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جمهورية مصر العربية

ARAB REPUBLIC OF EGYPT

وزارة النقل والمواصلات
والنقل البحرى

MINISTRY OF TRANSPORT AND COMMUNICATION
AND MARINE TRANSPORT

هيئة الطرق والكبارى

ROADS AND BRIDGES AUTHORITY

دراسة الجدوى لمشروع طريق القاهرة - أسيوط

CAIRO-ASSUIT HIGHWAY FEASIBILITY STUDY

FINAL REPORT

Appendix Volume 1

TRAFFIC SURVEYS

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Cairo, Egypt

بواسطة
ويلبر سميث وشركاه
المجموعة الإستشارية المصرية
القاهرة - جمهورية مصر العربية

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January 1987

FORWARD

This first volume of appendices to the Final Report describes the main traffic surveys, including conduct, analysis and results. The surveys were originally reported in the appendices to the Base Year Transport Report (April 1986) but, as a result of further analyses, the results have been updated for this report.

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CONDUCT OF THE ROADSIDE INTERVIEW AND MANUAL CLASSIFIED COUNT SURVEY

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Appendix 1A

CONDUCT OF THE ROADSIDE INTERVIEW AND MANUAL CLASSIFIED COUNT SURVEY

The Roadside Interview and Manual Classified Count Survey was a major task of the Study. This appendix describes the organization and conduct of the survey.

Survey Station Locations

The locations of the roadside interview and classified count stations are shown in Figure 1A-1. Initial field inspections were made to assess the number of interview stations required and their approximate locations. Roads shown on available mapping running parallel to the main Cairo-Assuit Highway were investigated to determine the amount of traffic using them to see if interview stations were necessary to intercept the traffic. These roads, other than sections located on the east bank of the Nile River, were found to carry mainly local agriculture traffic. Because of the discontinuity of the roads, narrow pavement width and generally poor surface conditions, it was determined they were not used for long distance travel and would not be used to bypass interview stations established on the main highways in the corridor. Hence interview stations were located only on the main roads in the corridor.

A total of 16 interview sites (R1 to R16) were identified which would intercept all major traffic movements in the corridor. Eight of these interview sites, or stations, were located on the main highway between Cairo and Assuit; two on the Last Bank between Beni Suef and Helwan; and one on the Desert Road between Fayoum and Giza. In addition, two stations were established on east-west roads linking Fayoum Governorate with the main corridor and three stations were located south of Assuit to provide a corridor screenline.

In order to supplement the roadside interview stations, a total of 11 locations were selected to conduct additional manual classified counts (C1 to C11). Four count station were located at the northen end of the corridor on the entrance to Cairo and Giza. The rest were all situated on the main west bank road between interview stations and large population centers.

During the course of the survey a few stations were relocated a few kilometers from the initial site selected due to roadway geometrics and associated safety considerations.

Survey Forms

Basic to the successful conduct of the surveys are interview and count forms which are simple to use under field conditions yet include the items necessary to meet study objectives. These forms were developed in the office, translated to arabic and printed. A total of 35,000 interview and 20,000 classified count forms were printed. Copies of the original arabic interview and count forms are shown in Figures 1A-2 and 1A-4, and translations are shown in Figures 1A-3 and 1A-5. Note that the interview form reads from right to left.

A set of instruction manuals were prepared describing the duties of supervisors, interviewers and counters. Copies of the manuals and forms are provided in Annexes 1A-1, 1A-2 and 1A-3 to this appendix.

Survey Schedule

It became evident during the initial planning of the survey that the field work would need to be completed in as short a time period as possible. This was necessary to allow time for data coding, entry in the computer, and editing and corrections all to be accomplished so that dependent Study work tasks would not be delayed. An additional consideration was that University holidays were to begin in mid-January which could affect corridor traffic patterns.

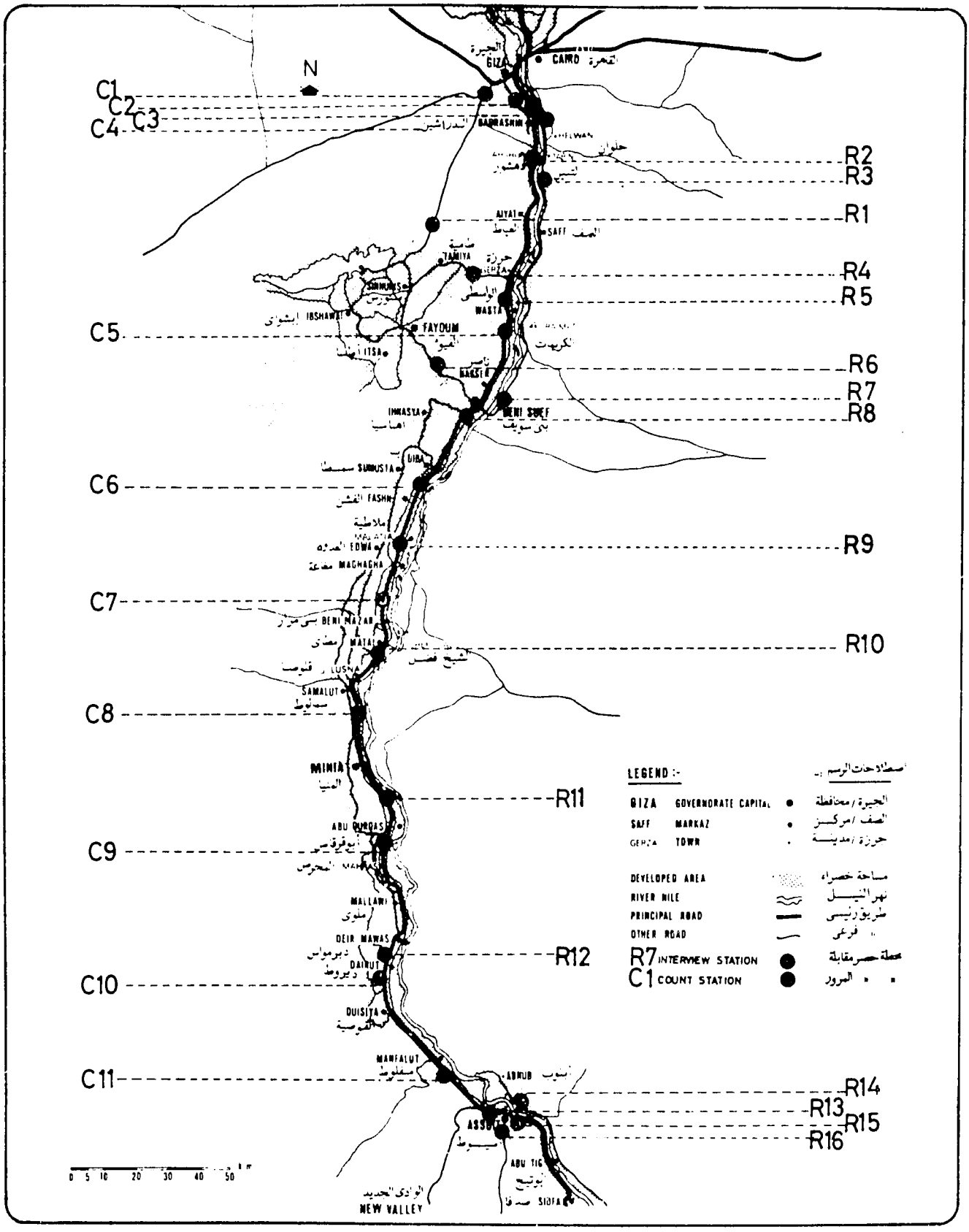
The first interview and count stations were scheduled to begin operation on December 16, 1985 with the last to be completed on January 15, 1986. This schedule required that interview and count stations be operated simultaneously and, on occasions, that two interview stations be operated on the same day.

The survey was scheduled so that interviewing and counting were conducted on all days of the week in order to determine daily variations in traffic volumes and characteristics. The daily distribution of station operation is provided in Table 1A-1. Interviewing and counting began at the stations nearest Cairo, then moved to Fayoum, Beni Suef and Minia, finally ending the survey in Assuit.

The contract specified that a minimum sample of 25 percent of traffic passing an interview station be obtained. To ensure that this minimum would be achieved, it was decided that each station would operate over at least a two-day period and that both directions of traffic would be interviewed.

It was believed that a sufficient sample could be obtained by limiting the interview period to daylight hours when the highest percentage of travel occurs. In the December/January period of the Survey, this meant starting at 6:00 am and finishing each day at about 5:00 pm. Field crew safety was a consideration in this decision. However, four of the 16 stations were selected to be operated for a three day period for 24 hours each day.

For the purposes of expanding the sample data, manual classified counts were required for a 16-hour period at the daylight interview stations. The counts were planned to begin at 6:00 am and end at 10:00 pm. Counts were taken for a full 24 hours at the four locations designated for 24 hour interviews. The manual classified counts were compiled every 30 minutes.

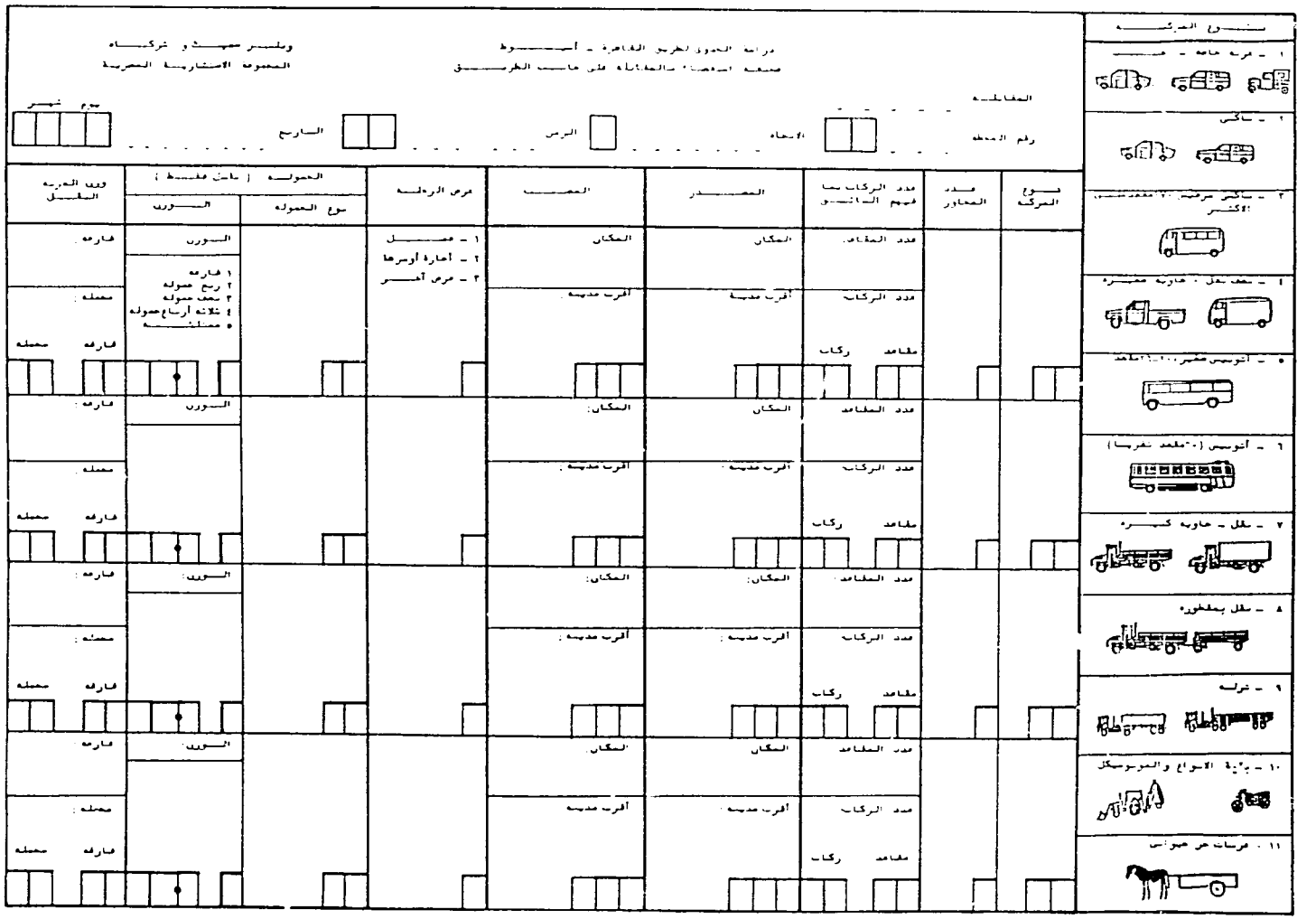


Cairo – Assuit Highway Feasibility Study

LOCATIONS OF ROADSIDE SURVEY STATIONS

Wilbur Smith and Associates
Egyptian Consultants Consortium

Figure 1A-1



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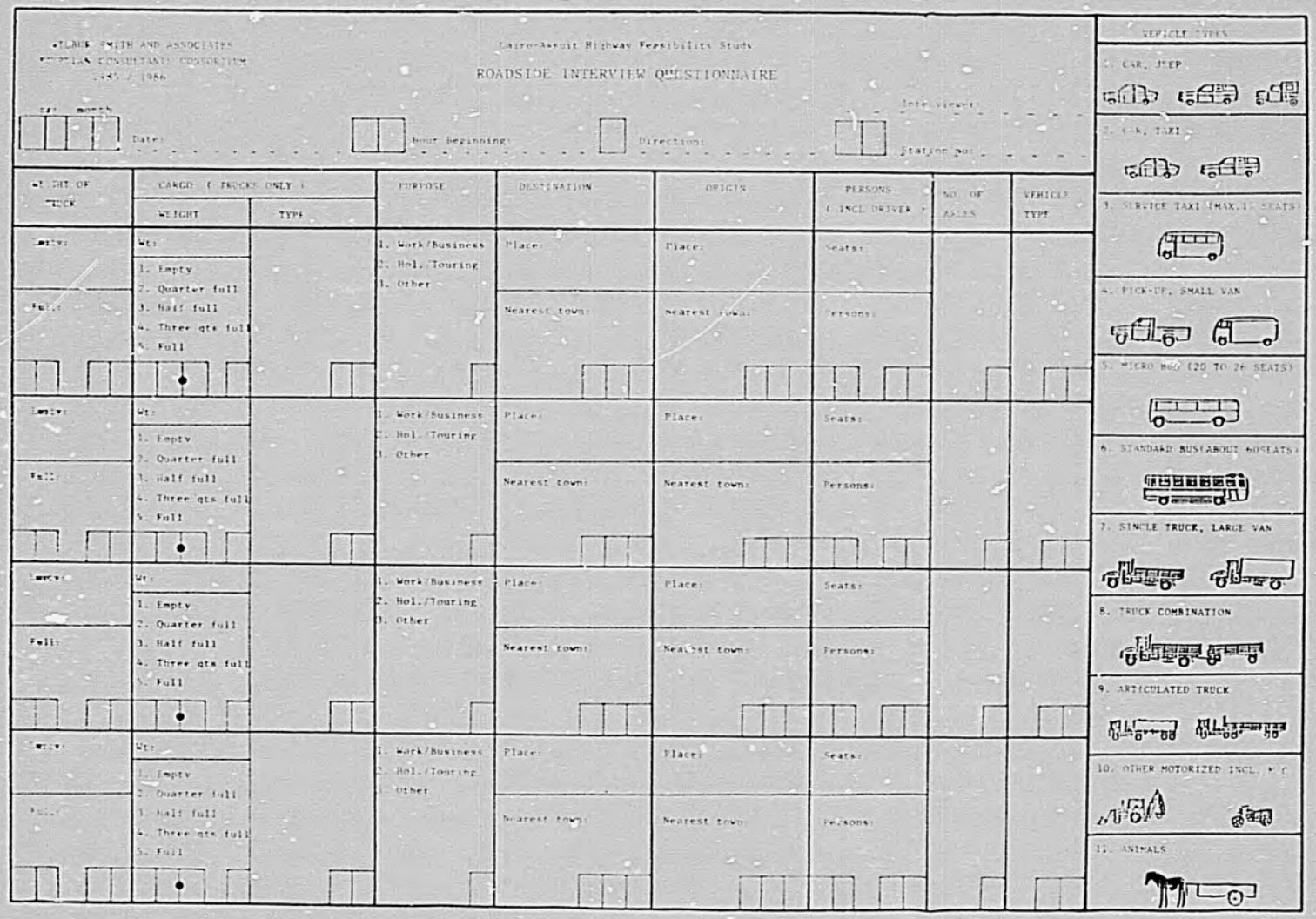
ROADSIDE INTERVIEW SURVEY FORM

Wilbur Smith & Associates
Egyptian Consultants Consortium

Figure 1A – 2



WILBUR SMITH AND ASSOCIATES
EGYPTIAN CONSULTANTS CONSORTIUM
1985 / 1986

Cairo-Assuit Highway Feasibility Study

ROADSIDE INTERVIEW QUESTIONNAIRE

Interviewer:

Date: (yr. month)

Hour Beginning:

Direction:

Station no.:

WEIGHT OF TRUCK	CARGO (TRUCKS ONLY) WEIGHT	CARGO (TRUCKS ONLY) TYPE	PURPOSE	DESTINATION	ORIGIN	PERSONS (INCL DRIVER)	NO. OF AXLES	VEHICLE TYPE
Empty: / Full:	Wt: 1. Empty 2. Quarter full 3. Half full 4. Three qts full 5. Full		1. Work/Business 2. Hol./Touring 3. Other	Place: / Nearest town:	Place: / Nearest town:	Seats: / Persons:		
Empty: / Full:	Wt: 1. Empty 2. Quarter full 3. Half full 4. Three qts full 5. Full		1. Work/Business 2. Hol./Touring 3. Other	Place: / Nearest town:	Place: / Nearest town:	Seats: / Persons:		
Empty: / Full:	Wt: 1. Empty 2. Quarter full 3. Half full 4. Three qts full 5. Full		1. Work/Business 2. Hol./Touring 3. Other	Place: / Nearest town:	Place: / Nearest town:	Seats: / Persons:		
Empty: / Full:	Wt: 1. Empty 2. Quarter full 3. Half full 4. Three qts full 5. Full		1. Work/Business 2. Hol./Touring 3. Other	Place: / Nearest town:	Place: / Nearest town:	Seats: / Persons:		

