ten off-street parking lots were surveyed for 16 hours from 6:00 AM to 10:00 PM.

The survey was performed on normal week days, i.e. Monday, Tuesday or Wednesday during the period of Home Interview Survey (HIS) between September 15 and November 15, 2001.

### 11.2.2 Off-Street Parking Survey Database Structure

The standard file structure format was applied to the database housing the off-street parking lots survey results. The structure of Table 11.2.1 is similar to Table 11.1.1 except for the first field in both, which represents the name of surveyed off-street parking facility. The names of surveyed off-street parking lots are given in Table 11.2.2.

## 11.3 ON-STREET PARKING SURVEY DATABASE

### 11.3.1 Overview

The on-street parking survey is basically different from off-street and garages parking surveys in that the arrival and departure of cars in case of on-street occur randomly anywhere along the road side and not at an entrance or an exit gate.

The Study Team selected 30 road segments to carry out this kind of survey. Within each road side, the parked vehicles were counted at 30-minute intervals during the survey period. The specified road section is walked by the surveyor who notes down the type and the plate number of every parked vehicle. The survey period was 16 hours from 6:00 AM to 10:00 PM.

### 11.3.2 On-Street Parking Survey Database Structure

The alternative file structure format (*XLS*) was used to keep the on-street parking survey results as indicated in Table 11.3.1 in which a series of Excel files named "PS-N01.XLS" through "PS-N30.XLS" were built to keep the survey data for location 1 through location 30, respectively.

It should be noted that each of the 30 files has two spreadsheets for direction 1 and direction 2 as illustrated in the second row of Table 11.3.1. Survey location names are shown in Table 11.3.2 together with vehicle type code.

**Table 11.2.1 Description of Off-Street Survey Database**

<b>Structure for Database:</b>		<b>OFF-STREET_PARKING.DBF</b>			
Number of Data Records:		<b>8,226</b>			
Database File Path:		C:/CREATS DATABASE/PARKING/OFF-STREET/			
Database Source:		Parking Survey of CREATS			
Field	Field Name	Type	Width	Coded	Field Description
1	PRK_CODE	Character	3	Y	Off-Street Parking Lot Code
2	IN_OUT	Numeric	1	Y	Code for Entering or Exiting the Parking Lot
3	SRVY_DAY	Numeric	2		Survey Day
4	SRVY_MONTH	Numeric	2		Survey Month
5	VEH_SR	Numeric	4		Serial No of Vehicle Entering or Exiting the Parking Lot
6	SRVY_HR	Numeric	2		Survey Hour
7	SRVY_MIN	Numeric	2		Survey Minute
8	PRVT_CAR	Numeric	1	Y	Code for Private Car
9	MICROBUS	Numeric	1	Y	Code for Microbus
10	VAN	Numeric	1	Y	Code for Van
11	OTHERS	Numeric	1	Y	Code for Other Vehicles
12	PLATE_NO	Numeric	8		Plate No of Vehicle
13	OCCUPANCY	Numeric	2		No of Passengers in the Counted Vehicle

**Table 11.2.2 Field Code Definition of Off-Street Survey Database**

<b>Field Codes Used in Database:</b>			<b>OFF-STREET_PARKING.DBF</b>	
Field	Field Name	Field Description	Code	Field Code Description
1	PRK_CODE	Off-Street Parking Lot Code	F01 F02 F03 F04 F05 F06 F07 F08 F09 F10	Abdel Moniem Reyad Sq. (East) Near Omar Makram Mosque Abdel Moniem Reyad Sq. (West) Falaky Paking Lot Ahmed Oraby St. (in front of Omar Afandy) Under 26th of July Corridor before Sphinx Sq. (15th of May Lot) Under 26th of July Corridor at Korniesh Parking Lot (Egoth company) Under 26th of July Corridor in front of Zamalek Club Mesaha Sq. Garden Lot at Tersana Towers Area
2	IN_OUT		1 2	Entering the Garage Exiting the Garage
8	PRVT_CAR	Code for Private Car	0	No Count
9	MICROBUS	Code for Microbus	1	This Vehicle Type is Counted
10	VAN	Code for Van		
11	OTHERS	Code for Other Vehicles		



**Table 11.3.1 Description of On-Street Survey Database**

<b>Structure for Database:</b>			<b>PS4-Nxx.XLS*</b>
Spreadsheet Name:			Direction1 and Direction2
Number of Data Records:			<b>Variable</b>
Database File Path:			C:/CREATS DATABASE/PARKINGT/ON-STREET
Database Source:			Parking Survey of CREATS
<b>Row/Column</b>	<b>Type</b>	<b>Coded</b>	<b>Column Label</b>
<b>5</b>	Character		Street Name
<b>6</b>	Character	Y	Street Code
<b>7</b>	Numeric	Y	Direction
<b>7</b>	Character		Direction: From
<b>7</b>	Character		Direction: To
<b>6</b>	Date		Date of Survey
<b>7</b>	Character		Name Activity Center (CBD, Roxy - Abas El Aqad or Giza)
<b>A</b>	Character	Y	Vehicle Type
<b>B</b>	Character		Plate No

**Nxx:** A Number ranges from 01 to 30, which represents the survey location code

Columns **A** and **B** are repeated for every counting period (30-minute).

**Table 11.3.2 Field Code Definition of On-Street Survey Database**

Column Codes Used in Spreadsheet:		PS4-Nxx.XLS*	
Field	Field Description	Code	Code Description
Nxx	Survey Location No	N01	Geish St.
		N02	Abd El Aziz St.
		N03	Talaat Harb
		N04	Abd El Salam Aaref St. & Mohamed Fareed St.
		N05	Tahreer St.
		N06	Gomhoreya St.
		N07	Port Said St.
		N08	Nobar St.
		N09	Khayrat St.
		N10	Ali Yosef St.
		N11	Maahad Eshtraky St.
		N12	Makram Ebeid St.
		N13	Hassan Maamoon St.
		N14	Abas El Aqad St.
		N15	Tayaran St.
		N16	Ahram St.
		N17	Haroon El Rasheed St.
		N18	Hegaz St.
		N19	Moorad st.(Giza).
		N20	Sorya St.
		N21	Rabie El Gizy St. (Salah Salem)
		N22	Dokki St.
		N23	Osman Ibn Afan St.
		N24	Mohy El Deen Abu El Ezz St.
		N25	Tahreer St.
		N26	Ahmed Oraby St.
		N27	Sudan St.
		N28	Mosadaq St.
		N29	Bat Ahmed Abdel Aziz St.
		N30	Malek Feisal St.
Street Code	Street Code		See Street Name in the Same Spreadsheet
Direction	Direction of Survey		See From and To in the Same Spreadsheet
Vehicle Type	Vehicle Type	P	Passenger Car
		M	Microbus
		L	Large Van
		O	Others

\* **xx**: A Number ranges form 01 to 30, which represents the survey location code

## **11.4 PARKING OCCUPANCY DATABASE**

### **11.4.1 Overview**

The area for the parking occupancy survey is Cairo CBD area and Giza CBD area, which were divided into zones based on the Shiakha boundaries.

Regarding the parking occupancy survey, the surveyors recorded the number of parking vehicles on any street by links during three peak periods within the surveyed area. The number of illegal parked vehicle was also observed. The parking occupancy survey periods are outlined below:

- Morning peak period : 08:00-10:00
- Afternoon peak period : 12:00-14:00
- Evening peak period : 16:00-18:00

### **11.4.2 Parking Occupancy Database Structure**

Table 11.4.1 presents the structure of parking occupancy database, which has 3,618 survey records. The database includes Governorate, parking zone number, link number, side number, existence of parking regulation, number of parked vehicle during 3 survey periods and the parking capacity. Field code description

It should be mentioned that link number or side number could not be shown in a computerized map. However, a hardcopy map was used to divide the surveyed area into parking zones, on which link numbers and side numbers were assigned. As for parking zone numbers, Figure 8.3.16 of Interim Report Vol. III should be consulted.

**Table 11.4.1 Description of Parking Occupancy Database**

<b>Structure for Database:</b>		<b>PARKING_OCCUPANCY.DBF</b>			
Number of Data Records:		<b>3,618</b>			
Database File Path:		C:/CREATS DATABASE/PARKING/OCCUPANCY/			
Database Source:		Parking Survey of CREATS			
Field	Field Name	Type	Width	Coded	Field Description
1	GVRN	Numeric	1	Y	Governorate
2	ZONE	Numeric	3	Y	Zone No
3	LINK_NO	Numeric	4		Link No
4	SIDE	Numeric	2		Side No
5	PRK_RGULT	Character	3	Y	Is There Parking Regulation
6	NPV_08_10	Numeric	4		No of Parked Vehicles during 08:00 - 10:00
7	NPV_12_14	Numeric	4		No of Parked Vehicles during 12:00 - 14:00
8	NPV_16_18	Numeric	4		No of Parked Vehicles during 16:00 - 18:00
9	LINK_METER	Numeric	5		Link Length in Meters
10	CAPACITY	Numeric	6		Max. No of Vehicles That Can Be Parked

**Table 11.4.2 Field Code Definition of Parking Occupancy Database**

<b>Field Codes Used in Database:</b>			<b>PARKING_OCCUPANCY.DBF</b>	
Field	Field Name	Field Description	Code	Field Code Description
1	GVRN	Governorate	1	Cairo
			2	Giza
2	ZONE	Zone No		See Relevant Map in Interim Report Vol. 3
5	PRK_RGULT	Is There Parking Regulation	1	Yes
			2	No

## **CHAPTER 12: ENVIRONMENTAL DATABASE**

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The Environmental Survey was one of the 11 traffic Surveys carried out within CREATS study area. The objective of environmental survey was to address the major environmental problems that agonize the Study Area in relation to the existing traffic situation.

The Environmental Survey consisted of three components:

- Environmental Awareness Survey (EAS).
- Air Quality Survey.
- Noise level Survey.