VEHICLE TYPES

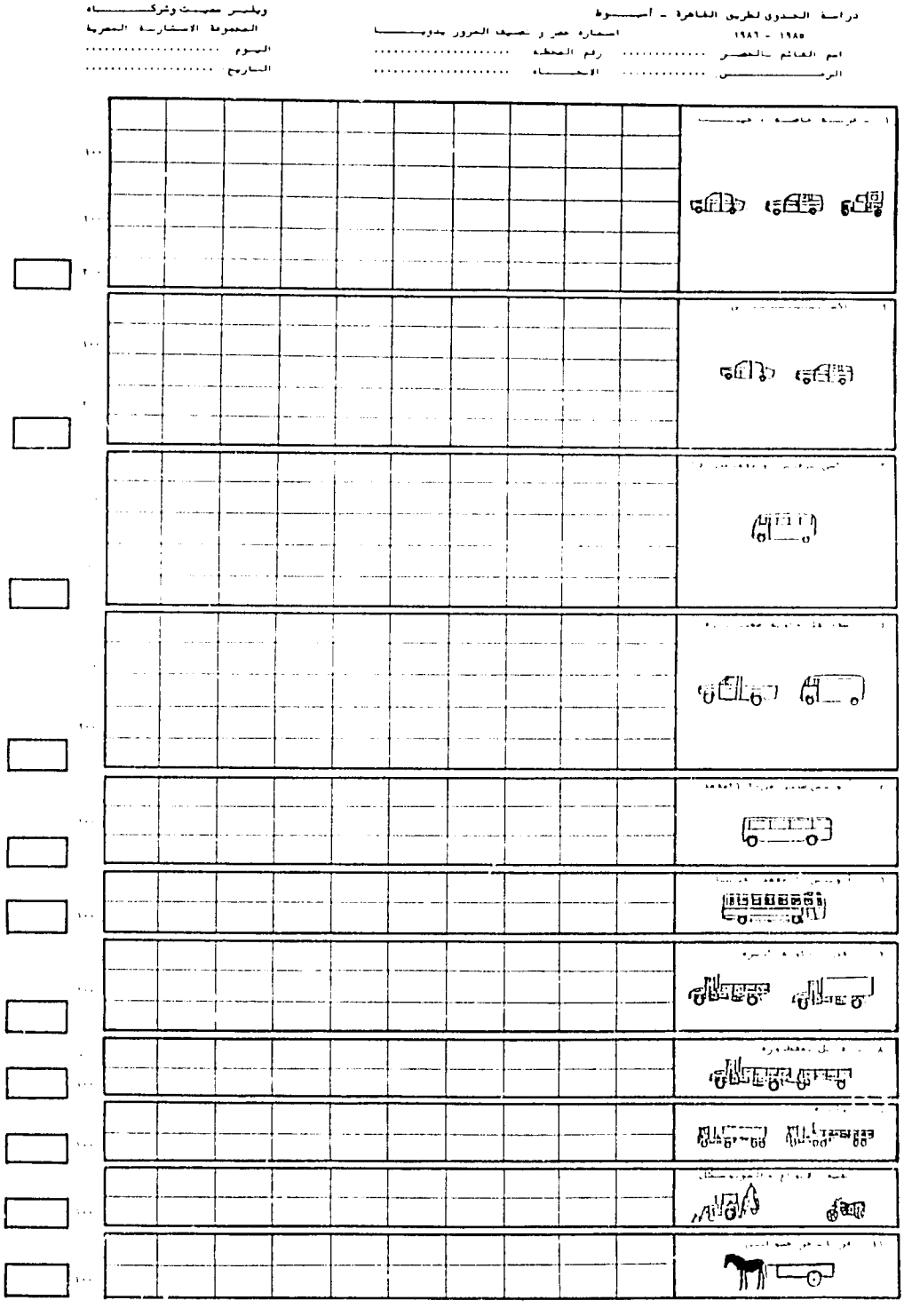
1. CAR, JEEP
2. CAR, TAXI
3. SERVICE TAXI (MAX. 15 SEATS)
4. PICK-UP, SMALL VAN
5. MICRO BUS (20 TO 26 SEATS)
6. STANDARD BUS (ABOUT 60 SEATS)
7. SINGLE TRUCK, LARGE VAN
8. TRUCK COMBINATION
9. ARTICULATED TRUCK
10. OTHER MOTORIZED INCL. M/C
11. ANIMALS

Cairo – Assuit Highway Feasibility Study

ROADSIDE INTERVIEW SURVEY FORM (TRANSLATION)

Wilbur Smith & Associates
Egyptian Consultants Consortium

Figure 1A – 3



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MANUAL CLASSIFIED COUNT FORM

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Figure 1A – 4

10

CAIRO-ASSUIT HIGHWAY FEASIBILITY STUDY
1985 - 1986

MANUAL CLASSIFIED COUNTS

WILBUR SMITH AND ASSOCIATES
EGYPTIAN CONSULTANTS CONSORTIUM

Enumerator: ..... Station No: ..... Day: .....
Beginning Hour: ..... Direction: ..... Date: .....

											1. CAR, etc
											2. CAR TAXI
											3. SERVICE CAR MAX 12 SEATS
											4. TRUCK
											5. MICRO
											6. TRUCK TRAILER
											7. TRUCK TRAILER CARGO
											8. TRUCK COMBINATION
											9. SPECIALIZED TRUCK
											10. OTHER MOTOR VEHICLE
											11. ANIMAL

Cairo – Assuit Highway Feasibility Study

MANUAL CLASSIFIED COUNT FORM (TRANSLATION)

Wilbur Smith and Associates
Egyptian Consultants Consortium

Figure 1A-5

Table 1A-1

ROADSIDE INTERVIEW SURVEY STATIONS
OPERATED BY DAY OF THE WEEK

DAY	INTERVIEW STATIONS	COUNT STATIONS
Sunday	R1 R7 R8 R10 R13 R16	C1 C6 C8 C11
Monday	R1 R2 R11 R13 R16	C2 C3 C9 C11
Tuesday	R2 R4 R11 R14 R15	C2 C3 C9 C11
Wednesday	R3 R4 R5 R9 R15	C4 C5 C7
Thursday	R3 R5 R6 R9 R12	C4 C5 C7 C10
Friday	R5 R6 R9 R12	C5 C7 C10
Saturday	R1 R7 R8 R10 R12	C1 C6 C8

12

Eight of the count-only stations were operated for two days while three (Stations C5, C7 and C10), continued for three days. These three count stations ran concurrently with the 3-day 24-hour interview stations R5, R9, and R12. Both directions of traffic were counted simultaneously at all locations.

The station locations and operating periods are shown in Table 1A-2.

Coordination With Traffic Authorities

Contact with the Central Traffic Agency in Cairo was made early in the survey design period. Because of their experience in similar surveys the advise and guidance provided the study was essential to its successful conduct. This Agency provided the liaison with the respective Traffic Directors of the six Governorates covered by the survey and coordinated the assignment of officers and men to control traffic at the various survey stations.

Interview Station Design

Almost all interview stations were situated at or in the immediate vicinity of police traffic control checkpoints. This was advantageous since traffic generally slowed down at these points and was therefore easier to control. This was particularly important at the stations operated on a 24 hour basis. Manual count stations were generally at traffic control points although there were some exceptions. Since vehicles were not stopped, traffic control was not a consideration.

Interview stations were set up and controlled using various traffic control equipment; mainly cones together with warning and informational signs. Traffic police were present at all locations directing traffic into and out of the stations. Their presence also curtailed incidents between interviewers and drivers.

Station layout varied according to specific location. However, because of narrow roadway width and limited shoulders, it was necessary to conduct interviewing in the travel lanes at the majority of locations. During periods of high traffic volumes it was necessary to stop interviews for short periods to alleviate traffic buildup. At locations with sufficient roadway width, a bypass lane was created for this purpose.

Survey Field Crew

A survey crew of approximately 50 persons was assembled in Cairo and travelled from station to station. This group consisted of interviewers, supervisors and drivers. They were supplemented in the field by traffic officers and men assigned by the respective Governorates.

3

Table 1A-2

INTERVIEW AND COUNT STATION LOCATIONS

STATION NUMBER	LOCATION	DATES OPERATED	OPERATING PERIOD
Interview Stations			
R1	Giza-Fayoum Rd, north of Fayoum	Dec 21,22,23	24 hrs
R2	Cairo-Beni Suef Rd, south of Maraziq	Dec 16,17	Daylight
R3	Helwan-Beni Suef Rd, at Shurafa	Dec 18,19	Daylight
R4	Faiyum between Tamiya and Gerza	Dec 24, 25	Daylight
R5	Cairo-Beni Suef Rd, north of Wasta	Dec 25,26,27	24 hrs
R6	Fayoum Between Fayoum and Beni Suef	Dec 26,27	Daylight
R7	East side of bridge at Beni Suef	Dec 28,29	Daylight
R8	South of Beni Suef	Dec 28,29	Daylight
R9	Beni Suef-Minia Rd, at Malatia	Jan 1,2,3	24 hrs
R10	Between Matai and Samalut	Jan 4,5	Daylight
R11	Between Minia and Abu Qurgas	Jan 6,7	Daylight
R12	North side of Dairut	Jan 9,10,11	24 hrs
R13	Minia-Assuit Rd, near Assuit	Jan 12,13	Daylight
R14	East Bank near Assuit, at Masara	Jan 14,15	Daylight
R15	Assuit-Sohag Rd, edge of Assuit	Jan 14,15	Daylight
R16	Between Assuit and Durunka	Jan 12,13	Daylight
Count Stations			
C1	Giza-Fayoum Rd, near Giza	Dec 21,22	16 hrs
C2	Giza-Sakkara Rd, south of Giza	Dec 23,24	16 hrs
C3	Cairo-Beni Suef Rd, at Numrus	Dec 16,17	16 hrs
C4	Cairo-Helwan Rd, at Tura	Dec 18,19	16 hrs
C5	Cairo-Beni Suef Rd, south of Wasta	Dec 25,26,27	16 hrs
C6	Beni Suef-Minia Rd, north of Fashn	Dec 29,30	16 hrs
C7	Between Maghagha and Beni Mazar	Jan 1,2,3	16 hrs
C8	Between Samalut and Minia	Jan 4,5	16 hrs
C9	Between Minia and Mallawi	Jan 6,7	16 hrs
C10	South of Dairut at Karfa	Jan 9,10,11	16 hrs
C11	Between Dairut and Assuit at Manfalut	Jan 12,13	16 hrs

A typical interview station consisted of the following personnel assigned to each direction of travel.

Traffic Officer 1
Traffic Control 2
Supervising Engineer 1
Crew Chief 1
Interviewers 4
Classified Count 2

Three separate shifts were utilized at the 24-hour interview stations while two shifts were assigned to the daylight stations. Classified count stations were operated in two shifts each consisting of four men and one traffic officer.

Logistics and Equipment

A fleet of vehicles was used to provide transportation for the field crew and equipment. This consisted of three Peugeot Station Wagons, two microbuses and a small truck. The crew stayed in hotels in the major cities and the various shifts were shuttled to and from interview and count stations. Upon completing work in one governorate, the crew moved to the next governorate.

Because of the large number of stations and the ever increasing distance from Cairo, it was necessary to carry a substantial amount of equipment. A list of supplies and equipment is given in Table 1A-3.

Problems Encountered

Fog is a common occurrance during the December/January period of the survey. This factor caused a delay in opening, or a temporary shut down, at several locations. A minor traffic accident caused the closure of Station R-2 at 4:15 pm on December 17. Station R-14 near Assuit did not operate on the second day of its schedule because a highway maintenance crew was laying asphalt on this section of roadway.

There were no serious incidents or accidents during the survey period and no injuries to any of the field crew.

Table 1A-3

SUPPLIES AND EQUIPMENT

ITEM	QUANTITY
Traffic Cones	120
Portable Traffic Signs:	
Slow Down	4
25 Kph	4
Men Working	4
Directional Arrow	4
Gas Lanterns	14
Portable Flashers	6
Flashlights	6
Flasher and Flashlight Batteries	120
Tool Boxes with Assorted Tools	2
Shovels	2
Reflective Vests	10
Reflective Sleeves	10 pair

16

Annex 1A-1

NOTES FOR GUIDANCE ON STATION SUPERVISION

1. In general, the station supervisor is responsible for:
   (a) All equipment used
   (b) Allocation of tasks to the survey team
   (c) Quality control of the survey

2. There are four main duties for the survey team:
   (a) Interviewing - The principal task of interviewing drivers and completing the interview questionnaire.

   (b) Manual Classified Counts - Maintaining a complete count of the traffic passing the station. It is essential that there is no break in the counting.

   (c) Flag man - Helping slow down traffic as it approaches the station.

   (d) Traffic control - Stopping and guiding vehicles into the interview bays.

3. Rotation of duties - Staff should be changed between tasks every hour, on the hour. The allocation could be:

   4-5 on interviewing
   2 on counting
   1 on flag duty
   1 on controlling traffic
   1-2 resting, helping supervision

4. Manual Traffic Counting

   - One person for each direction
   - Change forms every 1/2 hour

5. Set up of Stations - The following principles should be followed:

   (a) Advance warning signs and flashing lights should be placed on the approach to the station.

   (b) Cones and barriers shoud be placed to ensure that traffic stays in one lane on the approach to the station.

   (c) The interview bay should be located on the left side of the roadway and should be about 6 - 7 cars long. Cones and barriers should be placed so that the interviewers are protected from the bypassing traffic.

(d) At the entrance to the interview bay, the traffic controller should be stationed with the task of either guiding vehicles into the interview bay or letting them bypass the interview site if the interview bay is full up.

6. Vehicle Selection - Traffic can be allowed to bypass the interview station (under the control of the traffic controller) until a space is available in the interview bay for a new vehicle. Then the next vehicle of whatever type must be directed into the bay. It is essential that no bias comes into the vehicle selection. The only vehicles not interviewed are animal drawn vehicles and construction machinery (road rollers, graders, diggers etc.).

7. Supply of forms - Before each change of duties (on the hour), a set of clipboards should be prepared with fresh forms to be ready for the next set of interviewers. During interviewing, new forms shoud be supplied as necessary.

8. Collection and checking of forms. At the end of each 1/2 hour, interview forms and MCC forms should be collected. The interviewer forms for each hour should be placed in an envelope which must be clearly marked with the place, direction, date and period. The MCC forms should be placed in two envelopes, one for each direction covering the entire day. All forms shoud be reviewed to check that all count forms are present, and that headings are filled up properly.

9. Quality control. Make as many checks as possible on the quality of interviewing including:

   (a) Listen to the interviewers.

   (b) Review the completed forms, checking for erroneous data, illegible writing, incomplete addresses and missed questions.

   (c) Check that the sample of vehicles is properly selected. Be sure that the traffic controller does not let large vehicles bypass the interview site just because they seem awkard to stop, or take up a lot of room in the bay.

10. Automatic Traffic Counter - A reading of the automatic traffic counter should be made every hour, on the hour. Be sure to get readings at the beginning and end of the interviewing period.

Annex 1A-2

INSTRUCTIONS FOR ROADSIDE INTERVIEWING

These notes cover the procedures to be followed in roadside interviewing. An interview form is attached. The following points should be observed:

1. Politeness
   - Explain purpose (" the survey is to help plan a new Expressway")
   - If no cooperation, do not force the issue.
2. Data at top form
   - This must <u>always</u> be completed.
3. Always interview the driver, except for taxis when you interview the passenger nearest you.
4. Never ask leading questions e.g. Don't ask "have you come from Beni Suef" because the easy answer is "Yes" whether true or not. Instead ask "Where have you just come from?."
5. Complete each interview as follows:

<u>Interviewer</u> - Your name.

<u>Station No.</u> - If you don't know ask the supervisor.

<u>Direction</u> - Write 'to Cairo' or 'to Assuit' or 'to Fayoum' as appropriate.

<u>Hour Beginning</u> - If the time is between 8.00 am and 8.59 am write 8.00 am.

<u>Date</u> - Write in the format "12 January".

<u>Vehicle Type</u> - As the vehicle you are to interview approaches, write in vehicle type number. e.g. for a small van, write 4. For definitions, see Vehicle Classifications at the side of form.
Also, see Instructions for Conducting Manual Classified Counts.

<u>No of Axles</u> - Write the number of the wheels along the side of the vehicle.

<u>Persons</u>
- Seat: Count the seats or ask the driver (for a bus)
- Persons: Write the number of people in the vehicle, <u>including</u> the driver.
- Try to note this number as well as the vehicle type, before the vehicle stops.

Origin	-	Your question might be "Would you tell me where you started this trip?". You must record the place where the last called or stayed. If the place is not familiar, also ask the name of the nearest town.
Destination	-	The question might be "And where are you going to now?". Again, ask for the nearest town if the place is not familiar.
Purpose	-	This question is only for vehicle types 1-4 (cars, taxis, pick-ups and small vans). Ask "what is the purpose of this journey?". If it is anything to do with business or work, code 1. If it is holiday or touring code 2. For everything else (e.g. shopping, visiting friends, going to the Mosque or Church) code 3.
Cargo Type	-	This question is only for vehicle types 4 and 7-10 (pick-ups, vans and trucks). Ask what cargo the vehicle has on board and write down the answer. "Empty" is also a possible cargo.
Cargo Weight	-	Ask for the weight of the cargo. If the driver does not know, ask how full the vehicle is and circle the number appropriate e.g. for quarter full, circle 2.
Weight of Truck	-	The empty and full weights are usually painted on the side of trucks. Note them down in the spaces provided. If no weights are shown, put a dash (-).
	-	For articulated vehicles, weights could be given separately for the tractor and the trailer. In this case, put both weights in.

When the interview is complete, thank the driver and close the interview.

Annex 1A-3

INSTRUCTIONS FOR CONDUCTING MANUAL CLASSIFIED COUNTS

The following points should be followed in conducting a manual classified count:

1. Start a new form every 30 minutes, exactly on the hour and half hour.

2. Always complete the data at the top of the form.

3. Classify passing traffic into one of the eleven categories on the form. Use the silhouettes to understand the classes.

4. On the MCC form, put a check mark for each passing vehicle. Put a similar mark in the same box for each of the next three vehicles in that class. for the last vehicle in that class, put a line through the previous four check marks. Then start a new box. Look at the form on the next page for guidance.

   In this way, each completed box represents five vehicles which makes the results easier to add up in the office.

5. You will probably be asked to count just one direction, and possibly just some of the vehicle classes. The supervisor will give instructions on this.

6. A sample completed form is attached.

Appendix 1B

ANALYSIS OF THE ROADSIDE INTERVIEW SURVEY AND PRODUCTION OF BASE YEAR MATRICES

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Appendix 1B

ANALYSIS OF THE ROADSIDE INTERVIEW SURVEY AND PRODUCTION OF BASE YEAR MATRICES

All data collected during the Roadside Interview and Classified Count Surveys were analyzed using the Study's IBM PC microcomputers. The purpose of this analysis was to provide a series of tabulations summarizing the results obtained, and to provide a set of base year traffic movements for use in subsequent computer modelling of road transport demand.

Analysis of data and production of base year trip matrices were undertaken in seven steps as follows:

- Entry and validation of Roadside Interview Survey data;
- Entry, validation and tabulation of Classified Count Survey data;
- Factoring of interview data;
- Tabulation of factored interview data;
- Production of observed trip matrices;
- Generation of short trip; and,
- Base Year calibration.

Computer programs written in the FORTRAN programming language were used in connection with each of these steps.

Validation of Interview Data

The Roadside Interview Survey resulted in 127,209 interviews being recorded on 33,940 interview forms. Each form contained up to four interviews, in addition to a form header identifying the station, direction of travel, time and date.

Coding of Interview Data - As completed survey forms were returned to the project office, each item of information gathered during an interview was transformed into a numeric code. These numbers were written on the interview forms in the boxes provided, in anticipation of entry into the computer.

Much of the information gathered in the interview survey was numeric in nature, such as the number of persons in the vehicle. Coding of this type of information only involved copying the response recorded by the interviewer into the appropriate boxes. Similarly, other questions required the interviewer to assign a numeric code in the field, for example to indicate the type of vehicle. In these cases the interviewer's code was simply copied into the coding box.

However, three items of information recorded during the interviews were not numeric in nature. These items were the trip origin, the trip destination and the type of cargo being carried by trucks. These items were transformed into numeric codes by office staff, using the analysis zone and cargo definitions shown in Tables 1B-1 and 1B-2 respectively.

Coding Instruction are included in Annex 1B-1 of this appendix.

Table 1B-1

TRAFFIC ZONES

ZONE NUMBER	NAME	ZONE NUMBER	NAME
1	Sinai	33	Sumusta
2	Port Said	34	Fashn
3	Damietta	35	Edwa
4	Kafr El Shiekh	36	Maghagha
5	Behera	37	Beni Mazar
6	Alexandria	38	Matai
7	Matrouh	39	Samalut
8	Ismailia	40	Minia
9	Dakahlia	41	Abu Qurqas
10	Gharbia	42	Mallawi
11	Menoufia	43	Deir Mawas
12	Sharkia	44	Dairut
13	Kalyubia South	45	Quisiya
14	Kalyubia North	46	Manfalut
15	Cairo North	47	Abnub
16	Cairo South	48	Assuit, north town center
17	Imbabah	49	Assuit, town center
18	Saff	50	Assuit, south town center
19	Giza	51	Abu Tig
20	Badrashin	52	Sidfa
21	Aiyat	53	Ghanayem
22	Baharia Oasis	54	Sahel
23	Itsa	55	Badari
24	Fayoum	56	Sohag North
25	Tamiya	57	Sohag East
26	Sinnuris	58	Dar El Salam
27	Ibshawai	69	Sohag South
28	Wasta	60	Qena
29	Nasser	61	Aswan
30	Beni Suef	62	New Valley
31	Ihnasya	63	Red Sea
32	Biba	64	Suez

SOURCE: Consultant

Table 1B-2

COMMODITY CODES

PETROLEUM PRODUCTS
1. Gasoline/diesel fuel
2. Gas bottles (including empty bottles)
3. Other Petroleum products

BUILDING MATERIALS
4. General building materials (non-specified)
5. Sand and gravel
6. Cement
7. Other building materials

CEREAL CROPS
8. General Cereal crops (non-specified)
9. Wheat
10. Maize
11. Rice
12. Other cereals

VEGETABLES AND FRUITS
13. General fruits and vegetables (non-specified)
14. Potatoes
15. Tomatoes
16. Garlic
17. Onions
18. Melons
19. Broadbeans
20. Lentils
21. Other vegetables
22. Oranges
23. Dates
24. Other fruit

OTHER AGRICULTURE
25. General crops (non-specified)
26. Sugar cane
27. Seed cotton/lint
28. Oil crops (ground nuts, sesame, soybeans)
29. Other crops

FOOD PRODUCTS
30. General food products (non-specified)
31. Meat
32 Fish and seafood
33 Flour from wheat
34 Raw sugar
35 Refined sugar
36 Molasses
37 Vegetable oils and fats

Table 1B-2 (Cont'd)

COMMODITY CODES

38 Beverages (including empty bottles)
39 Eggs and dairy products
40 Tea
41 Other food products

OTHER COMMODITIES

42. General commodities (non-specified)
43. Minerals
44. Live animals
45. Animal products (wools, skins etc)
46. Textiles and leather products
47. Timber and wood products
48. Paper and paper products
49. Fertilizers
50. Other chemicals
51. Electrical and electronic products
52. Machinery
53. Other Metal products
54. Other commodities.

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Data Entry - Each interview consisted of 24 characters of numeric data. Including the 9 character header on each interview form the completed Roadside Interview Survey resulted in a requirement to enter more than 3.3 million characters of numeric data into the Study's IBM PC microcomputers.

Approximately 15 percent of this data was entered directly into the IBM PCs by project staff. The IBM Personal Editor program was used for this purpose. The task of entering the remaining data was given by contract to Professional Business Services (PBS). Data entered by PBS was transferred to the project microcomputers by means of magnetic diskettes.

Due to the large quantity involved, the interview survey data were not stored in a single file. Interviews for each day, direction of travel and survey station were allocated their own files. Particularly large files were further sub-divided for convenience of processing. In total 116 files of data were generated from the Roadside Interview Survey. All such files were given the extension name of DAT.

Checking of Interview Data - Following data entry each file of data was checked to identify any interviews containing erroneous or illogical data items. A computer program known as the ROADSIDE INTERVIEW SURVEY PROGRAM (INTVPROG) was written to perform this checking operation. Interviews failing any of the checks were printed out, with the erroneous or doubtful item(s) of data being underlined. All erroneous interviews were then checked manually to determine the source of the error and, wherever possible, to correct the data. All editing of survey data, whether initially entered by project staff or by PBS, was undertaken on the Study's computer using the IBM Personal Editor.

All data were processed by INTVPROG twice. On the first occasion all data checks were strictly applied and interviews were printed out (rejected) if any checks failed. As a result of the manual checking of rejected interviews it was determined that a number of the checks performed should be relaxed. For example, it was found that the range of values encountered for the "Licenced Full Weight" of a truck was wider than originally anticipated. Consequently, in the second run of INTVPROG the range of permitted values of this data item was expanded. In the second run the program was also permitted to correct certain simple types of data errors automatically, thus reducing the time consuming task of manual data editing. For example, if trip purpose was not zero for a bus or truck then the program would automatically set it to zero, since a response to this question was only required for cars, taxis and pick-ups.

The ranges of values allowed for each data item during the second run of INTVPROG are shown in Annex 1B-2. Origin and destination zones considered valid at each survey station are shown in Table 1B-3. As a result of these checks eight percent of the interviews were rejected, leaving a total of 117,458 valid interviews for use in subsequent analysis. Program INTVPROG created on output file for each file processed. These files, which were in a condensed form (unformatted) to reduce disk storage requirements, were given the file extension name of UNF.

Table 1B-3

VALID ORIGIN AND DESTINATION
ZONES BY SURVEY STATION

SURVEY STATION	VALID ORIGIN ZONES FOR SOUTHBOUND TRAFFIC	VALID DESTINATION ZONES FOR SOUTHBOUND TRAFFIC
R-01	1-22,25,64	21,23-63
R-02	1-20,64	18,20-63
R-03	1-64	18,29-63
R-04	1-22,25,28-64	5,6,7,17,19,21-27
R-05	1-28,64	23,24,26-63
R-06	1-22,24,28-64	1-15,17,19,22-27,64
R-07	1-22,30,64	23-63
R-08	1-31,64	30-63
R-09	1-36,64	35-63
R-10	1-39,64	39-63
R-11	1-41,64	41-63
R-12	1-44,64	44-63
R-13	1-49,62,64	47,49-61,63
R-14	1-53,55-59,61-64	47,50-61,63
R-15	1-50,62,64	49-61,63
R-16	1-50,62,64	50-61,63

Validation and Tabulation of Classified Count Data

Classified Count Data was obtained from all 16 stations at which interviews were conducted (R1 to R16) and at 11 additional sites (C1 to C11). For processing purposes no distinction was made between count data from interview sites or non-interview sites.

Checking of Classified Count Data - All data from the Classified Count Survey were entered directly into the computer by project staff. A FORTRAN program was written to check that count values were reasonable and that data for each 30 minute period was neither missing nor appeared twice. This program was known as the MANUAL CLASSIFIED COUNT PROGRAM (MCCPROG).

Tabulation of Classified Count Data - In addition to checking the count data, MCCPROG also provided a complete tabulation of counts by vehicle type in 30 minute intervals, with hourly sub-totals and a summary of counts during the 12 hour period from 6:00 am to 6:00 pm, the 16 hour period from 6:00 am to 10:00 pm and the 24 hour period from at 6:00 am to 6:00 am the next day.

Factoring of Interview Data

In order to enable the information gathered during the Roadside Interview Survey to represent traffic conditions during the average 24 hour day, it was necessary to apply a number of factors to each interview record.

A total of seven factors were calculated and applied to each interview as follows:

1. Hourly factor
2. Internal 16 hour factor
3. External 16 hour factor
4. 24 hour factor
5. Day of week factor
6. Interview days factor
7. Screenline factor

The first two of these factors were calculated by a FORTRAN program, known as the ROADSIDE INTERVIEW FACTORING PROGRAM (FACTPROG). The next four factors were derived externally from this program, by manual or LOTUS 123 analysis of the Manual Classified Count tabulations. The seventh factor is discussed later in this Appendix.

Hourly Factor - Since interviews were not conducted on 100 percent of the vehicles passing the survey station, an hourly factor was computed by comparing the number of interviews conducted for each vehicle type with the manual classified count at that station and direction of travel for that vehicle type in the same hour. For example, if the vehicle count in one hour for vehicle Type X was 40, and 20 interviews of that vehicle type were conduct, then the Hourly Factor applied to each interview would be 2.0.

In some cases, particularly at lightly trafficked interview sites, a few vehicles of a particular vehicle type were counted but none was interviewed. The result of this, with the simple factor quoted above, would have been that the counted vehicles would not be associated with any interviews and would have been effectively lost. So that the count of vehicles in hours when no interviews were recorded could be used, program FACTPROG was designed in these circumstances to combine counts and interviews from more than one time period and calculate a composite factor.

The program also checked that the calculated factor was not too big and a limiting value of 15.0 was specified. If a factor for any vehicle type and time period exceeded 15.0, counts and interviews were again combined with data from other hours and a composite factor calculated. This procedure was also followed if interviews exceeded counts for any vehicle type in any given time period. A sequence for combining hours was defined and the program worked through this sequence until a composite factor was found which was greater than 1.0 but which did not exceed 15.0 The sequence chosen for combining interviews and counts was as follows:

(i) within a vehicle type, counts and interviews were combined with the adjacent hour such that an even-numbered hour (beginning) was always combined with the following hour;

(ii) within a vehicle type, counts and interviews were combined in four-hour periods. The first of these four-hour periods commenced at 6.00 am.

(iii) within a vehicle type, counts and interviews were combined in eight-hour periods. The first of these eight-hour periods commenced at 6.00 am.

(iv) within a vehicle type, interviews and counts were combined for the whole day, commencing at 6:00 am.

Internal 16 Hour Factor - At most survey sites, interviews were conducted for less than the 16 hours over which classified count data were normally gathered. In these cases, program FACTPROG calculated an additional factor per vehicle type to grow traffic from the volumes counted during the period of interviews to the volumes counted throughout the Classified Count Survey period.

For example, if 600 vehicles of Type X were counted during a 10-hour interview period and 750 vehicles of that type were counted during the 16-hour Classified Count Survey period on the same day, then a factor of 1.25 was computed (750 divided by 600).

Program FACTPROG calculated the Hourly Factor and the Internal 16 Hour Factor for each interview and appended these factors to the record containing the interview data. As a result of this process 32 files of factored interviews were generated - one file for each station and direction of travel. Each file was given the extension name of FAC. To

save disk storage space the remaining factors were not added to each individual record, but were read in by FACTPROG to provide summaries of the number of factored interviews after application of the External 16 Hour Factor, the 24 Hour Factor and the Day of Week Factor.

External 16 Hour Factor - On a number of occasions, due to some operational problems, it was not possible to conduct the Classified Count Survey for a full 16-hours. In these cases a factor was manually estimated to grow the traffic from the period actually counted to a full 16-hour value. These factors were estimated for each vehicle type using count data available from other days at the same survey station, or from neighbouring survey stations.

24 Hour Factor - At 12 of the 16 Roadside Interview Survey stations classified counts were scheduled for 16-hour periods. Factors were derived to grow these counts to 24-hour values, using information gathered at the four 24-hour interview station. Individual factors were derived manually for each vehicle type.

Day of Week Factor - Interviews were conducted for either two or three days at each survey station. In order to avoid a bias being introduced into the subsequent analysis as a result of the particular days of the week used at a survey station, day of week factors were derived for each vehicle type. The intent of this factor was to enable the factored interviews to represent a typical day of traffic conditions in the study area.

Interview Days Factor - Since interviews were conducted on more than one day, when combining all factored interviews it was necessary to divide the results by the number of interview days at that survey location. The sixth factor applied to each interview was, therefore, simply the reciprocal of the number of interview days. At the 3-day stations this factor was 0.33, while at the 2-day stations it was 0.50

Tabulation of Factored Interview Data

The next step in the computer analysis of the Roadside Interview Survey data was the preparation of a series of tables summarizing the results obtained. The sources of information for these tables were the files of factored interview data and the four sets of manually derived factors (External 16 Hour Factor, 24 Hour Factor, Day of Week Factor and Interview Days Factor). Twelve tabulations were produced as follows:

1. Number of Interviews by Hour, Day, Direction and Vehicle Type;
2. Factored Interviews by Hour, Day, Direction and Vehicle Type (excluding Day of Week Factor);
3. Daily Truck Totals by Licensed Empty and Full Weights;
4. Daily Truck Totals by Number of Axles and Capacity;
5. Daily Truck Totals by Gross Vehicle Weight-Axle Combinations;
6. Daily Truck Totals by Truck Loading Characteristics;
7. Daily Vehicle Totals by Number of Seats and Persons;
8. Daily Vehicle Totals by Trip Purpose and Occupancy Characteristics;

9. Daily Vehicle Totals by Origin Zone Group;
10. Daily Vehicle Totals by Destination Zone Group;
11. Daily Passenger Totals by Trip Purpose and Cargo Totals by Commodity (Tonnes); and,
12. Daily Vehicle Totals by Commodity Carried.

The above tabulations were produced for each individual survey station. Tables were also prepared to combine the results obtained from four groups of related survey stations. The four groups of stations were:

FAYOUM - stations 1, 4 and 6;
EAST BANK - stations 3 and 7;
SOUTH ASSUIT - stations 14 to 16; and,
MAIN CORRIDOR - stations 2, 5, and 8 to 13.

Finally, tables were provided showing the combined results from all 16 Roadside Interview Survey stations. These combined results for all stations are included in Appendix 1G to this Report.

Production of Observed Trip Matrices

An essential requirement of the Transport Forecasting Model used in this Study was an origin to destination (OD) trip matrix for each vehicle type, representing a typical day of traffic activity throughout the study area. As shown previously in Table 1B-1, 64 analysis zones were defined for the Study Area. A trip matrix is, therefore, a table of 64 rows and columns with the value contained in cell row i, column j representing the number of trips originating in zone i and ending in zone j.

As a result of the factoring processes described in the previous section the factored interview data could be viewed as representing a typical 24-hour day of traffic activity at each survey station. Using this data it would be possible to construct trip matrices for each survey station. However, if this were done and the resulting matrices simply added together for all survey stations, the resulting matrices would contain an over-estimate of long distance travel. The reason for this is that trips passing through more than one survey station would be included in the matrix of each station and would therefore be double or triple counted etc in the final corridor-wide matrices. In the extreme case a vehicle travelling from Cairo to south of Assuit along the existing west bank road would pass through 9 interview survey sites and would therefore contribute to the final matrices 9 times over. A method of combining data from individual survey stations was therefore required which applied an additional factor to each interview, equal to the reciprocal of the number of survey stations along the complete route from the vehicles origin to its destination.

Screenline Factors - To determine the number of interview stations passed through in travelling between each origin-destination zone pair, a number of screenlines were identified. A screenline was drawn through those survey stations which were alternatives to each other in travelling from one side of the screenline to the other. For example, in travelling from Cairo to Fayoum a vehicle had to pass through one of the stations R1 (on the Fayoum Desert Road), R2 (on the existing Cairo-Assuit Road) or R3

(on the East Bank Road). A screenline was, therefore, drawn through these three stations. A total of 11 screenlines were defined as shown in Figure 1B-1.

The definition of screenlines resulted in the study corridor being divided into 11 distinct sectors. In passing from one sector to another it was always necessary to cross at least one screenline.

A program known as the BASE YEAR MATRIX PROGRAM (MATSPROG) was written to calculate Screenline Factors for each interview and to generate a composite set of trip matrices by vehicle type. This program required three sets of parameters to calculate screenline factors, as follows:

1. Analysis zone (1-64) to sector (1-11) conversion table
2. Screenline definitions, listing the survey stations on each screenline
3. Movement definitions, listing the screenlines crossed for each possible sector-to-sector movement.

With this information the program calculated for each individual interview station a sector-to-sector matrix of screenline factors. In most cases the factor was simply the reciprocal of the number of screenlines crossed in travelling from the origin sector to the destination sector. In cases where the survey station lay on more than one screenline, then the factor described above was multiplied by the number of screenlines passing through the station.

As an example, consider a vehicle travelling from Sector 3 (Fayoum) to Sector 6 (Maghagha). With the screenlines as shown in Figures 1B-1, such a vehicle would pass through four screenlines J,H, G and F. The simple screenline factor (reciprocal) is therefore 0.25. However, two of the screenlines pass through survey station R-6, so at this station such an interview would be given a screenline factor of 0.5 (2 times 0.25). The sum of the factors applied at each of the survey stations in going from Sector 3 to Sector 6 is, of course, 1.0 (2 times 0.25 at R-6 plus 0.25 at R-8 plus 0.25 at R-9).

This method of combining data from multiple survey stations to provide a composite picture of travel movements throughout the Study Area has the further advantage of making use of the maximum number of reliable interviews, even if the weight applied to individual interviews is small. This minimizes the chance of distortions in the resulting trip matrices due to unusual survey conditions or results at a particular station and/or date.

Program MATSPROG provided a listing of estimated daily volumes crossing each screenline for each sector-to-sector movement. Obviously with ideal data sets and perfect screenlines (with no side roads enabling vehicles to pass from sector-to-sector without passing a survey station), the volumes would be identical on all screenlines between the two sectors and zero otherwise. A review of these volumes (by vehicle type) indicated that they were indeed similar to each other, with the exception of screenlines K and G.

Screenlines K includes survey stations R2 and R3 which were the first two stations at which interviews were conducted. Screenline G includes only survey station R-8, just south of Beni Suef. It is not known why data collected here was not consistent with other stations when the screenline factor was applied. As a result of this review the movement definitions were re-defined to eliminate screenlines K and G wherever possible and the program re-run to provide consistent results at remaining screenlines. The final set of movement definitions used is shown in Table 1B-4.

Trip matrices representing sector-to-sector travel in the Study Area were produced for nine vehicle types. These vehicle types and the number of vehicle trips in each matrix were as follows:

MATRIX NUMBER	VEHICLE TYPE	TRIPS FROM FACTORED DATA
1	Car, Purpose work	5,985
2	Car, Purpose other	4,642
3	Taxi-car	13,389
4	Taxi-van	12,733
5	Pickup truck	17,085
6	Bus, microbus	3,825
7	Single truck	9,771
8	Combination truck	1,462
9	Articulated truck	568
	Total	69,460

Vehicle trips were maintained seperately for these vehicle types throughout the remainder of the base year calibration work and the future year transport forecasting.

Tabulations with Screenline Factors - Following computation of screenline factors, tabulations were prepared summarizing survey data for all survey stations combined, in which each interview was factored by its screenline factor as well as the six original factors described earlier. These tabulations are shown in Appendix 1G of this Report.

Generation of Short Trips

The interview survey data provided information on long or medium distance trips in the Study Area. It did not, however, include information on trips which do not pass through a survey station, such as short trips remaining entirely within a sector of the corridor (see Figure 1B-1).

To provide an estimate of intra-sector trips which move from one analysis zone to another (inter-zonal), the observed trip matrices were analyzed to yield a function relating the number of trips observed to the GDP in the origin and destination zones and the time of travel between the zones.