The Environmental Awareness Survey was proposed additionally to identify the awareness of residents living in the Study Area of environmental problems and issues related to traffic, so that the information obtained from this Survey will contribute to the consensus formation of the Master Plan.

Guiding principles in designing the Environmental Surveys were:

- Compliance with the preliminary work program outlined in the inception report.
- Observation of logistic constraints with respect to the availability of monitoring equipment and mobile stations.
- Reliability of results to be expected.
- Significance of data to serve as a basis for planning and management options to be incorporated into the Master Plan.

### **12.1 ENVIRONMENTAL AWARENESS SURVEY (EAS) DATABASE**

#### **12.1.1 Overview**

An Environmental Awareness Survey (EAS) was included in the environmental component of the Cairo Regional Area Transportation Study (CREATS). From 3 to 8 November 2001 the Environmental Awareness Survey was carried out in the residential area inside the Ring Road of Cairo. The major objective of this Survey

was to obtain actual baseline data on residents of Cairo and to investigate the perception of the interviewed people of environmental issues related to the traffic situation in Cairo.

More specifically, the objectives of the Environmental Awareness Survey were:

- To obtain the perception of residents of Cairo of traffic-related environmental problems.
- To determine the magnitude of problems, at the individual perception level, related to Cairo's traffic conditions.
- To identify the main concerns and aspirations of the public related to environmentally sound planning of traffic projects and project alternatives.
- To identify the degree of willingness of residents of Cairo to contribute to the solution of major environmental problems associated with the transport sector.

For practical and logistic reasons it was agreed to separate the Environmental Awareness Survey from the Traffic Household Survey under this project. Instead, a sub-sample of 1000 households, distributed among different (but representative) zones of Cairo, was selected where a team of trained interviewers conducted the Survey, using the questionnaire presented in the Appendix.

A sample of 1,036 residents were interviewed during EAS within the boundaries of the Ring Road. The selection of the interviewed households in each zone was done following the random sampling procedure used in HIS.

Actual execution of the EAS started on 3 and ended on 8 November 2001. Two groups were working separately, each group composed of 22 surveyors led by a supervisor

### **12.1.2 Environment Awareness Survey (EAS) Database Structure**

The EAS was performed using two survey forms. The output of the first survey form 1 was housed in a database file "EAS\_FORM1.DBF", which comprising 1,036 interview records as shown in Table 11.1.1. This file contains information regarding household characteristics, e.g., household size, number of working and students members by gender, type of place of residence, total monthly income, vehicle ownership, fuel consumption and parking place. The residence place type was elaborated in addition to other fields in Table 11.1.2.

The second survey form was used to identify the following topics:

- Level of perception of environmental problems attributed to traffic development.
- Degree of annoyance attributed to traffic conditions, poor air quality and noise.

- Personal ailments/diseases/disorders/complaints attributed to traffic conditions, poor air quality and noise level.
- Perception of causes and solutions to solve key environmental problems related to traffic.
- Degree of willingness to contribute to solutions for major environmental problems related to traffic.
- Degree of willingness to change behavioral patterns in relation to traffic problems.

Table 11.1.3 presents the collected data fields in the standard file format, which include the abovementioned items in addition to person characteristics (sex, age, occupation and education level). Almost all data fields are coded, which have to be included in the second description table (see Table 11.1.4). For instance, occupation and education level have been classified into 14 and 4 classes, respectively.

It should be noted that some fields may have the same definitions of their codes. In such a case, the field code description is mentioned for all of them once. For example, fields 7 to 18 of Table 11.1.4 have the same field code description (1 = Yes, 2 = No and 3 = No answer).

## **12.2 NOISE SURVEY DATABASE**

### **12.2.1 Overview**

A Noise Level Survey has been one of the components of the Environmental Survey Program, intended to assess the actual noise levels in the Study Area.

The measurements were carried out at 15 Survey Locations, in such a way that the streets, districts and suburbs – inside the Ring Road of Cairo – would be well represented. Actually, each Survey Location consisted of two Locations “A” and “B”, at a distance of each other of 100 to 1000 meters. The “A” Locations being the main location and the “B” Locations being the “background locations”.

The Survey Locations A and B were selected to represent:

- A:** the relatively polluted and “noisy” locations along the main roads in Cairo;
- B:** the less polluted and quieter locations in nearby residential areas, off the main roads (also called: background location).

Noise was measured once a week on a working day i.e. one of the three days: Monday, Tuesdays, or Wednesdays. The measurements were always carried out simultaneously on both the main (“A”) and background (“B”) locations.

The survey parameters included:

- L(A)eq - L(A)10
- L(A)max - L(A)50
- L(A)min - L(A)90

The field survey schedule defined for a weekday was: 10 minutes of measuring every hour for 24 hours (i.e., 50 minutes interval).

### **12.2.2 Noise Survey Database Structure**

The noise data has been kept in the standard file structure format, which includes 726 records as indicated in Table 11.2.1. The survey location code, survey date, measurement time (hour, minute and second) and the above survey parameters are included in this database. Only the field of survey locations has to be detailed in Table 11.2.2 to list 15 survey locations, which are divided into A and B each.