Table 1B-4

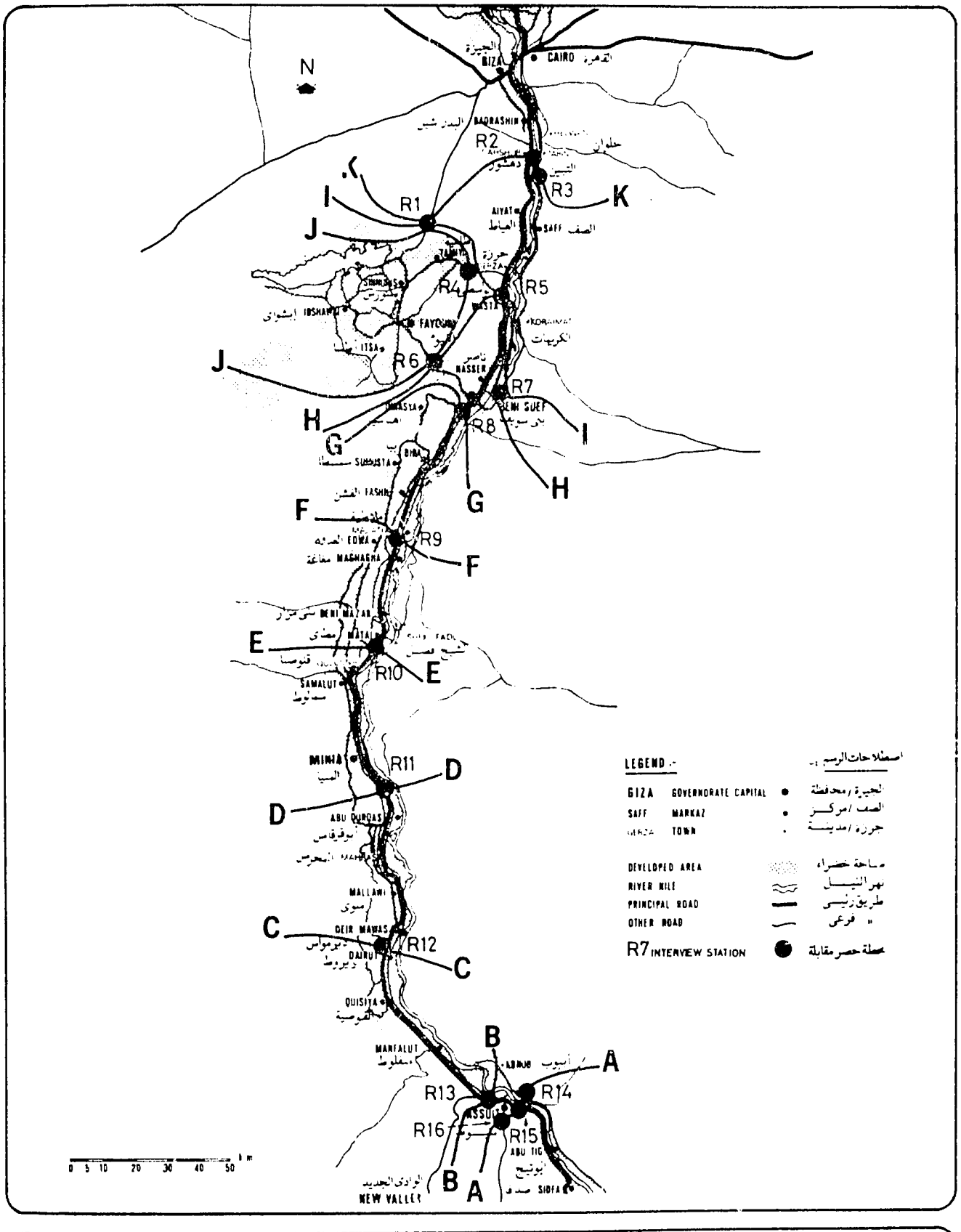
DEFINITION OF SCREENLINES CROSSED BY EACH MOVEMENT

SECTOR PAIR	SCREENLINES CROSSED							
1-2	K							
1-3	I	J						
1-4	H	I						
1-5	H	I						
1-6	F	H	I					
1-7	E	F	H	I				
1-8	D	E	F	H	I			
1-9	C	D	E	F	H	I		
1-10	B	C	D	E	F	H	I	
1-11	A	B	C	D	E	F	H	I
2-3	I	J						
2-4	I							
2-5	I							
2-6	F	I						
2-7	E	F	I					
2-8	D	E	F	I				
2-9	C	D	E	F	I			
2-10	B	C	D	E	F	I		
2-11	A	B	C	D	E	F	I	
3-4	H	J						
3-6	F	H	J					
3-7	E	F	H	J				
3-8	D	E	F	H	J			
3-9	C	D	E	F	H	J		
3-10	B	C	D	E	F	H	J	
3-11	A	B	C	D	E	F	H	J
4-5	G							
4-6	F							
4-7	E	F						
4-8	D	E	F					
4-9	C	D	E	F				
4-10	B	C	D	E	F			
4-11	A	B	C	D	E	F		
5-6	F							
5-7	E	F						
5-8	D	E	F					
5-9	C	D	E	F				
5-10	B	C	D	E	F			
5-11	A	B	C	D	E	F		

Table 1B-4 (Cont'd)

DEFINITION OF SCREENLINES CROSSED BY EACH MOVEMENT

SECTOR PAIR	SCREENLINES CROSSED				
6-7	E				
6-8	D	E			
6-9	C	D	E		
6-10	B	C	D	E	
6-11	A	B	C	D	E
7-8	D				
7-9	C	D			
7-10	B	C	D		
7-11	A	B	C	D	
8-9	C				
8-10	B	C			
8-11	A	B	C		
9-10	B				
9-11	A	B			
10-11	A				



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SURVEY ANALYSIS SCREENLINES

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Figure 1B-1

Program FUNPROG output origin zone, destination zone, travel times (in minutes) and the value of a function F to a disk file, where

$$F = \frac{\text{Number of Observed Trips from Zone i to zone j}}{\text{GDP of Zone i} \quad X \quad \text{GDP of Zone j}}$$

Two files were generated for each vehicle type. The first included data for which either the origin or destination zone (or both) was a Governorate capital. The second contained data for which neither zone was a capital.

These 18 files were read by the LOTUS 123 Program, which generated a regression line for the equation LOG(F) = A * t + B where

t is the travel time in minutes;
A is the coefficient of the regression line; and,
B is the constant of the regression line.

In deriving the regression line, data on trips with zone-to-zone travel times in excess of 100 minutes were ignored. The regression line for the case of Car-Work trips involving a Governorate capital is shown in Figure 1B-2.

Using the values of A and B derived by regression for the 18 sets of data (9 vehicle types with Governorate capitals plus 9 vehicle types without), program SHRTPROG was able to generate trips between zones in the same sector, using the following equation:

Number of Generated Trips from zone i to zone j =

$$GDP(i) * GDP(j) * 10^{(A * t + B)}$$

where t, A and B were as defined previously.

Using this process short-length trips were generated for Sectors 3 to 9 inclusive in the Study corridor. These trips were then added by vehicle type to the observed trip matrices, to provide total trip matrices for inter-zonal travel in the study corridor.

Base Year Calibration

Following production of base year trip matrices, a model of the road network was constructed to represent the existing system of roads in the study corridor. The principle roads north of Cairo and south of Assuit were also included.

This model utilized standard transportation modelling techniques and computer programs. Each section of road or "link" was identified by the "node" numbers at either end of the link. For each link the following information was identified:

A-node of the link;
B-node of the link;
Link jurisdiction;

Link length, in tenths of kms.;
Observed travel speed (kph);
Free-flow travel speed (kph); and,
Link capacity, in PCUs per hour.

The link jurisdiction identified the type of road, according to the following codes:

0 - centroid connector
1 - rural 2-lane road
2 - rural multi-lane road
3 - urban 2-lane road
4 - urban multi-lane road
5 - Cairo roads
6 - Cairo-Assuit Desert Road (Expressway)
7 - East Bank Desert Road
8 - new access roads
9 - toll links

This system of codes was used throughout the base year and future year modelling work.

The majority of the detailed link information was provided by analysis of the data gathered during the Traffic Speed Survey, described in Appendix 1E to this Report. The classification of road sections during this survey played an important role in defining links for the road network. The survey classified roads in two ways, as follows:

1 - urban	10 - 4-lane
2 - heavy village	20 - 2-lane with shoulder
3 - light village	30 - 2-lane, no shoulder
4 - open counting	

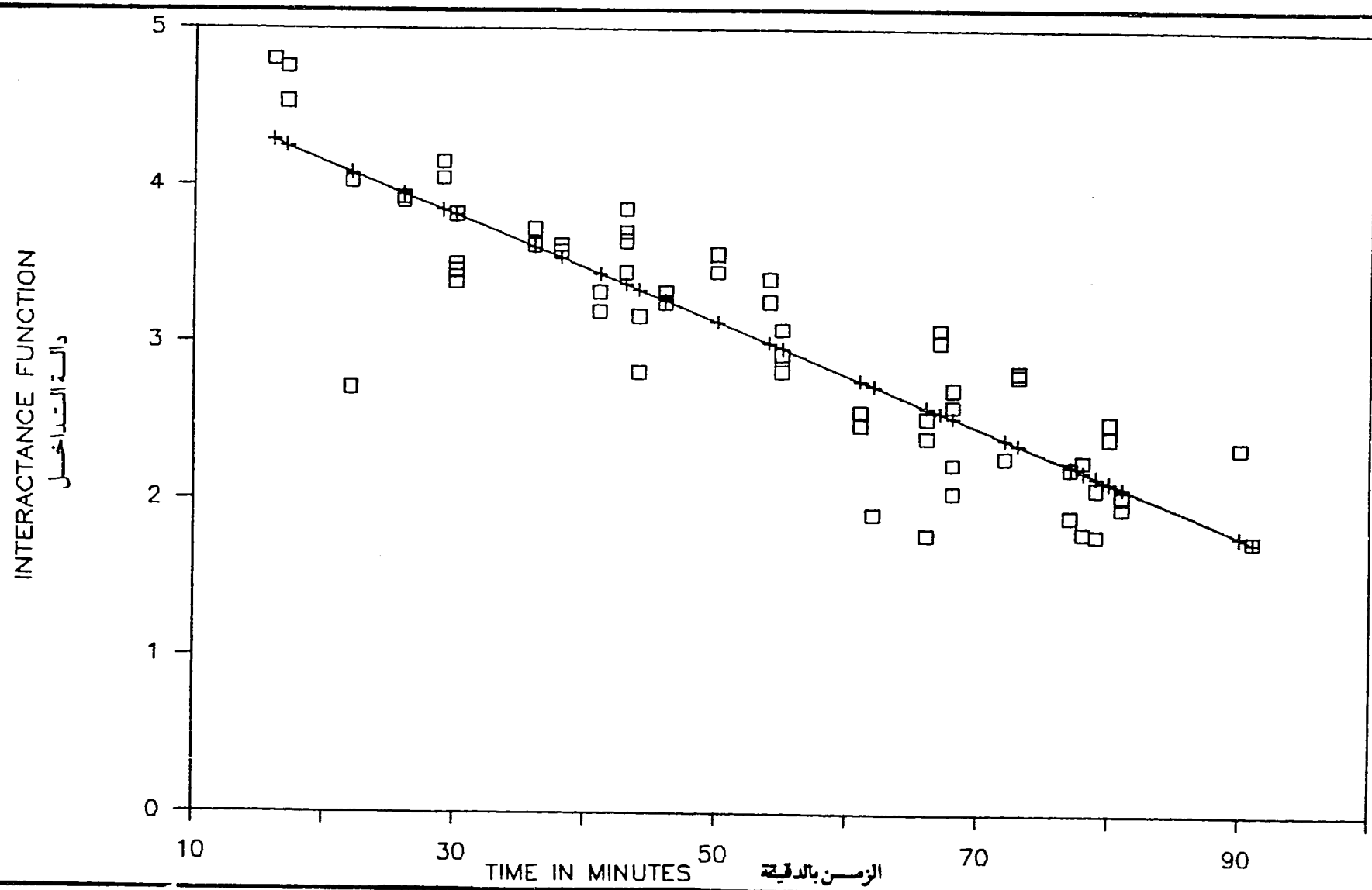
In general terms wherever the road changed either of the above characteristics, a new model link would be identified. In order to avoid an unnecessarily large number of links, sections of roads having identical characteristics were sometimes grouped into a single link, with a length equal to the sum of its components. This was only done in circumstances where inaccuracies to routing or cost calculations would not result.

The coding of the Road Networks is discussed further in Appendix 5A.

Base Year Assignment - The base year trip matrices were assigned to the road network to provide a comparison between traffic flows estimated by the computer model and Manual Classified Count data collected earlier in the study.

A detailed review of the initial base year assignment and count survey data resulted in adjustments to the base year trip matrices for the following movements:

- between Fayoum (Zone 24) and Sinnuris (Zone 26);
- between Samalut (Zone 39) and Minia (Zone 40); and,
- to and from Saff (Zone 18).



Cairo – Assuit Highway Feasibility Study

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REGRESSION LINE FOR CAR-WORK TRIPS INVOLVING GOVERNORATE CAPITALS

Figure 1B - 2

As a result of these adjustments the Base Year trip matrices contained the following numbers of daily vehicle movements:

MATRIX NUMBER	VEHICLE TYPE	TOTAL BASE YEAR TRIPS
1	Car, Purpose work	7,118
2	Car, Purpose other	5,437
3	Taxi - car	15,133
4	Taxi - van	15,206
5	Pickup Truck	18,719
6	Bus, microbus	3,965
7	Single truck	10,480
8	Combination truck	1,730
9	Articulated truck	725
	Total	78,333

Annex 1B-1

ROADSIDE INTERVIEW SURVEY CODING INSTRUCTION

1. The completed interview forms are maintained in envelopes. Each envelope contains the results of one hour of interviewing e.g.8 am to 9 am.

2. It is important that the interview forms from different envelopes are not mixed up. Therefore, operate on only one envelope at a time; never have the contents of two envelopes on your desk at the same time.

3. All coding is done in the small square boxes on the form using red pencil. Code leading zeros when necessary.

4. Do not code a complete form before going on to the next. Instead, code sections of each form for the entire envelope, then go through all the forms again to code the next selection. Suitable sections are:

   (i) Date at the top of the form;
   (ii) Vehicle type, axles and persons;
   (iii) Origin and Destination;
   (iv) Purpose;
   (v) Cargo;
   (vi) Weight of cargo and vehicle.

5. Data at the top of the Form

   Data may not be entered fully, but it should be possible to complete all coding boxes from the data on the envelope.

   Station number: Code according to the attached list

   Direction: North bound = 1
   South bound = 2

   Hour beginning: use the 24 hour clock:
   e.g. for 7.00 am code 07
   for 3.00 am code 15

   Date: For 31st December, code day = 31
   month = 12
   e.g. = 3112

6. Vehicle Type and Passengers

   In each case, code the numbers indicated on the form:

   Vehicle Type For vehicle type 10, code 10
   For vehicle type 2, code 02

Number of Axles	For 3, code 3
Number of Passengers	For 1, code 01

7. Origin and Destination

Code a zone number for the places given according to the zone plans on the walls of the room.

8. Purpose

This is coded only for vehicle types 1-4.
Code the numbers circles in the box provided

9. Cargo (Trucks only)

This is coded only for vehicle types 4 and 7-10. The appropriate code should be selected from the list attached.

10. Weight of Cargo and Vehicle

These are coded only for vehicle types 4 and 7-10.

If the weight of cargo is given, code this in tons with one decimal place in the left hand set of three boxes. (NOTE: The decimal point is already pre-coded).

e.g.	for 3 tons,	code 03.0
	for 6.7 tons,	code 06.7
	for 1/2 ton,	code 00.5
	for 1000 kg,	code 01.0

If the weight of cargo is given as 0 ton, then code the right hand box with a 1.

If only the loading condition is given, code the circled number in the right hand box.

e.g.	Quarter full,	code 2
	Full,	code 5

For weight of vehicle, code empty weight and full weight in tons in the boxes indicated.

In some cases, two values are given both for empty and full weight. This indicates either a combination truck or an articulated truck. Therefore the vehicle type should be 8 or 9 (check vehicle type column). In each case these should be added together and the total coded.

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11. Blank and Unknown Values

Some parts of the interview will be left blank because they do not apply. These are Trip Purpose for vehicle types 5-11, and the three questions on cargo and weights for vehicle types 1-3, 5-6 and 11. These boxes should all be coded with zeros.

In other cases, blanks will occur when data should have been collected. Also, code these unknown values as zero.

However, this is an unacceptable code for vehicle type, origin or destination. Such interviews should be marked with a bold X in the left hand column for review by the supervisor.

Annex 1B-2

CHECKS ON ROADSIDE INTERVIEW SURVEY DATA

1. VEHICLES TYPE:
   A. Vehicle type range: 1 to 11
   B. If vehicle type is zero, all fields must be zero

2. NUMBER OF AXLES:
   A. The number of axles must be in the following range according to the vehicle type:

Vehicle type:	1	2	3	4	5	6	7	8	9	10	11
Minimum axles:	2	2	2	2	2	2	2	4	3	2	1
Maximum axles:	2	2	2	2	2	3	4	7	6	5	2

3. NUMBER OF SEATS:
   A. The number of seats must be in the following range according to the vehicle type:

Vehicle type:	1	2	3	4	5	6	7	8	9	10	11
Minimum seats:	4	4	9	2	18	27	2	2	2	1	1
Maximum seats:	9	9	17	26	30	75	50	6	6	6	6

4. NUMBER OF PERSONS:
   A. The number of persons must be in the following range according to the vehicle type:

Vehicle type:	1	2	3	4	5	6	7	8	9	10	11
Min.persons:	1	1	1	1	1	1	1	1	9	1	1
Max.persons:	15	15	30	30	50	99	99	99	99	30	30

5. ORIGIN ZONE:
   A. Origin zone range: 1 to 64.
   B. Origin zones must be in the list of permitted origin zones for each survey station and direction of travel.

6. DESTINATION ZONE:
   A. Destination zone range: 1 to 64.
   B. Destination zones must be in the list of permitted destination zones for each survey station and direction of travel.

7. PURPOSE:
   A. For vehicle types 1 to 4, the purpose code range is 1 to 3.
   B. For vehicle types 5 to 11, the purpose code should be zero.

8. CARGO TYPE:
   A. For vehicle types 1, 2, 3, 5, 6, 10 and 11, the cargo type should be zero.
   B. For vehicle types 4, 7, 8, and 9 the cargo type range is 0 to 54.
   C. For vehicle types 4, 7, 8 and 9 the cargo type should not be zero, if EITHER cargo weight is non-zero OR weight estimate code is 2, or 5.

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B. For vehicle types 4, 7, 8 and 9 the weight of truck empty should be in the following range, according to the vehicle type:

Vehicle type:	4	7	8	9
Minimum weight empty:	1	3	7	7
Maximum weight empty:	3	15	25	25

12. LICENCED WEIGHT OF TRUCK FULL:

A. For vehicle types 1, 2, 3, 5, 6, 10 and 11, the weight of truck full should be zero.

B. For vehicle types 7,8, and 9 the licensed weight of truck full should comply with the following:

if FULL weight >0 & <3, then it must be at least 1.5 times EMPTY weight
if FULL weight >3 & <7, then it must be at least 1.65 times EMPTY weight
if FULL weight >7 & <10, then it must be at least 1.75 times EMPTY weight
if FULL weight >10, then it must be at least 2.0 times EMPTY weight

C For vehicle types 7, 8 and 9 the licensed weight of truck FULL should be less than or equal to six times the licensed EMPTY weight.