## **12.3 AIR POLLUTION SURVEY DATABASE**

### **12.3.1 Overview**

At the 30 (15 A and 15 B Survey Locations) Survey Locations in Cairo, the following parameters were measured:

- NO<sub>2</sub>, SO<sub>2</sub>, CO, HC, NMHC, CH<sub>4</sub>.
- PM<sub>10</sub> and PM<sub>2.5</sub>.
- Ambient air temperature.
- Relative humidity.
- Barometric pressure.

At the 15 Survey Locations A above parameters were measured for 24 hours continuously, during 7 days.

The 15 Survey Locations B were measured during 2 days on representative weekdays (a “peak day” and an “off-peak day”) continuously for 24 hours. The reason for this schedule is that the emission of major air pollutants in Cairo has a pronounced weekly fluctuation. The common pattern is that in Cairo Fridays (and to some extent Saturdays) are the days with the least concentration of air pollutants (off-peak days), while Mondays, Tuesdays, and Wednesdays show the peaks in air pollution (peak days).

### **12.3.2 Air Pollution Survey Database Structure**

Air pollution measurements have organized in one database file “AIR POLLUTION.DBF”, which consists of 3,204 records as shown in Table 11.3.1. The names of survey locations are specified in Table 11.3.2.



**Table 12.1.1 Description of Environment Awareness Survey Database (Form 1)**

<b>Structure for Database:</b>			<b>EAS_FORM1.DBF</b>		
Number of Data Records:			<b>1,036</b>		
Database File Path:			C:/CREATS DATABASE/ENVIRONMENT/EAS/		
Database Source:			Environmental Awareness Survey of CREATS		
Field	Field Name	Type	Width	Coded	Field Description
1	SMPL_NO	Numeric	7		Sample ID
2	QISM_ID	Numeric	5	Y	Qism Code
3	SHKH_ID	Numeric	3	Y	Shiakha Code
4	MALE_TOT	Numeric	3		Total No. of Male Persons per Household
5	MALE_EMP	Numeric	2		No. of Male Employees per Household
6	MALE_STD	Numeric	2		No. of Male Students per Household
7	MALE_OTH	Numeric	2		No. of Other Males per Household
8	FMAL_TOT	Numeric	3		Total No. of Female Persons per Household
9	FMAL_EMP	Numeric	2		No. of Female Employees per Household
10	FMAL_STD	Numeric	2		No. of Female Students per Household
11	FMAL_OTH	Numeric	2		No. of Other Females per Household
12	HH_6YR	Numeric	3		No. of Household Members > 6 Years
13	OWN_VEH	Numeric	2		Do you own Motorized Vehicles
14	MCYC_STR	Numeric	3		No. of Owned Motorcycles & Parked on-Street
15	MCYC_GRG	Numeric	3		No. of Owned Motorcycles & Parked off-Street
16	MCYC_FUEL	Numeric	4		Fuel Consumption of Motorcycle (LE/Month)
17	AUTO_STR	Numeric	3		No. of Owned Private Cars & Parked on-Street
18	AUTO_GRG	Numeric	3		No. of Owned Private Cars & Parked off-Street
19	AUTO_FUEL	Numeric	3		Fuel Consumption of Private Car (LE/Month)
20	PKUP_STR	Numeric	3		No. of Owned Pickups & Parked on-Street
21	PKUP_GRG	Numeric	3		No. of Owned Pickups & Parked off-Street
22	PKUP_FUEL	Numeric	4		Fuel Consumption of Pickup (LE/Month)
23	TAXI_STR	Numeric	3		No. of Owned Taxis & Parked on-Street
24	TAXI_GRG	Numeric	3		No. of Owned Taxis & Parked off-Street
25	TAXI_FUEL	Numeric	4		Fuel Consumption of Taxi (LE/Month)
26	SHTX_STR	Numeric	3		No. of Owned Shared Taxis & Parked on-Street
27	SHTX_GRG	Numeric	3		No. of Owned Shared Taxis & Parked off-Street
28	SHTX_FUEL	Numeric	4		Fuel Consumption of Shared Taxi (LE/Month)
29	TRUK_STR	Numeric	3		No. of Owned Trucks & Parked on-Street
30	TRUK_GRG	Numeric	3		No. of Owned Trucks & Parked off-Street
31	TRUK_FUEL	Numeric	4		Fuel Consumption of Truck (LE/Month)
32	HOUS_TYP	Numeric	2	Y	Type of Residence Place
33	NO_ROOMS	Numeric	2		No. of Rooms plus Living Room in Residence Place
34	ELCTRCTY	Numeric	5		Value of Monthly Electricity Consumption (LE)
35	TEL_BILL	Numeric	6		Value of Telephone Bill during the last 6 Months (LE)
36	HH_INCM	Numeric	2		Total Monthly Income per HH
37	AIR_COND	Numeric	2	Y	Do You Have an Air Condition
38	SATLT_TV	Numeric	2	Y	Do You Have an Satellite TV
39	NO_MOBILE	Numeric	2		No of Mobile Phones Owned by HH
40	MOBIL_BILL	Numeric	5		Value of Mobile Phones Bill per Months (LE)

**Table 12.1.2 Field Code Definition of Environment Awareness Survey Database  
(Form 1)**

Field Codes Used in Database:			EAS_FORM1.DBF	
Field	Field Name	Field Description	Code	Field Code Description
2	QISM_ID	Qism Code	Y	See Equivalence Table .....
3	SHKH_ID	Shiakha Code	Y	See Equivalence Table .....
32	HOUS_TYP	Type of Residence Place	1 2 3 4 5 6 7 8 9	Owned Villa Rented Villa Owned Apartment Rented Apartment Shared Apartment Rural House Improvised / Temporary Hut Other No Answer
37	AIR_COND	Do You Have an Air Condition	1 2	Yes No
38	SATLT_TV	Do You Have an Satellite TV	1 2	Yes No

**Table 12.1.3 Description of Environment Awareness Survey Database (Form 2)**

<b>Structure for Database:</b>		<b>EAS_FORM2.DBF</b>			
Number of Data Records:		<b>1,036</b>			
Database File Path:		C:/CREATS DATABASE/ENVIRONMENT/EAS/			
Database Source:		Environmental Awareness Survey of CREATS			
Field	Field Name	Type	Width	Coded	Field Description
1	SMPL_NO	Numeric	7		Sample ID
2	SEX	Numeric	2	Y	Sex
3	AGE	Numeric	2	Y	Age
4	OCCUP	Numeric	3	Y	Occupation
5	EDUC_LEVL	Numeric	2	Y	Education Level
6	AIR_POLL	Numeric	2	Y	Air Pollution in the Last 20 Years
7	BLACK_SPOT	Numeric	2	Y	Main Traffic Problems: Congestion at Black Spots
8	HEALTH	Numeric	2	Y	Main Traffic Problems: Health is Affected by Daily Exposure
9	VEH_SMOK	Numeric	2	Y	Main Traffic Problems: Exposure to Vehicle Smoke
10	NOISE_EXP	Numeric	2	Y	Main Traffic Problems: Exposure to Vehicle Noise
11	ACC_RISK	Numeric	2	Y	Main Traffic Problems: Accident Risk
12	SAF_PEDST	Numeric	2	Y	Main Traffic Problems: Safe Pedestrian Passenger
13	EN_PARKING	Numeric	2	Y	Main Traffic Problems: Enough Parking Places
14	TRF_POLIC	Numeric	2	Y	Main Traffic Problems: Controls by Traffic Police
15	ECON_ACTIV	Numeric	2	Y	Main Traffic Problems: Economic Activities are Negatively Influenced
16	PORB_NON1	Numeric	2	Y	Main Traffic Problems: Non
17	TRF_OTHER	Numeric	2	Y	Main Traffic Problems: Others
18	NOT_FAMLR1	Numeric	2	Y	Main Traffic Problems: Not Familiar
19	ALIMNENTS	Numeric	2	Y	Suffer from Respiratory Ailments
20	NIOSE_LVL	Numeric	2	Y	Suffer from High Noise Levels
21	INCR_VEH	Numeric	2	Y	Pollution is a Result of: Increased Number of Vehicles
22	INCR_AUTO	Numeric	2	Y	Pollution is a Result of: Increased Number of Private Cars
23	INDS_DEVLP	Numeric	2	Y	Pollution is a Result of: Industrial Development
24	INDS_POLL	Numeric	2	Y	Pollution is a Result of: Control of Heavy Industries
25	OLD_VEH	Numeric	2	Y	Pollution is a Result of: Old Vehicles
26	DRIV_HABT	Numeric	2	Y	Pollution is a Result of: Driving Habits
27	DRIV_TRAIN	Numeric	2	Y	Pollution is a Result of: Insufficient Training
28	CHECKUP	Numeric	2	Y	Pollution is a Result of: Insufficient Checkups
29	POLL_LAW	Numeric	2	Y	Pollution is a Result of: Insufficient Laws for Traffic Pollution
30	TRAF_LAW	Numeric	2	Y	Pollution is a Result of: Insufficient Traffic Regulations
31	QLTY_MONTR	Numeric	2	Y	Pollution is a Result of: Monitoring of Air Quality
32	GEOG_SIT	Numeric	2	Y	Pollution is a Result of: Geographic Situation
33	LACK_PLAN	Numeric	2	Y	Pollution is a Result of: Lack of Planning
34	SAND_PRTCL	Numeric	2	Y	Pollution is a Result of: Sand Particles
35	CONSTR_WR	Numeric	2	Y	Pollution is a Result of: Construction Works