D. For vehicle types 8 and 9, the licensed weight of truck FULL should be greater than or equal to 5 times the number of axles and less than or equal to 20 times the number of axles.

E. For vehicle type 4, the licensed weight of truck FULL should not be less than the licensed weight of truck EMPTY.

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Appendix 1C

CONDUCT OF THE TRUCK WEIGHING SURVEY

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Appendix 1C

CONDUCT OF THE TRUCK WEIGHING SURVEY

This appendix describes the truck axle weighing survey which was conducted to obtain axle loadings for use in subsequent study tasks pertaining to roadway design.

Survey Station Locations

Since the objective of the survey was to obtain the weight of loaded trucks for roadway design purposes, it was not necessary to establish a large number of weighing stations. It was believed that a few locations each operated for several days would provide the necessary data. Three locations were selected for the survey, all on the main west bank Cairo-Assuit Highway which carries the vast majority of trucks in the corridor. These are shown in Figure 1C-1 and in Table 1C-1 below:

Table 1C-1

TRUCK WEIGHING STATION LOCATIONS

STATION	LOCATION
W-1	Between Cairo and Beni Suef south of the Maraziq Bridge junction.
W-2	Between Beni Suef and Minya at the south edge of Beni Suef.
W-3	Between Minya and Assuit, 3 kilometers north of Assuit.

A major criteria in station location was roadway width. It was necessary to place the scales on a solid, level base which essentially required sufficient roadway width for a truck weighing lane and a bypass lane for other traffic. The three locations selected satisfied this criteria

Survey Equipment

The survey was conducted using a LODEC portable scales system imported by the Study especially for this purpose. The system consisted of three main components:

1. Two weighing platforms each 4.2 meters in length; 0.8 meters wide weighing 431 kilograms. The weighing platforms could measure the load on a complete axle group, including tridem axle groups with three closely spaced axles.

2. A portable printing indicator operating from a 12 volt battery power source. This was connected by cables to both weighing platforms and thus provided a measurement of the complete axle weight.

3. A tilt deck trailer to transport the platforms. Two manually operated winches were mounted on the trailer for platform loading and unloading.

A small pickup truck was used to tow the trailer and to carry other survey equipment including traffic cones and signs.

Survey Operation

Each station was operated for a consecutive four-day period. Weighing operations started each morning at 8:00 am and ended between 3:00 pm and 4:00 pm. The somewhat arbitary ending time was dependent upon the volume of trucks moving during the afternoon period. It was also necessary to dismantle the station, load the trailer and move it to a secure overnight parking location during daylight hours.

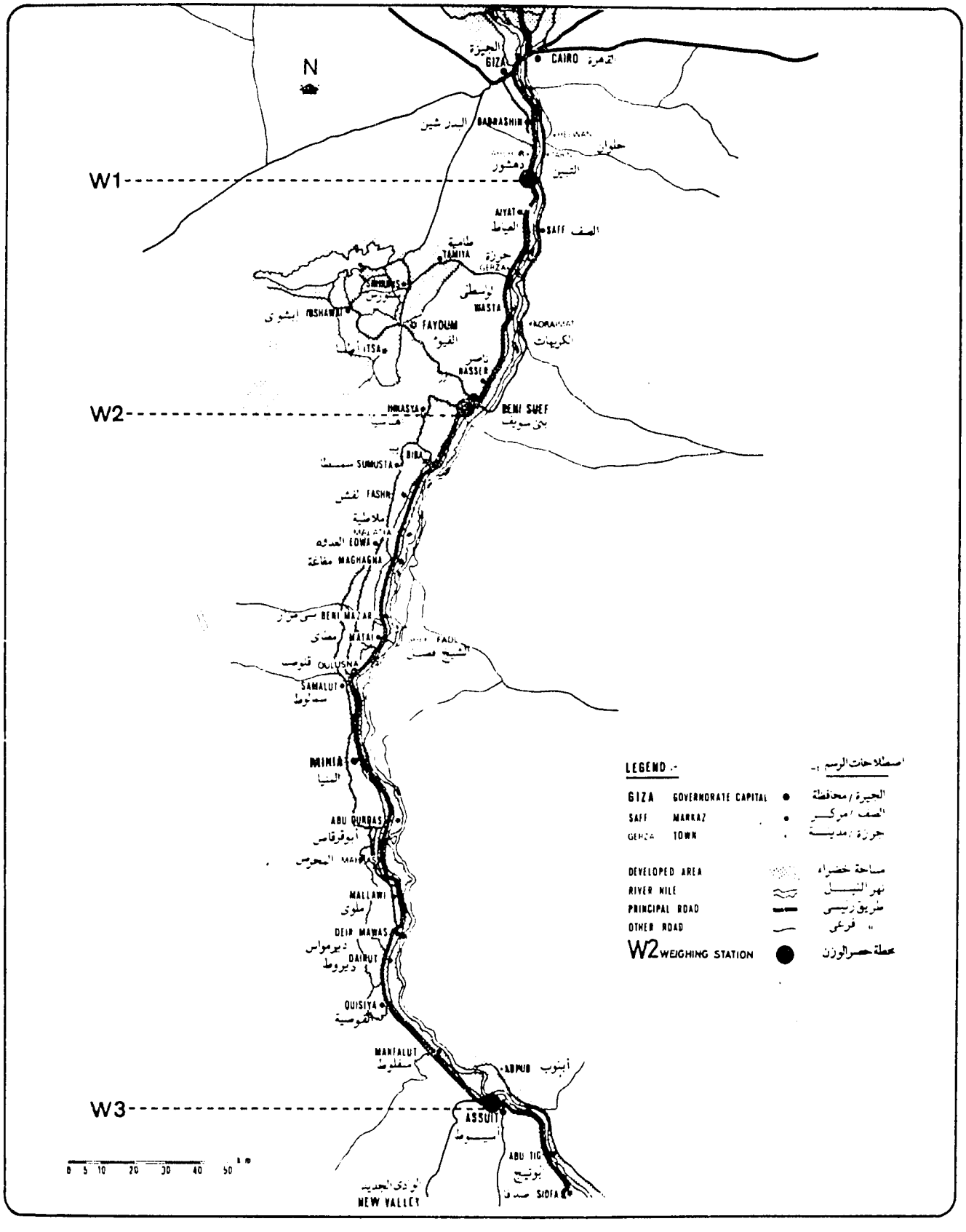
It was observed during the roadside interview survey that the majority of large loaded trucks were travelling in the southbound direction from Cairo towards Assuit with many empty trucks moving in the opposite direction. Therefore, trucks travelling south were weighed during the first two days at each station with northbound vehicles weighed on the third day. After observing truck traffic patterns during the first three days a decision was made on the direction of operation on the fourth day. Infact, southbound trucks were weighed on the fourth day at all stations giving a directional distribution of nine days southbound and three days northbound. The survey was scheduled so that all days of the week were covered. The survey schedule is given below in Table 1C-2.

TABLE 1C-2

TRUCK WEIGHING SURVEY SCHEDULE

STATION	DAY	DATE	DIRECTION
W-1	Friday	February 7	Southbound
	Saturday	February 8	Southbound
	Sunday	February 9	Northbound
	Monday	February 10	Southbound
W-2	Tuesday	February 11	Southbound
	Wednesday	February 12	Southbound
	Thursday	February 13	Northbound
	Friday	February 14	Southbound
W-3	Sunday	February 16	Southbound
	Monday	February 17	Southbound
	Tuesday	February 18	Northbound
	Wednesday	February 19	Southbound

Training for the field crew was conducted on February 5 and 6. Saturday, February 15, was a moving day with the scales moved from Beni Suef to Assuit.



Cairo – Assuit Highway Feasibility Study

LOCATIONS OF TRUCK WEIGHING STATIONS

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Egyptian Consultants Consortium

Figure 1C-1

Survey Form

A survey form and set of instructions were developed in the office, translated to Arabic and printed. A copy of the original arabic form is shown in Figure 1C-2 and a translation is shown in Figure 1C-3. Note that the form reads from right to left. The form contained some categories of information identical to those used in the roadside interview so that data could be combined. The categories were cargo type, the amount of load carried (empty, full, etc.) the licensed empty weight of the truck, and licensed loaded weight.

The remainder of the form was divided into two sections - one concerning the traction unit and the other pertaining to the trailer unit. The type or class of the unit being weighed, the tire configuration of each axle and the weight of each axle or axle group was recorded in these sections. The lower portion of the form defined the various axle configurations and the sequence in which the axle groups were to be weighed. The survey instructions and form are included in Annex 1C-1 to this appendix.

Station Operation

All survey stations were located on roadway sections with sufficient width to provide two lanes, one for the scales and trucks waiting to be weighed,and the other for other traffic.

Station W1 south of Maraziq junction was situated on a four-lane divided highway section. All traffic in the direction of the survey station was merged to the left in a single lane. Trucks were diverted to the right or outside lane where the scales were located.

The layout of Station W2 immediately south of Beni Suef was somewhat more complex. This roadway section contained a median with numerous openings which allowed traffic to cross from one direction to the other. The directional lanes were also narrower than a standard two-lane section. At this location, it was arranged for trucks to be the exclusive user of the roadway in the direction of the survey station while other traffic was diverted through an opening in the median creating a short distance of two-way traffic flow on the other roadway. Some minor traffic congestion occured on the two-way section due to slow moving animal carts.

Station W3 north of Assuit was located on a divided four-lane roadway. This station layout was similar to the Maraziq location.

Duties of the Survey Crew - The survey crew consisted of a supervising engineer and five men. Their duties were as follows:

Traffic Controller - This person was stationed at the entrance to the weight station. He was responsible for selecting the trucks to be weighed. Empty trucks, small trucks and redundant trucks were bypassed at such times the storage lane was full. Empty and small trucks were weighed during slow periods. Redundant trucks were those carrying a cargo such as sand which travelled a short distance thus passing the station frequently.

Interviewer - He obtained information from the driver regarding the type of cargo and obtained the operating license giving the truck empty and loaded weights. This information was given to the Recorder for entry on the survey form.

Platform Controller - He guided the driver onto the scale platforms and directed the truck movement axle by axle.

Digital Weight Indicator Operator - He operated the consol containing the digital readout and printer. He read the axle weight to the Recorder and advised the Platform Controller when to direct the truck forward.

Recorder - He determined the truck/trailer class and entered all other information on the form as received from the Interviewer and Operator.

Crew Supervisor - He was responsible for the station layout and its operation, assigned crew duties, collected and labelled the completed forms each hour and maintained administrative records.

The survey crew was supplemented by three drivers who transported the survey crew and equipment, and by one traffic police officer who travelled with the truck and trailer. Each Governorate containing survey stations provided one traffic police officer and three men to direct traffic.

All types of trucks, other than pickups were weighed. Small trucks of 2-3 tons were bypassed during high traffic periods but many were included during other periods. These carried a variety of commodities. A sample of empty trucks of various types were also included.

It was found that between 30 and 40 trucks per hour could be weighed. This depended on the mix of trucks at the time. Axles were weighed in accordance with the sequence indicated on the truck/trailer diagrams at the bottom of the survey form. If the weighing sequence varied from this, the vehicle was coded "Other" and a sketch made of the axle or axle group sequence.

The truck axle weight survey proceeded very smoothly. No problems were encountered with truck drivers. The traffic police assigned by the various governorates effectively controlled both truck and bypass traffic ensuring a minimum of inconvenience to the travelling public.

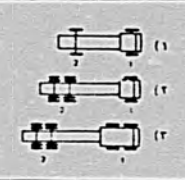
دراسة الجدوى لطريق القاهرة - اسيوط
استمارة أوزان محاور السيارات النقل

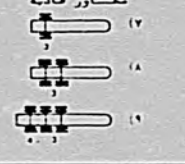
ويلبر سميث و شركاه
المجموعة الاستشارية المصرية

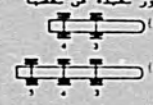
المقابلة : .....
رقم المحطة : ..... الاتجاه : ..... الزمن : ..... التاريخ : ..... يوم شهر

الحمولة		وزن السيارة النقل كما هو فى الرخصة (بالطن)	سيارات نقل / جرارات				مقطورات / نصف مقطورات			
				نوع الاطارات والاوزان			نوع	نوع الاطارات والاوزان		
نوع الحمولة	حجم الحمولة لحجم السيارة		السيارة	المحور الاول	المحور الثانى	المحور الثالث	المقطورة	المحور الرابع	المحور الخامس	
	١ فارغة ٢ ربع حمولة ٣ نصف حمولة ٤ ٣/٤ حمولة ٥ مملوءة	فارغة : محملة : فارغة / محملة	١ ٢ ٣	اطارات ١ فردية ٢ زوجية ٣ مختلطة الوزن:	اطارات ١ فردية ٢ زوجية ٣ مختلطة الوزن	اطارات ١ فردية ٢ زوجية ٣ مختلطة الوزن:	٤ ٨ ٥ ٩ ٦ ١٠ ٧ ١١ ١٢	اطارات ١ فردية ٢ زوجية ٣ مختلطة الوزن:	اطارات ١ فردية ٢ زوجية ٣ مختلطة الوزن:	اطارات ١ فردية ٢ زوجية ٣ مختلطة الوزن:
	١ فارغة ٢ ربع حمولة ٣ نصف حمولة ٤ ٣/٤ حمولة ٥ مملوءة	فارغة : محملة : فارغة / محملة	١ ٢ ٣	اطارات ١ فردية ٢ زوجية ٣ مختلطة الوزن:	اطارات ١ فردية ٢ زوجية ٣ مختلطة الوزن:	اطارات ١ فردية ٢ زوجية ٣ مختلطة الوزن:	٤ ٨ ٥ ٩ ٦ ١٠ ٧ ١١ ١٢	اطارات ١ فردية ٢ زوجية ٣ مختلطة الوزن:	اطارات ١ فردية ٢ زوجية ٣ مختلطة الوزن:	اطارات ١ فردية ٢ زوجية ٣ مختلطة الوزن:
	١ فارغة ٢ ربع حمولة ٣ نصف حمولة ٤ ٣/٤ حمولة ٥ مملوءة	فارغة : محملة : فارغة / محملة	١ ٢ ٣	اطارات ١ فردية ٢ زوجية ٣ مختلطة الوزن:	اطارات ١ فردية ٢ زوجية ٣ مختلطة الوزن:	اطارات ١ فردية ٢ زوجية ٣ مختلطة الوزن:	٤ ٨ ٥ ٩ ٦ ١٠ ٧ ١١ ١٢	اطارات ١ فردية ٢ زوجية ٣ مختلطة الوزن:	اطارات ١ فردية ٢ زوجية ٣ مختلطة الوزن:	اطارات ١ فردية ٢ زوجية ٣ مختلطة الوزن:

أنواع السيارات النقل/الجرارات — أنواع المقطورات — أنواع نصف المقطورات — أنواع أخرى







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Cairo – Assuit Highway Feasibility Study

TRUCK WEIGHING SURVEY FORM

Wilbur Smith & Associates
Egyptian Consultants Consortium

Figure 1C – 2

Wilbur Smith and Associates
Egyptian Consultants Consortium

Cairo-Assuit Highway Feasibility Study
TRUCK AXLE WEIGHT SURVEY

Month Day ..... Date

Hour Beginning ..... Direction

..... Interviewer

..... Station No.

TRAILER / SEMI-TRAILER — TIRES AND WEIGHTS				TRUCK / TRACTOR — TIRES AND WEIGHTS			LICENSED TRUCK WEIGHT	CARGO	
AXLE GROUP 5	AXLE GROUP 4	AXLE GROUP 3	CLASS	AXLE GROUP 2	AXLE GROUP 1	CLASS		Loading Condition	Type
Tires: 1. Single 2. Dual 3. Mixed Weight:	Tires: 1. Single 2. Dual 3. Mixed Weight:	Tires: 1. Single 2. Dual 3. Mixed Weight:	4 8 5 9 6 10 7 11 12	Tires: 1. Single 2. Dual 3. Mixed Weight:	Tires: 1. Single 2. Dual 3. Mixed Weight:	1 2 3	Empty: Full: Full Empty	1. Empty 2. Quarter 3. Half 4. Three Qtr. 5. Full	
Tires: 1. Single 2. Dual 3. Mixed Weight:	Tires: 1. Single 2. Dual 3. Mixed Weight:	Tires: 1. Single 2. Dual 3. Mixed Weight:	4 8 5 9 6 10 7 11 12	Tires: 1. Single 2. Dual 3. Mixed Weight:	Tires: 1. Single 2. Dual 3. Mixed Weight:	1 2 3	Empty: Full: Full Empty	1. Empty 2. Quarter 3. Half 4. Three Qtr. 5. Full	
Tires: 1. Single 2. Dual 3. Mixed Weight:	Tires: 1. Single 2. Dual 3. Mixed Weight:	Tires: 1. Single 2. Dual 3. Mixed Weight:	4 8 5 9 6 10 7 11 12	Tires: 1. Single 2. Dual 3. Mixed Weight:	Tires: 1. Single 2. Dual 3. Mixed Weight:	1 2 3	Empty: Full: Full Empty	1. Empty 2. Quarter 3. Half 4. Three Qtr. 5. Full	

OTHER

Sketch:

12.

SEMI-TRAILERS

Spread Axle

10.

11.

Normal Axle

7.

8.

9.

TRAILERS

4.

5.

6.

TRUCK/TRACTORS

1.

2.

3.

Cairo – Assuit Highway Feasibility Study

TRUCK WEIGHING SURVEY FORM (TRANSLATION)

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Egyptian Consultants Consortium

Figure 1C – 3

Annex 1C-1

FIELD INSTRUCTIONS
TRUCK WEIGHING SURVEY

1. The purpose of the survey is to obtain a representative sample of the weights of trucks travelling on the Cairo-Assuit highway.

a. The sample will include a small number of empty trucks of various sizes.

b. Care must be taken in sampling that trucks appearing to be overweight are not selected more frequently than other trucks.

2. The field crew will consist of five persons.

a. Supervising Engineer - Responsible for all equipment used; layout of survey station; and assignment of specific tasks. He will collect the completed survey forms each hour.

b. Interviewer - He will obtain information from the driver regarding cargo carried and truck empty and loaded weights. He will inform the truck driver that the purpose of the survey is to gather information only. Citations will not be issued for loads exceeding the licensed weight.

c. Scale Controller - will guide the driver onto the scales and will direct all subsequent vehicle movements to weigh each set of axles.

d. Digital Weight Indicator Operator - This person will operate the readout and printer. He will call out the axle weights to the recorder in kilograms (eg: 1350 kgs).

e. Recorder - Will enter date, time, location and direction in the space provided on the interview form. He will enter the truck/trailer class as the vehicle enters the weigh station and will identify the number of tires on each axle set. The recording of truck/trailer class and numbers of tires must be done extremely carefully. He will record the information obtained by the interviewer regarding cargo and licensed weight. He will also record the axle weights read by the instrument operator. He must be sure that weights for each axle set are recorded in the correct boxes as shown by the sketches at the bottom of the form. He should prepare a new sketch if necessary.

3. Traffic will be controlled by a Police Officer and three men assigned by the Governorate Traffic Director in the respective Governorates.

Appendix 1D

ANALYSIS OF THE AXLE WEIGHING SURVEY

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Appendix 1D

ANALYSIS OF THE AXLE WEIGHING SURVEY

Data collected during the Truck Weighing Survey were analyzed to provide a series of tabulations summarizing the results obtained. This analysis was undertaken in two steps as follows:

- Entry and validation of Truck Weighing Survey data, and
- Tabulation of results.

A computer program was written in the FORTRAN programming language in connection with each of these steps.

Coding of Weight Data

During the Truck Weighing Survey a total of 2,756 trucks were weighed. Data was recorded in the field on a total of 949 survey forms, with data for up to three trucks being recorded on each form.

As completed survey forms were returned to the project office, each item of information was transformed into a numeric code. These numbers were written on the interview form in the boxes provided, in anticipation of entry into the computer.

Much of the information gathered was numeric in nature, such as the licensed weight of the truck when empty. Coding of this type of information only involved copying the response recorded by the interviewer into the appropriate boxes. In the case of the weight of an axle group (in tonnes) the weight was coded on the form to two decimal places of accuracy even through three decimal places were recorded on the form by field survey staff. For information which required the interviewer to assign a numeric code in the field, for example to indicate the type of trailer, the code was simply copied into the coding box.

When field survey staff encountered a truck or trailer which did not correspond to any of those shown on the survey form, they were instructed to circle Trailer code 12 and to draw a sketch of the vehicle. In practice this occured principally when a tridem axle (group of three closely spaced axles) vehicle was encountered. Although such a vehicle was shown on the form (trailer type 9), it was found that all three axles could generally be driven onto the scales at the same time, resulting in a single weight reading. This contrasted with the two readings anticipated when Trailer type 9 was defined for the survey form. Tridem "Type 12" vehicles were coded as "13", for data entry purposes. Had further vehicle types been encountered which did not conform to the trucks and trailers shown on the form, as they would have been coded as "14" , "15" etc, but in practice, "13" was the highest value of trailer type coded.

Only one item of information was not numeric in nature. The type of cargo being carried by the truck was transformed into a numeric code by office staff, using the same cargo definitions identified for the Roadside Interview Survey (see Table 1B-2 in Appendix 1B).

Entry and Checking of Data - The task of entering data was given by contract to Professional Business Services (PBS). Data was transferred to the project IBM PC microcomputers by means of magnetic diskettes. Data was stored in twelve files - one for each day of the Truck Weighing Survey. Each file was given the extension name of DAT.

Following data entry each file of data was checked to identify any records containing erroneous or illogical data items. A computer program known as the TRUCK AXLE WEIGHT SURVEY PROGRAM (AXLEPROG) was written to perform this checking operation. Records failing any of the checks were printed out, with the erroneous or doubtful item(s) of data being underlined. All erroneous records were then checked manually to determine the source of the error, and wherever possible to correct the data. All editing of survey data was undertaken on the project computers using the IBM Personal Editor.

The ranges of values allowed for each data item are shown in Annex 1D-1. As a result of these checks nine percent of the records were rejected, leaving a total of 2,518 valid records for use in preparation of tabulations. Program AXLEPROG created an output file for each file processed. These files, which were in a condensed form (unformatted) to reduce disk storage requirements, were given the file extension name of UNF.

Tabulation of Truck Weighing Data

Following validation of the data, a series of tabulations were prepared to summarize the information gathered. A program, named ATABPROG, was written for this purpose. Seven types of tabulations were printed, as follows:

1. Number of Empty Vehicles by Licensed Empty Weight and Total Measured Weight;
2. Number of Loaded Vehicles by Load Condition, Licensed Full Weight and Total Measured Weight (Tonnes);
3. Number of Vehicles by Commodity, Truck/Trailer Category and Total Measured Weight (Tonnes);
4. Number of Vehicles by Commodity, Truck/Trailer Category and Equivalent Axles;
5. Number of Axle Groups by Truck/Trailer Category and Tire Class;
6. Number of Axle Groups by Type of Axle Group, Tires and Measured Axle Group Load (excluding Empty Trucks); and,
7. Number of Axle Groups by Type of Axle Groups, Tires and Calculated Equivalent Axles (excluding Empty Trucks).

The Truck/Trailer Categories referenced in tabulations 3, 4 and 5 above corresponded to the 27 combinations of trucks/trailers depicted on the survey form, namely 3 categories of Single Trucks (truck types 1, 2, and 3), 9 categories of Combination Trucks (truck types 1, 2 and 3 combined with trailer types 4, 5 and 6) and 15 categories of Articulated Trucks (truck types 1, 2 and 3 combined with trailer types 7 to 11). Trailers with tridem axles were considered as trailer type 9 for tabulation purposes.

Equivalent Axle Calculations - The equivalent axle load was calculated for each axle group as a function of the type of axle (single, tandem or tridem) and the tire configuration (single, dual or mixed).

Equivalent axles (EA) were calculated according to the following equations:

Single axle, dual tires: $EA = \left(\frac{W + 0.46}{8.6}\right)^{4.79}$

Tandem axle, dual tires: $EA = 2^{-4.33} \times \left(\frac{W + 0.91}{8.6}\right)^{4.79}$

Tridem axle, dual tires: $EA = 3^{-4.33} \times \left(\frac{W + 1.37}{8.6}\right)^{4.79}$

For axles with single tires, the equivalent axles calculated as above were factored by 1.3.

Equivalent axles for tandem axles with mixed tires (single tires on one axle, dual tires on the other) were calculated by splitting the load between the axles in relation to the number of tires and then treating each axle as a single axle,

Commodity Density Values - In addition to providing the input data for the above tabulations, the information gathered in the Axle Weighing Survey was also used to derive density values for each commodity. These values were used by program ITABPROG in preparing the Roadside Interview Survey tabulations in cases where only an estimate of the load was available (one-quarter, half, three-quarters or full) rather than the actual weight of cargo.

The value derived for each commodity was the average weight of the cargo per tonne of truck capacity. The cargo weight was taken as the total vehicle weight as measured in the field minus the licensed empty weight. The cargo capacity was taken as the difference between the licensed full and empty weights. Separate commodity density values were calculated for single trucks, truck combinations and articulated trucks.

In cases where the number of observations used to calculate a density value was small, results were combined between vehicle types or between similar commodities. The commodity density values determined by his process and used in the Roadside Interview Survey tabulations are shown in Table 1D-1.

Table 1D-1

COMMODITY DENSITY VALUES

COMMODITY CODE	DENSITY VALUE (1) Single Truck	Comb. Truck	Artic. Truck	COMMODITY CODE	DENSITY VALUE (1) Single Truck	Comb. Truck	Artic. Truck
1	1.15	1.15	1.15	28	.90	.90	.90
2	1.27	1.27	1.27	29	.90	.90	.90
3	1.35	1.35	1.35	30	1.10	1.10	1.10
4	1.34	1.57	.92	31	1.10	1.10	1.10
5	1.59	1.72	1.29	32	1.10	1.10	1.10
6	1.59	1.72	1.29	33	1.10	1.10	1.10
7	1.34	1.57	.92	34	1.70	1.70	1.70
8	1.50	1.50	1.50	35	1.70	1.70	1.70
9	1.50	1.50	1.50	36	1.10	1.10	1.10
10	1.50	1.50	1.50	37	1.36	1.36	1.36
11	1.50	1.50	1.50	38	.89	.89	.89
12	1.50	1.50	1.50	39	1.10	1.10	1.10
13	1.18	1.18	1.18	40	1.10	1.10	1.10
14	1.39	1.39	1.39	41	1.10	1.10	1.10
15	1.50	1.50	1.50	42	1.13	1.13	1.13
16	1.18	1.18	1.18	43	1.13	1.13	1.13
17	1.18	1.18	1.18	44	.80	.80	.80
18	1.18	1.18	1.18	45	.71	.71	.71
19	1.18	1.18	1.18	46	.71	.71	.71
20	1.18	1.18	1.18	47	1.24	1.14	1.14
21	1.18	1.18	1.18	48	.89	.89	.89
22	1.41	1.41	1.41	49	1.34	1.34	1.34
23	1.18	1.18	1.18	50	1.04	1.51	1.31
24	1.18	1.18	1.18	51	.56	.56	.56
25	.90	.90	.90	52	.83	.83	.83
26	.90	.90	.90	53	1.04	1.04	1.04
27	.90	.90	.90	54	1.13	1.13	1.13

(1) Average weight of commodity carried, in tonnes, per tonne of truck capacity.

For commodity names, see Appendix 1B, Table 1B-2.

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Annex 1D-1

CHECKS ON TRUCK WEIGHING SURVEY DATA

1. CARGO TYPE:
   A. If Cargo Empty/Full Estimate code is 1 (empty), then Cargo Code must be zero.
   B. If Cargo Empty/Full Estimate code is not 1, then Cargo Code range is 1-54.

2. CARGO EMPTY/FULL ESTIMATE CODE:
   A. If Cargo Type is 0, then code must be 1.
   B. If Cargo Type is not zero, then code range is 2-5.

3. LICENCED WEIGHT OF TRUCK EMPTY:
   A. For single trucks, range is 2.0 to 15.0 tonnes.
   B. For combination trucks, range is 7.0 to 25.0 tonnes.
   C. For articulated trucks, range is 7.0 to 25.0 tonnes.

4. LICENCED WEIGHT OF TRUCK FULL:
   A. The FULL weight should be at least 1.5 times the EMPTY weight, but not more than 10.0 times the EMPTY weight.
   B. For combination and articulated trucks, the FULL weight should be at least 5 times the number of axles, but not more than 20 times the number of axles.

5. TRUCK CLASS CODE:
   A. Range: 1 to 3

6. TYRE TYPE CODE
   A Range: 1 to 3
   B. For axle groups not present in a particular truck/trailer combination, code should be zero.

7. WEIGHT OF AXLE GROUP
   A. Minimum allowed is 1.0 tonne for axle groups 1 and 2, and 2.0 tonnes for axle groups 3, 4 and 5.
   B. Maximum allowed for single axle is 15.0 tonnes for axle group 1 and 22.0 tonnes for other axle groups.
   C. Maximum allowed for tandem or tridem axles is 25.0 tonnes for axle group 1 and 40.0 tonnes for other axle groups.
   D. For axle groups not present in a particular truck/trailer combination, weight should be zero.

8. TRAILER CLASS CODE:
   A. Range: 4 to 12.
   B. For single truck, the code should be zero.

Appendix 1E

CONDUCT AND ANALYSIS OF THE JOURNEY TIME SURVEY

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Appendix 1E

CONDUCT AND ANALYSIS OF THE JOURNEY TIME SURVEY

This appendix covers the conduct and analysis of the Journey Time Survey.

Purpose of the Survey

The purpose of this survey was as follows:

i) To collect data on traffic speeds related to road and traffic characteristics.

ii) To collect data on traffic volumes

iii) To investigate the characteristics of the Cairo-Assuit Highway relating to traffic carrying capacity.

Survey Design

The survey started on Sunday February 2, 1986 and took two weeks to complete, together with an additional day as a test run.

The survey was conducted using the Moving Observer method. This requires a test vehicle to make a series of runs over the selected route, generally maintaining the same speed as the rest of the traffic stream, and at the same time taking counts of traffic in the opposing traffic stream, and of traffic overtaking, or being overtaken by, the test vehicle.

Four complete round trips Cairo-Assuit-Cairo were completed. Each trip took two days starting from Cairo with an overnight stop in Assuit. Two return trips were completed each week with a rest day between each. For the two return trips in the first week, the survey collected data on light vehicle speeds (cars, jeeps, taxis, service taxis, pick-ups and small vans). The second week was used to collect data on heavy vehicle speeds (trucks and buses). Thus the four return trips covered 8 separate runs along the corridor, 4 runs in each direction.

The route between Cairo and Assuit was split into 222 sections, each section having consistent characteristics prevailing throughout. Measurements were made separately for each section; in the analysis, results were grouped and averaged over all sections of the same characteristics.

Survey Conduct

A full crew for a moving car observer run consisted of:

1 driver
3 journey observers
1 odometer observer
1 coordinator

Also, 4 hand-counters and one stop watch were used.

A copy of the form used in the survey is shown in Figure 1E-1. The form is described below in relation to the completion by different members of the team.

Coordinator Duties - He completed the following items: Basic data at the top of the form, station numbers, location, start and finish times, road description and road type.

Location - The name of the city or village.

Road Condition - The road condition could be completed with the help of the engineers in the office at a later date, but some notes also were written by the coordinator.

No. of Lanes - The number of lanes on both sides of the road.

Shoulder - Yes or No to indicate the presence of a shoulder.

Road Type - The road was classified according to the type of development alongside the road. The first of the two village classes represented village development close to the side of the road with strong potential for interference with the traffic stream. This was termed "heavy village". The second category of village was when the village development was near, but not on, the road with just light interference.

Intersections (Xn) - If the beginning or the end of the section (link) was an intersection, a mark was made on the form to indicate beginning (B) or end (E) of the link.

Observer Duties - The first observer counted the number of vehicles (X) moving past the test car in the opposite direction in each section. Traffic was classified into two vehicle categories using two counters.

The second observer counted the number of vehicles which overtook the test car (Y1) and those which the test vehicle itself overtook (Y2) in the section using the other two counters.

The third observer wrote the recorded numbers of vehicles X, Y1, Y2, and also the journey time (Tw), in minutes and seconds of the test vehicle through the section as recorded by the stop watch (which he maintained).

The odometer observer informed the other observers about the starting

SHEET NO.

DIRECTION =

VEHICLE TYPE =

DAY

DATE

TIME

RUN NO.

WEATHER

SECTION	STATION		LOCATION	ROAD DESCRIPTION			ROAD TYPE							TIME BETWEEN STATIONS	X		Y	
	START	FINISH		COND	L.NO.	SHOULDER	URBAN	VILLAGE	VILLAGE	OPEN	OTHER	X^B B	X^B E	T_w	NO. OF CARS	NO. OF BUS & TRUCKS	Y1	Y2

Cairo – Assuit Highway Feasibility Study

JOURNEY TIME SURVEY FORM

Wilbur Smith and Associates
Egyptian Consultants Consortium

Figure 1E - 1

and finishing points of the section so that readings could be completed and entered on the form. The section definitions were set up on the first run.

Analysis of the Survey Data

Each return trip to Assuit and back was counted as two runs along the corridor. Hence data for 8 runs were collected, four each for light and heavy vehicles.

The 8 sets of run data were input to the computer for analysis using the Lotus 1-2-3 spreadsheet program. This facilitated the extensive and repetitive computations required to analyze 8 sets of data for the 222 sections into which the route was divided.

Section Characteristics

A sample of section characteristics are contained in Table 1E-1. The table headings are explained as follows:

SEC - This column represents the number of the section on the highway (222 sections).

DISTANCE: START & END - Represents the station in km at the start and end of every section (link) respectively.

ROAD DESCRIPTION:

CON - The condition of the surface of the link rated as follows: 1 = very good, 2 = good, 3 = fair.

LNS - Presents the number of lanes on that link

SHD - Indicates the presence of a shoulder or not.

MED - Indicates the presence of a median or not.

DEVELOP TYPE - Class of development rated as follows: 1 = Urban, 2 = Heavy village, 3 = Light village and 4 = Open Country

JUNCTION - This column indicates the position of the intersections along the highway (beginning and end of link)

Run Analysis

A sample of the run analysis is contained in Table 1E-2. The section headings and the calculations involved are discussed below.

First, some data was extracted from the section description, and then the results for a particular were entered and analyzed.

SECTION and D END - Section number and distance at the end of the link taken directly from the section characteristics.

Table 1E-1

TRAFFIC SPEED SURVEY SECTION CHARACTERISTICS
(Example)

	DISTANCE		ROAD DESCRIP				DEV	OTHER	JUNC	
SEC	START	END	CON	LNS	SHD	MED	TYP	FEATURES	BEG	END
1	0	2.1	3	4	1	1	1		0	0
2	2.1	3.4	3	4	1	1	1		0	0
3	3.4	4.9	3	4	1	1	1	POLICE ST	0	1
4	4.9	7	3	4	1	1	4		1	0
5	7	8.4	3	4	1	1	4		0	0
6	8.4	10.7	3	4	1	1	4		0	0
7	10.7	11.7	3	4	1	1	4	TAXI	0	0
8	11.7	12.2	3	4	1	1	3	RAILWAY	0	1
9	12.2	14	3	4	1	1	3		1	0
10	14	16.3	3	4	1	1	4		0	0
11	16.3	17.2	3	4	1	1	3	POLICE ST	0	0
12	17.2	19.6	3	4	1	1	4		0	0
13	19.6	21.2	3	4	1	1	4	BRIDGE	0	0
14	21.2	22.9	3	4	1	1	34		0	0
15	22.9	24.1	3	4	1	1	34	BRIDGE	0	1
16	24.1	24.4	3	4	1	1	4		1	0
17	24.4	26.9	3	4	1	1	34		0	0
18	26.9	29.6	3	4	1	1	34		0	0
19	29.6	31.2	3	4	1	1	3		0	0
20	31.2	34.6	3	4	1	1	4		0	0
21	34.6	36.2	3	4	1	1	4		0	0
22	36.2	39	3	4	1	1	34	POLICE ST	0	0
23	39	41.5	3	4	1	1	4		0	0
24	41.5	44.4	3	4	1	1	34		0	0
25	44.4	45.1	3	4	1		3	RAILWAY	0	1
26	45.1	46.9	3	4	1		4		1	0

Table 1E-2

TRAFFIC SPEED SURVEY RUN ANALYSIS
(Example)

VOL	CAT		SPEED	PCU
0	1	LIGHT	63.6	1.3
500	2	HEAVY	57.0	3.17
1000	3			
1500	4			

SEC	D END	CLASS	LNTH	TIME m	TIME s	TRAFFIC OPPOSING Lgt	TRAFFIC OPPOSING Hvy	TRAFFIC OVERTAKING Ovtks S Car	TRAFFIC OVERTAKING S Car Ovtks	TIME INIT	TEST	1-WAY HEAVY	HEAVY SPEED	1-WAY LIGHT	2-WAY PCUS	VOL CAT	TIME COR
1	2.1	11	2.1	2	35	47	16	0	2	0.043	1.0	163	37.9	576	2528	4	0.055
2	3.4	11	1.3	1	10	15	5	0	2	0.019	0.9	109	56.8	407	1751	4	0.023
3	4.9	11	1.5	1	30	30	12	0	1	0.025	1.0	220	50.8	633	3040	4	0.030
4	7	14	2.1	1	47	32	3	0	3	0.030	0.9	43	60.1	568	1748	4	0.035
5	8.4	14	1.4	1	9	10	5	1	1	0.019	1.0	130	73.0	275	1542	4	0.019
6	10.7	14	2.3	1	55	36	12	0	3	0.032	0.9	160	61.2	594	2557	4	0.038
7	11.7	14	1	1	41	21	6	0	2	0.028	0.9	91	30.3	395	1603	4	0.033
8	12.2	13	0.5	0	47	13	5	0	0	0.013	1.0	191	38.3	525	2579	4	0.013
9	14	13	1.8	1	37	10	14	0	1	0.027	1.0	241	57.9	196	2038	4	0.031
10	16.3	14	2.3	1	45	19	5	0	1	0.029	0.9	73	67.0	344	1355	3	0.034
11	17.2	13	0.9	0	43	9	4	0	0	0.012	1.0	167	75.3	397	2095	4	0.012
12	19.6	14	2.4	1	54	18	10	0	0	0.032	1.0	158	75.8	300	1780	4	0.032
13	21.2	14	1.6	1	15	19	6	0	0	0.021	1.0	144	76.8	481	2163	4	0.021
14	22.9	13	1.7	1	28	14	8	0	4	0.024	0.9	139	59.1	302	1667	4	0.029
15	24.1	13	1.2	1	4	8	8	0	0	0.018	1.0	225	67.5	237	2044	4	0.018
16	24.4	14	0.3	0	17	5	5	0	0	0.005	1.0	529	63.5	558	4808	4	0.005
17	26.9	13	2.5	2	15	30	11	0	1	0.038	1.0	133	55.6	422	1942	4	0.045
18	29.6	13	2.7	2	15	29	7	0	1	0.038	0.9	79	61.2	408	1563	4	0.044
19	31.2	13	1.6	2	5	27	12	0	1	0.035	1.0	158	39.0	410	2070	4	0.041
20	34.6	14	3.4	2	45	22	11	0	1	0.046	1.0	109	61.8	253	1350	3	0.055
21	36.2	14	1.6	1	18	8	5	0	0	0.022	1.0	115	73.8	195	1238	3	0.022
22	39	13	2.8	2	29	17	10	0	0	0.041	1.0	121	67.7	217	1329	3	0.041
23	41.5	14	2.5	1	59	18	6	0	0	0.033	1.0	91	75.6	287	1322	3	0.033
24	44.4	13	2.9	2	22	24	7	0	1	0.039	0.9	75	62.5	321	1312	3	0.046
25	45.1	13	0.7	0	51	9	6	0	1	0.014	0.9	180	42.0	335	2012	4	0.017
26	46.9	14	1.8	1	37	11	6	0	0	0.027	1.0	111	66.8	215	1266	3	0.027

CLASS - This column consists of two digits: the first represents construction class of the road as follows: 1 = 4-lane, 2 = 2-lane with shoulder, and 3 = 2-lane with no shoulder. The second digit represents the development along the road as classified under development type in the section characteristics. Hence the classification 14 indicates a 4-lane road passing through open country.