**Table 12.1.3 Description of Environment Awareness Survey Database (Form 2),  
 Continued**

<b>Structure for Database:</b>			<b>EAS_FORM2.DBF</b>		
Number of Data Records:			<b>1,036</b>		
Database File Path:			C:/CREATS DATABASE/INVIRONMENT/EAS/		
Database Source:			Environmental Awareness Survey of CREATS		
Field	Field Name	Type	Width	Coded	Field Description
36	RICE_HAY	Numeric	2	Y	Pollution is a Result of: Rice Hay
37	NO_POLL	Numeric	2	Y	Pollution is a Result of: I Don't Think Air Quality Is Poor
38	POLL_OTHER	Numeric	2	Y	Pollution is a Result of: Others
39	NOT_FAMLR2	Numeric	2	Y	Pollution is a Result of: Not Familiar
40	ACDNT_INCR	Numeric	2	Y	Accident Rates Increase
41	ACDNT_SAME	Numeric	2	Y	Accident Rates Remain the Same
42	GOOD_TRIAN	Numeric	2	Y	Accident: Better Training
43	POLIC_CTRL	Numeric	2	Y	Accident: Intensify Traffic Police Controls
44	SPD_PNLTY	Numeric	2	Y	Accident: Higher Speeding Penalties
45	PDSTR_PASS	Numeric	2	Y	Accident: Safer Pedestrian Passages
46	AMBULANCE	Numeric	2	Y	Accident: Better Ambulance
47	NOT_FAMLR3	Numeric	2	Y	Accident: Not Familiar
48	VEH_CHECK	Numeric	2	Y	Stricter Vehicle Checks
49	NOT_SOLVE	Numeric	2	Y	Reduce Private Cars: Would not Solve the Problem
50	RED_CONGS	Numeric	2	Y	Reduce Private Cars: Would Reduce Congestion
51	LESS_POLL	Numeric	2	Y	Reduce Private Cars: Less Cars Would Reduce Pollution
52	SOC_INCNTV	Numeric	2	Y	Reduce Private Cars: Social and Economic Incentive
53	PC_OTHER	Numeric	2	Y	Reduce Private Cars: Others
54	NOT_FAMLR4	Numeric	2	Y	Reduce Private Cars: Not Familiar
55	CAR_ALT	Numeric	2	Y	Alternative to Private Cars
56	CNG_KNOW	Numeric	2	Y	Do you Know CNG Cars
57	CNG_CNVRT	Numeric	2	Y	Convert to CNG
58	HIGH_COST	Numeric	2	Y	Why not Convert: High Cost
59	ENG_PROB	Numeric	2	Y	Why not Convert: Engine Problems
60	LONG_QUE	Numeric	2	Y	Why not Convert: Queuing at Filling Stations
61	SAFETY	Numeric	2	Y	Why not Convert: Safety
62	CNG_OTHER	Numeric	2	Y	Why not Convert: Others
63	CONVENIENT	Numeric	2	Y	Use Car Less: More Convenient
64	CHEAPER	Numeric	2	Y	Use Car Less: Cheaper
65	ATTRACTIVE	Numeric	2	Y	Use Car Less: More Attractive
66	FASTER	Numeric	2	Y	Use Car Less: Faster
67	PRSN_FREE	Numeric	2	Y	Use Car Less: Personal Freedom

**Table 12.1.4 Field Code Definition of Environment Awareness Survey Database  
(Form 2)**

Field Codes Used in Database:			EAS_FORM2.DBF	
Field	Field Name	Field Description	Code	Field Code Description
2	SEX	Sex	1	Male
			2	Female
3	AGE	Age	1	7 - 9 years
			2	10 - 19 years
			3	20 - 29 years
			4	30 - 39 years
			5	40 - 49 years
			6	50 - 60 years
			7	More than 60 years
			9	No Answer
4	OCCUP	Occupation	1	Administration
			2	Professional
			3	Tech/ Assist
			4	Clerk
			5	Sales/Service
			6	Farmer/fisher
			7	Craftsman
			8	Production
			9	Unskilled
			10	Student
			11	Housewife
			12	Retired
			13	Jobless
			14	Others
99	No Answer			
5	EDUC_LEVEL	Education Level	1	University Graduate or Higher
			2	High School or Diploma
			3	Preparatory or Secondary School
			4	None
6	AIR_POLL	Air Pollution in the Last 20 Years	1	Increased Each Year
			2	Remained the Same
			3	Decreased
			4	I am Not Familiar