LENGTH - Represents the length of the corresponding link in kilometers.

TIME - Represent the journey time in minutes (M) and seconds (S)

TRAFFIC OPPOSING - Represents the number of vehicles for both light vehicles (Lgt) and heavy vehicles (Hvy) moving against the test car in the opposite direction

TRAFFIC OVERTAKING - Two columns showing the number of vehicles which overtake the test (survey) car and the the number of vehicles whose the test (survey) car itself overtakes. Only vehicles of the class which speed was being measured were recorded in these two columns.

Having tabulated the data, the following items could be estimated and are represented under different headings in the tables. The order of calculation is not necessarily the order in which they appear in the table, which is arranged for convenience of output to the last stage of analysis.

TIME INIT - This columns represent the recorded journey time in hours and is calculated simply by transferring the recorded times (minutes and seconds) into hours.

TEST - Several subsequent calculations require a comparison between the net vehicles overtaking the test car, and the volume of traffic in the opposite direction. If the net overtaking volume is large compared with the volume of opposing traffic, false results can occur. This column represents the result of a test to detect the relative values of the two traffic volumes. If overtaking traffic (whether overtaking the test car, or being overtaken, is less than one seventh of the opposing traffic, the test returns the value 1.0. Otherwise a factor is returned depending on whether more vehicles overtake the test car (1.15 rounded in the table to 1.2), or vice versa (0.85 rounded to 0.8).

ONE-WAY LIGHT - The volume of light vehicles in one direction for each section of the highway is obtained from the formula:

$$Q = \frac{X + Y}{2T}$$

where:

Q = one-way vehicles (of the appropriate class) per hour

X = number of vehicles (of the same class) counted opposing the test vehicle

Y = number of vehicles (of the same class) overtaking the test vehicle minus the number overtaken whilst the vehicle travelled with the stream,

T = journey time of the test vehicle in the section

The calculation makes use of the count of opposing traffic for the class of vehicle whose class is being measured.

TIME CORRECTED - This is a corrected time based on the speed of the survey car relative to the rest of the traffic stream.

To explain this, suppose that the number of vehicles ovetaking the test car is more than those overtaken by the test car. This means that the speed of the test car is less than the average speed of the other vehicles running on the highway. To estimate the average speed on the corresponding section, the measured journey time will need to be decreased i.e. in this section, the corrected time will be less than the recorded one.

The correction is made using the following formula:

$$Tc = T - \frac{Y}{Q}$$

where:

Tc = Corrected section time
and other values are as defined above.

LIGHT SPEEDS - Vehicle speeds for each section for the vehicle class being measured are obtained by the following formula:

$$S = \frac{L}{Tc}$$

where:

L = section length
Tc = corrected journey time along the section

ONE WAY HEAVY - The one-way volume of heavy vehicles is estimated using the relation

$$Qh = \frac{(Vh)}{Vl + Vh} \times \frac{H}{T}$$

Vh = average speed of heavy vehicles
Vl = average speed of light vehicles
H = Number of heavy vehicles travelling in the opposite direction to the test car.
T = The recorded journey time of the test car.

TWO-WAY PCUS - The two-way traffic volume is expressed in terms of passenger car units (PCUs) by multiplying each one-way count by 2 times the PCU factor and summing.

VOLUME CATEGORY - For the purpose of subsequent analysis, the volumes are categorized as follows:

PCU/HOUR	CATEGORY
0-500	1
500-1000	2
1000-1500	3
> 1500	4

Speed Calculations

The speed calculations take the results of the analyses for each of the 222 sections and estimates speeds for each class of link (10) and volume category (4) as defined in the run analysis, thus making 40 categories in total.

The results are presented in Annex 1E-1 which shows for each vehicle class (light and heavy), each run (four per vehicle type) plus an average of all runs, the following tables:

1. Frequency of traffic volume category,
2. Total link distances
3. Total journey times
4. Average journey speeds

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Annex 1E-1 JOURNEY TIME SURVEY ANALYSIS - HEAVY VEHICLES

CONSTR.	DEVELOP.	RUNS TRAFFIC PCU/HOUR 0-499	500-999	1000-1499	1500+	RUN 6 TRAFFIC PCU/HOUR 0-499	500-999	1000-1499	1500+	RUN 7 TRAFFIC PCU/HOUR 0-499	500-999	1000-1499	1500+	RUN 8 TRAFFIC PCU/HOUR 0-499	500-999	1000-1499	1500+	TOTAL TRAFFIC PCU/HOUR 0-499	500-999	1000-1499	1500+	All
NUMBER OF DATA VALUES																						
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	
4-lane	Urban	2	2	4	4	1	1	3	7	1	3	2	6	3	1	2	6	7	7	11	23	48
	L vill	0	1	4	4	0	0	3	6	0	1	2	6	0	1	3	5	0	3	12	21	36
	Open	2	3	7	7	0	3	5	11	0	1	5	13	0	3	5	11	2	10	22	42	76
2-lane +	H vill	3	5	11	7	3	13	8	2	2	12	8	4	6	9	6	5	14	39	33	18	104
shoulder	L vill	3	4	2	0	1	5	1	2	1	3	3	2	3	5	0	1	8	17	6	5	36
	Open	7	11	1	0	5	11	2	1	3	12	2	2	9	9	1	0	24	43	6	3	76
2-lane,	Urban	0	2	1	0	0	3	0	0	1	2	0	0	1	2	0	0	2	9	1	0	12
no shoul	H vill	1	3	7	0	0	5	5	1	0	2	5	4	1	4	5	1	2	14	22	6	44
	L vill	5	20	11	3	9	17	11	2	7	17	12	3	6	18	12	3	27	72	46	11	156
	Open	15	30	28	2	8	39	19	9	7	31	20	17	11	36	23	5	41	136	90	33	300
					222				222				222				222	127	350	249	162	888
DISTANCES																						
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	
4-lane	Urban	1.4	1.2	4.9	5.2	0.2	2.5	1.9	8.1	1.0	1.3	3.0	7.4	0.9	2.5	2.2	7.1	3.5	7.5	12.0	27.8	51
	L vill	0.0	1.7	5.9	7.8	0.0	0.0	4.3	11.1	0.0	0.7	3.7	11.0	0.0	1.6	6.4	7.4	0.0	4.0	20.3	37.3	62
	Open	1.4	4.6	14.0	11.8	0.0	4.1	8.4	19.3	0.0	1.3	9.3	21.2	0.0	3.8	11.1	16.9	1.4	13.8	42.8	69.2	127
2-lane +	H vill	2.4	3.7	6.9	4.9	2.1	8.9	6.1	0.8	1.7	7.4	5.4	3.4	3.6	4.8	5.1	4.4	9.8	24.8	23.5	13.5	72
shoulder	L vill	2.3	5.1	4.7	0.0	0.6	7.2	1.8	2.5	0.9	3.0	5.3	2.9	3.0	7.4	0.0	1.7	6.8	22.7	11.8	7.1	48
	Open	12.0	23.9	1.7	0.0	8.7	24.2	3.6	1.1	5.1	23.9	4.2	4.4	17.1	19.0	1.5	0.0	42.9	91.0	11.0	5.5	150
2-lane,	Urban	0.0	0.7	0.4	0.0	0.0	1.1	0.0	0.0	0.4	0.7	0.0	0.0	0.3	0.8	0.0	0.0	0.7	3.3	0.4	0.0	4
no shoul	H vill	1.6	2.9	8.4	0.0	0.0	6.4	4.6	1.9	0.0	2.8	5.8	4.3	0.9	4.7	6.5	0.8	2.5	16.8	25.3	7.0	52
	L vill	6.7	39.9	23.8	2.4	13.0	34.0	24.8	1.0	8.8	25.7	32.3	6.0	8.2	41.3	20.8	2.5	36.7	140.9	101.7	11.9	291
	Open	31.5	55.2	60.6	2.9	18.1	77.2	40.9	14.0	17.2	54.9	47.6	30.5	18.2	80.5	43.2	8.3	85.0	267.0	192.3	55.7	601
					364.				364.				364.				364.	189	593	441	235	1458
TRAVEL TIMES																						
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	
4-lane	Urban	0.04	0.02	0.15	0.11	0.00	0.05	0.06	0.19	0.02	0.04	0.05	0.19	0.02	0.05	0.07	0.19	0.08	0.15	0.33	0.68	1.2
	L vill	0.00	0.03	0.12	0.15	0.00	0.00	0.08	0.20	0.00	0.01	0.07	0.16	0.00	0.02	0.12	0.13	0.00	0.06	0.38	0.64	1.1
	Open	0.14	0.08	0.28	0.21	0.00	0.06	0.15	0.32	0.00	0.02	0.16	0.36	0.00	0.06	0.17	0.28	0.14	0.22	0.76	1.18	2.3
2-lane +	H vill	0.04	0.11	0.23	0.10	0.06	0.20	0.16	0.02	0.04	0.22	0.13	0.09	0.09	0.14	0.11	0.11	0.22	0.68	0.62	0.32	1.8
shoulder	L vill	0.04	0.09	0.09	0.00	0.01	0.12	0.02	0.06	0.02	0.05	0.09	0.05	0.04	0.14	0.00	0.03	0.11	0.39	0.21	0.13	0.8
	Open	0.21	0.43	0.02	0.00	0.14	0.36	0.06	0.01	0.08	0.45	0.07	0.05	0.26	0.33	0.02	0.00	0.70	1.57	0.17	0.06	2.5
2-lane,	Urban	0.00	0.03	0.04	0.00	0.00	0.10	0.00	0.00	0.02	0.05	0.00	0.00	0.01	0.03	0.00	0.00	0.03	0.21	0.04	0.00	0.3
no shoul	H vill	0.03	0.05	0.21	0.00	0.00	0.14	0.09	0.03	0.00	0.04	0.12	0.11	0.01	0.09	0.12	0.01	0.04	0.32	0.54	0.15	1.1
	L vill	0.18	0.79	0.38	0.06	0.24	0.62	0.37	0.02	0.14	0.48	0.64	0.11	0.12	0.67	0.32	0.08	0.68	2.56	1.70	0.27	5.2
	Open	0.56	1.02	1.05	0.04	0.27	1.27	0.71	0.24	0.26	1.02	0.86	0.46	0.30	1.21	0.73	0.15	1.38	4.52	3.34	0.89	10.1
					7.12				6.41				6.70				6.24	3.4	10.7	8.1	4.3	26.5
AVERAGE SPEED																						
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	
4-lane	Urban	39.2	51.6	32.3	46.6	48.0	52.9	34.2	43.2	64.3	33.9	58.7	39.3	42.6	55.6	30.3	37.4	46	49	36	41	41
	L vill	0.0	68.5	49.4	52.5	0.0	0.0	54.2	55.8	0.0	56.0	55.7	70.9	0.0	64.7	55.6	55.2	0	64	53	59	57
	Open	9.7	58.2	50.4	55.4	0.0	63.9	55.5	60.0	0.0	69.9	57.8	58.8	0.0	61.3	64.8	59.9	10	62	56	59	55
2-lane +	H vill	61.7	33.3	29.5	49.8	38.1	43.4	39.3	51.4	43.7	33.5	42.2	36.6	40.6	34.2	47.9	39.0	44	37	38	42	39
shoulder	L vill	56.7	58.5	50.0	0.0	58.4	57.9	87.7	42.0	54.9	63.5	57.1	62.1	67.5	54.6	0.0	60.0	61	58	57	53	57
	Open	57.5	55.7	72.0	0.0	60.6	67.8	63.8	77.6	60.4	53.0	64.6	90.0	64.7	57.7	68.4	0.0	61	58	66	87	60
2-lane,	Urban	0.0	25.7	9.0	0.0	0.0	11.4	0.0	0.0	26.2	13.2	0.0	0.0	24.8	23.0	0.0	0.0	26	16	9	0	16
no shoul	H vill	55.4	56.1	40.2	0.0	0.0	45.7	50.4	65.8	0.0	62.9	48.4	37.6	67.5	53.3	54.4	68.6	59	52	47	45	49
	L vill	36.7	50.3	63.3	43.0	53.9	55.3	67.2	42.9	64.8	53.9	50.6	55.4	70.8	61.3	64.9	29.8	54	55	60	44	56
	Open	56.7	53.9	57.9	75.1	66.9	60.9	57.5	58.7	66.3	53.9	55.6	66.0	61.7	66.5	59.5	53.8	62	59	58	62	59
					51.1				56.8				54.4				58.3	56	55	54	54	55.0

JOURNEY TIME SURVEY ANALYSIS - LIGHT VEHICLES

CONSTR.	DEVELOP.	RUN1 TRAFFIC PCU/HOUR 0-499	500-999	1000-1499	1500+	RUN 2 TRAFFIC PCU/HOUR 0-499	500-999	1000-1499	1500+	RUN 3 TRAFFIC PCU/HOUR 0-499	500-999	1000-1499	1500+	RUN 4 TRAFFIC PCU/HOUR 0-499	500-999	1000-1499	1500+	TOTAL TRAFFIC PCU/HOUR 0-499	500-999	1000-1499	1500+	All
NUMBER OF DATA VALUES																						
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	
4-lane	Urban	0	5	1	6	0	1	2	9	1	2	3	6	1	3	3	5	2	11	9	26	48
	L vill	0	0	3	6	0	1	4	4	0	0	0	9	0	1	4	4	0	2	11	23	36
	Open	0	3	4	12	1	2	3	13	0	5	3	11	0	2	3	14	1	12	13	50	76
2-lane +	H vill	5	6	10	5	7	12	5	2	1	9	10	6	4	11	7	4	17	38	32	17	104
shoulder	L vill	0	3	6	0	2	4	3	0	1	3	3	2	0	3	5	1	3	13	17	3	36
	Open	5	9	5	0	3	11	5	0	4	9	5	1	9	8	1	1	21	37	16	2	76
2-lane,	Urban	0	1	1	1	2	1	0	0	1	1	0	1	1	2	0	0	4	5	1	2	12
no shoul	H vill	0	4	5	2	1	3	6	1	1	3	3	4	0	3	6	2	2	13	20	9	44
	L vill	4	24	8	3	3	14	18	4	5	21	10	3	6	21	9	3	18	80	45	13	156
	Open	5	39	23	8	8	36	20	11	3	39	27	6	7	34	26	8	23	148	96	33	300
					222				222				222				222	91	359	260	178	888
DISTANCES																						
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	
4-lane	Urban	0.0	5.8	0.5	6.4	0.0	0.9	3.0	8.8	0.9	2.7	2.7	6.4	0.2	4.0	2.4	6.1	1.1	13.4	8.6	27.7	51
	L vill	0.0	0.0	5.0	10.4	0.0	0.7	8.1	6.6	0.0	0.0	0.0	15.4	0.0	1.6	7.1	6.7	0.0	2.3	20.2	39.1	62
	Open	0.0	5.5	9.9	16.4	1.7	4.2	4.2	21.7	0.0	7.0	6.6	18.2	0.0	3.2	3.5	25.1	1.7	19.9	24.2	81.4	127
2-lane +	H vill	3.9	4.2	6.9	2.9	3.8	8.7	3.8	1.6	1.3	5.2	6.4	5.0	2.9	6.9	5.9	2.2	11.9	25.0	23.0	11.7	72
shoulder	L vill	0.0	5.3	6.8	0.0	1.7	5.9	4.5	0.0	1.8	4.2	4.2	1.9	0.0	4.6	6.9	0.6	3.5	20.0	22.4	2.5	48
	Open	10.7	15.9	11.0	0.0	5.6	22.3	9.7	0.0	7.9	18.4	9.8	1.5	15.1	18.3	2.3	1.9	39.3	74.9	32.8	3.4	150
2-lane,	Urban	0.0	0.4	0.4	0.3	0.7	0.4	0.0	0.0	0.4	0.3	0.0	0.4	0.4	0.7	0.0	0.0	1.5	1.8	0.4	0.7	4
no shoul	H vill	0.0	5.1	5.8	2.0	0.8	4.0	6.5	1.6	1.6	3.3	4.2	3.8	0.0	3.6	7.0	2.3	2.4	16.0	23.5	9.7	52
	L vill	6.8	46.8	14.5	4.7	4.2	26.4	36.2	6.0	7.0	39.6	23.2	3.0	10.7	36.3	21.8	4.0	28.7	149.1	95.7	17.7	291
	Open	9.0	81.4	47.7	12.1	17.1	74.1	40.3	18.7	6.1	79.5	55.5	9.1	17.2	64.2	52.4	16.4	49.4	299.2	195.9	56.3	601
					364.				364.				364.				364.	140	622	447	250	1458
TRAVEL TIMES																						
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	
4-lane	Urban	0.00	0.13	0.01	0.13	0.00	0.03	0.05	0.18	0.02	0.04	0.10	0.12	0.01	0.07	0.06	0.14	0.03	0.28	0.22	0.57	1.1
	L vill	0.00	0.00	0.08	0.17	0.00	0.02	0.13	0.09	0.00	0.00	0.00	0.28	0.00	0.03	0.12	0.09	0.00	0.06	0.34	0.63	1.0
	Open	0.00	0.09	0.13	0.25	0.04	0.06	0.05	0.32	0.00	0.12	0.11	0.26	0.00	0.04	0.05	0.37	0.04	0.31	0.33	1.20	1.9
2-lane +	H vill	0.07	0.10	0.21	0.09	0.10	0.24	0.08	0.04	0.03	0.15	0.17	0.12	0.05	0.18	0.13	0.05	0.25	0.67	0.60	0.31	1.8
shoulder	L vill	0.00	0.09	0.10	0.00	0.03	0.09	0.07	0.00	0.03	0.08	0.07	0.02	0.00	0.08	0.09	0.01	0.06	0.34	0.33	0.03	0.7
	Open	0.13	0.25	0.16	0.00	0.08	0.34	0.12	0.00	0.12	0.29	0.14	0.02	0.21	0.23	0.04	0.04	0.53	1.10	0.47	0.06	2.2
2-lane,	Urban	0.00	0.04	0.02	0.02	0.03	0.02	0.00	0.00	0.01	0.01	0.00	0.02	0.02	0.03	0.00	0.00	0.06	0.11	0.02	0.04	0.2
no shoul	H vill	0.00	0.10	0.12	0.03	0.02	0.06	0.13	0.02	0.02	0.07	0.08	0.08	0.00	0.08	0.14	0.04	0.03	0.31	0.47	0.16	1.0
	L vill	0.09	0.77	0.24	0.08	0.06	0.40	0.57	0.08	0.09	0.68	0.34	0.05	0.15	0.60	0.34	0.06	0.39	2.46	1.50	0.27	4.6
	Open	0.12	1.36	0.74	0.21	0.24	1.09	0.56	0.26	0.10	1.33	0.98	0.12	0.23	0.94	0.75	0.20	0.69	4.72	3.04	0.90	9.2
					6.13				5.69				6.26				5.67	2.1	10.3	7.3	4.1	23.8
AVERAGE SPEED																						
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	
4-lane	Urban	0.0	43.1	45.0	49.8	0.0	29.5	63.7	49.4	38.4	67.0	27.9	55.4	27.7	57.1	38.3	42.5	36	49	39	49	47
	L vill	0.0	0.0	59.0	60.9	0.0	34.0	62.9	70.3	0.0	0.0	0.0	55.8	0.0	46.1	57.2	74.0	0	42	60	62	60
	Open	0.0	59.3	76.1	66.4	43.1	75.1	86.6	67.1	0.0	58.3	60.9	70.8	0.0	80.9	75.9	67.4	43	65	73	68	68
2-lane +	H vill	54.9	42.2	33.3	30.7	37.5	36.9	45.5	37.9	46.3	35.4	36.6	42.7	58.0	37.7	43.9	41.4	48	38	38	38	39
shoulder	L vill	0.0	57.1	70.5	0.0	66.8	36.2	63.1	0.0	60.6	55.6	62.3	84.4	0.0	57.9	75.0	77.1	63	59	68	83	65
	Open	82.0	64.1	67.6	0.0	72.5	66.5	78.4	0.0	67.1	63.3	68.1	68.5	73.2	81.2	63.7	49.2	74	68	70	56	70
2-lane,	Urban	0.0	10.6	18.0	19.6	22.1	16.5	0.0	0.0	30.0	23.5	0.0	18.4	25.9	22.8	0.0	0.0	25	17	18	19	20
no shoul	H vill	0.0	53.7	50.1	67.3	51.4	65.6	50.6	96.0	90.0	46.2	50.9	49.5	0.0	45.6	50.4	59.7	72	52	50	60	53
	L vill	76.6	60.5	59.4	60.0	66.8	65.5	63.1	79.3	79.0	58.5	69.2	54.8	71.8	60.0	63.7	64.9	74	61	64	65	63
	Open	74.1	60.0	64.1	56.9	70.4	68.0	71.4	73.2	62.1	59.6	56.5	73.0	75.5	68.5	69.7	80.2	72	63	64	71	65
					59.4				64.0				55.2				64.2	67	60	61	62	51.3