**Table 12.1.4 Field Code Definition of Environment Awareness Survey Database  
(Form 2), Continued**

Field Codes Used in Database:			EAS_FORM2.DBF	
Field	Field Name	Field Description	Code	Field Code Description
7	BLACK_SPOT	Main Traffic Problems: Congestion at Black Spots	1	Yes
8	HEALTH	Main Traffic Problems: Health is Affected by Daily Exposure	2	No
9	VEH_SMOK	Main Traffic Problems: Exposure to Vehicle Smoke	9	No Answer
10	NOISE_EXP	Main Traffic Problems: Exposure to Vehicle Noise		
11	ACC_RISK	Main Traffic Problems: Accident Risk		
12	SAF_PEDST	Main Traffic Problems: Safe Pedestrian Passenger		
13	EN_PARKING	Main Traffic Problems: Enough Parking Places		
14	TRF_POLIC	Main Traffic Problems: Controls by Traffic Police		
15	ECON_ACTIV	Main Traffic Problems: Economic Activities are Negatively Influenced		
16	PORB_NON1	Main Traffic Problems: Non		
17	TRF_OTHER	Main Traffic Problems: Others		
18	NOT_FAMLR1	Main Traffic Problems: Not Familiar		
19	ALIMNENTS	Suffer from Respiratory Ailments	1 2 3 4 5	No, Although We Daily Pass Congested Area No, Because We Live Far Away from Such Areas Yes, We Sometimes Suffer from These Symptoms Yes, We often Suffer from These Symptoms I am Not Familiar
20	NIOSE_LVL	Suffer from High Noise Levels	1 2 3 4 5	No, Although We Daily Pass Congested Area No, Because We Live Far Away from Such Areas Yes, We Sometimes Suffer from Hearing Impairment Symptoms Yes, We often Suffer from Other Symptoms I am Not Familiar
21	INCR_VEH	Pollution is a Result of: Increased Number of Vehicles	1	Yes
22	INCR_AUTO	Pollution is a Result of: Increased Number of Private Cars	2	No
23	INDS_DEVLP	Pollution is a Result of: Industrial Development	9	No Answer
24	INDS_POLL	Pollution is a Result of: Control of Heavy Industries		
25	OLD_VEH	Pollution is a Result of: Old Vehicles		

**Table 12.1.4 Field Code Definition of Environment Awareness Survey Database  
 (Form 2), Continued**

Field Codes Used in Database:			EAS_FORM2.DBF	
Field	Field Name	Field Description	Code	Field Code Description
26	DRIV_HABT	Pollution is a Result of: Driving Habits	1	Yes
27	DRIV_TRAIN	Pollution is a Result of: Insufficient Training	2	No
28	CHECKUP	Pollution is a Result of: Insufficient Checkups	9	No Answer
29	POLL_LAW	Pollution is a Result of: Insufficient Laws for Traffic Pollution		
30	TRAF_LAW	Pollution is a Result of: Insufficient Traffic Regulations		
31	QLTY_MONTR	Pollution is a Result of: Monitoring of Air Quality		
32	GEOG_SIT	Pollution is a Result of: Geographic Situation		
33	LACK_PLAN	Pollution is a Result of: Lack of Planning		
34	SAND_PRTCL	Pollution is a Result of: Sand Particles		
35	CONSTR_WRK	Pollution is a Result of: Construction Works		
36	RICE_HAY	Pollution is a Result of: Rice Hay		
37	NO_POLL	Pollution is a Result of: I Don't Think Air Quality Is Poor		
38	POLL_OTHER	Pollution is a Result of: Others		
39	NOT_FAMLR2	Pollution is a Result of: Not Familiar		
40	ACDNT_INCR	Accident Rates Increase		
41	ACDNT_SAME	Accident Rates Remain the Same		
42	GOOD_TRIAN	Accident: Better Training		
43	POLIC_CTRL	Accident: Intensify Traffic Police Controls		
44	SPD_PNLTY	Accident: Higher Speeding Penalties		
45	PDSTR_PASS	Accident: Safer Pedestrian Passages		
46	AMBULANCE	Accident: Better Ambulance		
47	NOT_FAMLR3	Accident: Not Familiar		
48	VEH_CHECK	Stricter Vehicle Checks	1	Yes, and I am willing to Pay
			2	Yes, Only If The Government Fully Subsidize It
			3	No, I Consider This Too Expensive
			4	No, I Don't Think This Would Solve The Problem Of Air Pollution In Cairo
			5	Yes, Only If The Government Partially Subsidize It
			6	Others
			9	No Answer

**Table 12.1.4 Field Code Definition of Environment Awareness Survey Database  
 (Form 2), Continued**

Field Codes Used in Database:			EAS_FORM2.DBF	
Field	Field Name	Field Description	Code	Field Code Description
49	NOT_SOLVE	Reduce Private Cars: Would not Solve the Problem	1	Yes
50	RED_CONGS	Reduce Private Cars: Would Reduce Congestion	2	No
51	LESS_POLL	Reduce Private Cars: Less Cars Would Reduce Pollution	9	No Answer
52	SOC_INCNTV	Reduce Private Cars: Social and Economic Incentive		
53	PC_OTHER	Reduce Private Cars: Others		
54	NOT_FAMLR4	Reduce Private Cars: Not Familiar		
55	CAR_ALT	Alternative to Private Cars		
56	CNG_KNOW	Do you Know CNG Cars		
57	CNG_CNVRT	Convert to CNG		
58	HIGH_COST	Why not Convert: High Cost		
59	ENG_PROB	Why not Convert: Engine Problems		
60	LONG_QUE	Why not Convert: Queuing at Filling Stations		
61	SAFETY	Why not Convert: Safety		
62	CNG_OTHER	Why not Convert: Others		
63	CONVENIENT	Use Car Less: More Convenient		
64	CHEAPER	Use Car Less: Cheaper		
65	ATTRACTIVE	Use Car Less: More Attractive		
66	FASTER	Use Car Less: Faster		
67	PRSN_FREE	Use Car Less: Personal Freedom		



**Table 12.2.1 Description of Noise Survey Database**

<b>Structure for Database:</b>		<b>NOISE.DBF</b>			
Number of Data Records:		<b>726</b>			
Database File Path:		C:/CREATS DATABASE/ENVIRONMENT/NOISE/			
Database Source:		Environmental Survey of CREATS			
<b>Field</b>	<b>Field Name</b>	<b>Type</b>	<b>Width</b>	<b>Coded</b>	<b>Field Description</b>
1	LOCATION	Character	4	Y	Survey Location Code
2	SRVY_YEAR	Numeric	5		Survey Year
3	SRVY_MONTH	Character	3		Survey Month
4	SRVY_DAY	Character	3		Survey Day
5	SRVY_HR	Numeric	3		Survey Hour
6	SRVY_MIN	Numeric	3		Survey Minute
7	SRVY_SEC	Numeric	3		Survey Second
8	LA_EQ	Numeric	5		Weighted Energy Mean of Noise Level
9	LAF_MAX	Numeric	6		Weighted Instantaneous Maximum of Noise Level
10	LAF_MIN	Numeric	5.2		Weighted Instantaneous Minimum of Noise Level
11	LAF10	Numeric	5.2		Weighted Expected Noise Level for 10% of the Measuring Period
12	LAF50	Numeric	5.2		Weighted Expected Noise Level for 50% of the Measuring Period
13	LAF90	Numeric	5.2		Weighted Expected Noise Level for 90% of the Measuring Period
14	NOISE_CLMT	Numeric	5.2		Noise Climate (LAF10 – LAF90)

**Table 12.2.2 Field Code Definition of Noise Survey Database**

Field Codes Used in Database:			NOISE.DBF	
Field	Field Name	Field Description	Code	Field Code Description
1	LOCATION	Survey Location Code	1	Cairo - Alexandria Agricultural Road South of Ring Road
			2	Intersection of Port Said Street and Sawah Street
			3	Shobra Street South of Khalafawy Square
			4	Port Said Street South of Seket El Wayly Street
			5	Orooba Street Near Military Academy
			6	Intersection of Batal Ahmed Abdel Aziz and 6th of October Expressway
			7	Abdel Moniem Reyad Square
			8	Bab El Shaareya Square
			9	Nasr Road North of 6th of October Expressway
			10	Nasr Road East of Nozha Street
			11	Malek Feisal Street West of El Nady Street
			12	Giza Square
			13	Fom El Khaleeg Square
			14	Autostrade Road South of Citadel
			15	Korniesh Road North of Moneeb Bridge

**Table 12.3.1 Description of Air Pollution Survey Database**

<b>Structure for Database:</b>		<b>AIR POLLUTION.DBF</b>			
Number of Data Records:		<b>3,204</b>			
Database File Path:		C:/CREATS DATABASE/ENVIRONMENT/AIR POLLUTION/			
Database Source:		Environmental Survey of CREATS			
<b>Field</b>	<b>Field Name</b>	<b>Type</b>	<b>Width</b>	<b>Coded</b>	<b>Field Description</b>
1	LOCATION	Character	4	Y	Survey Location Code
2	DAY	Character	5		Survey Weekday
3	SRVY_YEAR	Numeric	5		Survey Year
4	SRVY_MONTH	Numeric	3		Survey Month
5	SRVY_DAY	Numeric	3		Survey Day
6	SRVY_HR	Numeric	3		Survey Hour
7	NO	Numeric	4		Nitrogen Oxide (ppb)
8	NO2	Numeric	4		Nitrogen Dioxide (mg/m3)
9	SO2	Numeric	4		Sulphur Dioxide (mg/m3)
10	CO	Numeric	4		Carbon Monoxide (mg/m3)
11	NMHC	Numeric	4		Non Methane Volatile Organic Compounds (ppm)
12	CH4	Numeric	4		Carbon Hydroxide (ppm)
13	PM10	Numeric	4		Suspended Particulate Mater: Particles 2.5-10.0 mm (mg/m3)
14	TEMP	Numeric	5.2		Temperature (C°)
15	HUMIDITY	Numeric	5.2		Humidity (%)
16	PRESSURE	Numeric	5.2		Pressure (Hg)

**Table 12.3.2 Field Code Definition of Noise Survey Database**

Field Codes Used in Database:			AIR POLLUTION.DBF	
Field	Field Name	Field Description	Code	Field Code Description
1	LOCATION	Survey Location Code	1	Cairo - Alexandria Agricultural Road South of Ring Road
			2	Intersection of Port Said Street and Sawah Street
			3	Shobra Street South of Khalafawy Square
			4	Port Said Street South of Seket El Wayly Street
			5	Orooba Street Near Military Academy
			6	Intersection of Batal Ahmed Abdel Aziz and 6th of October Expressway
			7	Abdel Moniem Reyad Square
			8	Bab El Shaareya Square
			9	Nasr Road North of 6th of October Expressway
			10	Nasr Road East of Nozha Street
			11	Malek Feisal Street West of El Nady Street
			12	Giza Square
			13	Fom El Khaleeg Square
			14	Autostrade Road South of Citadel
			15	Korniesh Road North of Moneeb Bridge