Appendix 1F

CONDUCT AND ANALYSIS OF THE AUTOMATIC TRAFFIC COUNT SURVEY

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Appendix 1F

CONDUCT AND ANALYSIS OF THE AUTOMATIC TRAFFIC COUNT SURVEY

The purpose of this survey was to record daily traffic variations over a continuous period of approximately 6 weeks. Although automatic counters do not provide a classification of the traffic stream by vehicle type, they never-the-less provide a useful record of traffic variation over a long period.

The Traffic Counters

The StreeterAmet MR101 trafficounter model was used, which records traffic detected by a rubber tube laid across the road. As a vehicle passes over the roadtube, each axle creates an air pulse that generates an electrical signal to the counter, one count for every two axles. Counts of axle pairs are stored electronically in the counter and are then printed at pre-set intervals on a paper tape. For this survey, the counters were set to record at intervals of one hour.

Location of the Traffic Counters

The automatic traffic counter survey was conducted at two sites, one at Efwa (North of Beni Suef), and the other at Fashn (South of Beni Suef). These locations corresponded approximately to the locations of Roadside Interview Survey stations R5 and R9. The two sites were selected where the road is straight and at least 100 feet away from any intersection. These two sites are shown in Figure 1F-1.

Conduct the Survey

The continuous count at the two sites started on January 27th and stopped on March 8th for a period of an approximately 6 weeks.

The traffic counters were installed so as to count the traffic in both directions (North and South) together for each site. The two counters were placed inside cabins beside the road near the police stations at each site. The roadtubes were laid across the road perpendicular to the traffic flow. This allowed both wheels of each axle to strike the roadtube at the same time.

Before installing the traffic counters, the roadtube was checked for cuts, dirt and holes, and the batteries for proper strength. A plug was placed in the end of the roadtube which was then anchored on the road on the opposite side to the counter.

Service Visits - An officer from the Central Traffic Management Agency checked the counters each week. On these visits, both counters were exchanged for a fresh counter which had been checked in the study office. Also, the printed paper tape was checked and dates and times noted on the tape itself which was then brought to the office for analysis.

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Analysis

The daily variation in traffic over the the period of the survey is summarized in Table 1F-1 and illustrated in Figure 1F-2. The data show daily two-way volumes expressed as the number of pairs of axles passing each site.

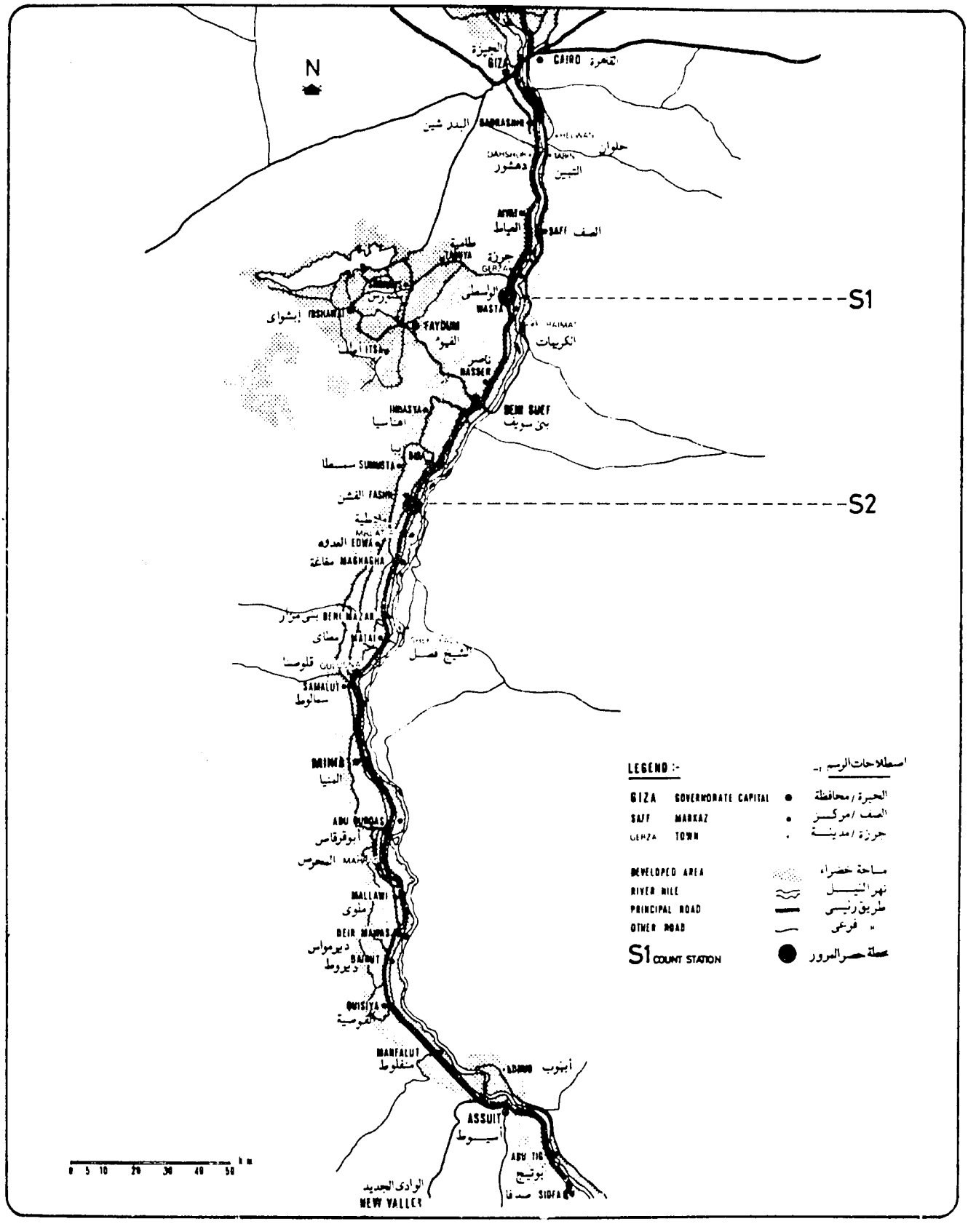
Despite continuous follow-ups and service visits, some readings have been cancelled as a result of:

1) The roadtube sometimes becoming detached from the counter

2) Malfunction of counter at Efwa at the beginning of the automatic counting.

In these cases, the recorded data were discarded. Another problem affecting the results was the curfew during the time of the troubles at the end of February.

At Fashn, traffic flows show faily constant volumes during weekdays, with more variation on Saturdays and Sundays. At Efwa, the recorded traffic flow shows a gradual change in the first two weeks, but the patterns for the remaining weeks shows sharp variation. Both sites show a marked drop in traffic at the beginning of the third week, and again in the week of the curfew.



Cairo – Assuit Highway Feasibility Study

LOCATIONS OF THE AUTOMATIC TRAFFIC COUNTERS

Wilbur Smith and Associates
Egyptian Consultants Consortium

Figure 1F-1

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Table 1F-1

DAILY VARIATION OF TRAFFIC VOLUMES

STATION	WEEK	SAT	SUN	MON	TUE	WED	THU	FRI
Efwa	1st	-	-	-	10489	9823	10226	9984
	2nd	9556	9478	9472	9662	9963	9904	9533
	3rd	7841	7521	8557	*	*	11029	*
	4th	*	*	11486	10965	11522	12322	11132
	5th	11945	11134	11157	11376	9115	6916	6325
	6th	8843	9496	10262	11147	11101	11213	11253
Fashn	1st	-	-	-	**	**	**	**
	2nd	7522	7663	7497	7652	7894	7663	7766
	3rd	7149	6833	7608	7849	7880	7748	6969
	4th	7328	7543	7612	7513	7646	7786	7806
	5th	7876	7709	7657	7717	6795	5365	4930
	6th	6442	6884	7305	7681	7745	7933	7367

* These readings were cancelled because the tube was cut.
** Malfunction.

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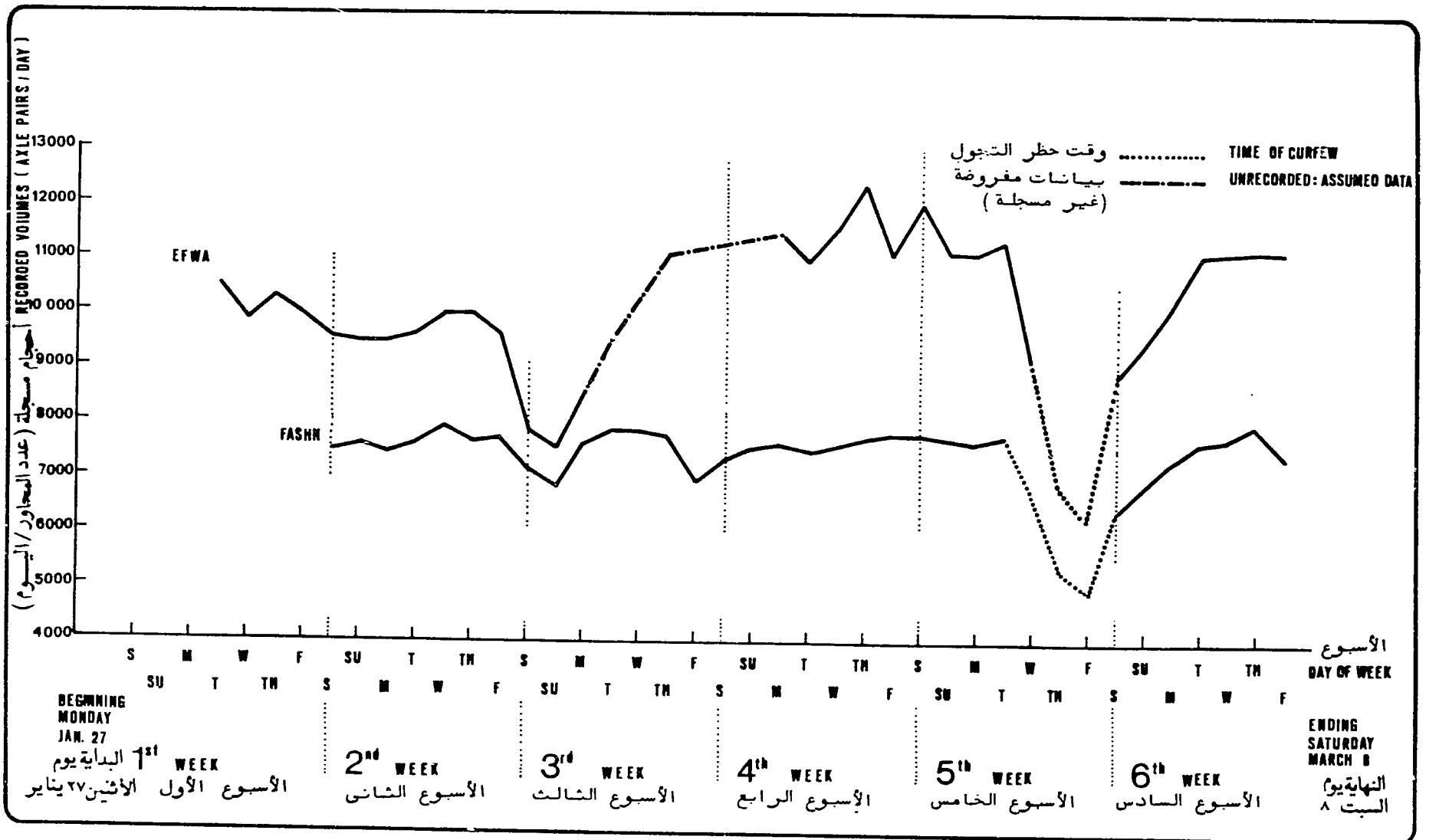

Cairo—Assuit Highway Feasibility Study

Wilbur Smith and Associates
Egyptian Consultants Consortium

AUTOMATIC TRAFFIC COUNTER SURVEY RESULTS

Figure 1F - 2

Appendix 1G

ROADSIDE INTERVIEW SURVEY TABULATIONS

This Appendix contains extracts from tabulations resulting from analysis of the Roadside Interview Survey data. As described in Appendix 1B, twelve types of tabulation were prepared as follows:

1. Number of Interviews by Hour, Day, Direction and Vehicle Type;
2. Factored Interviews by Hour, Day, Direction and Vehicle Type (excluding Day of Week Factor);
3. Daily Truck Totals by Licensed Empty and Full Weights;
4. Daily Truck Totals by Number of Axles and Capacity;
5. Daily Truck Totals by Gross Vehicle Weight-Axle Combinations;
6. Daily Truck Totals by Truck Loading Characteristics;
7. Daily Vehicle Totals by Number of Seats and Persons;
8. Daily Vehicle Totals by Trip Purpose and Occupancy Characteristics;
9. Daily Vehicle Totals by Origin Zone Group;
10. Daily Vehicle Totals by Destination Zone Group;
11. Daily Passenger Totals by Trip Purpose and Cargo Totals by Commodity (Tonnes); and,
12. Daily Vehicle Totals by Commodity Carried.

The extracts which follow consist of tabulations 3 to 12 in the above list, for all survey stations combined with screenline factors included. They, therefore, provide an overall summary of the data gathered.

Due to the volume involved all tabulations prepared have not been included in this Appendix. In addition to the extracts which follow, tabulations 3 to 12 were also prepared for four groups of survey stations, namely:

FAYOUM - stations 1, 4 and 6;
EAST BANK - stations 3 and 7;
SOUTH ASSUIT - stations 14 to 16; and,
MAIN CORRIDOR - stations 2, 5 and 8 to 13.

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ROADSIDE INTERVIEW TABULATIONS

Table Description ..... DAILY TRUCK TOTALS BY LICENSED EMPTY AND FULL WEIGHTS

Survey Station ..... ALL INTERVIEW STATIONS - Totals from R01 to R16 Direction of Travel ..... Combined

Including Screenline Factors ..... Yes

LICENSED EMPTY WEIGHT (TONNES)	VEHICLE TYPE 4A PICK-UP GOODS	7 SINGLE TRUCK	8 COMBIN. TRUCK	9 ARTIC. TRUCK	TOTAL
1	9178	0	0	0	9178
2	5959	0	0	0	5959
3	2021	780	0	0	2801
4	0	1875	0	0	1875
5	0	3386	0	0	3386
6	0	1504	0	0	1504
7	0	985	7	18	1010
8	0	774	38	21	833
9	0	328	111	10	449
10	0	122	67	25	214
11	0	34	121	12	167
12	0	48	156	46	250
13	0	0	252	115	367
14	0	0	227	142	369
15	0	0	270	192	462
16	0	0	136	0	136
17	0	0	69	0	69
18	0	0	54	0	54
TOTALS	17158	9836	1506	581	29083

LICENSED FULL WEIGHT (TONNES)	VEHICLE TYPE 4A PICK-UP GOODS	7 SINGLE TRUCK	8 COMBIN. TRUCK	9 ARTIC. TRUCK	TOTAL
1 - 2	4487	0	0	0	4487
3 - 4	7605	0	0	0	7605
5 - 8	5051	943	0	0	5994
9 - 12	9	4438	0	0	4447
13 - 16	0	2904	0	0	2904
17 - 22	2	1306	51	2	1361
23 - 26	1	193	63	7	264
27 - 32	1	47	201	80	329
33 - 36	0	5	160	60	225
37 - 42	0	3	329	125	457
43 - 48	0	0	302	184	486
49 - 52	0	0	161	90	251
53 - 58	0	0	164	28	192
59 - 62	0	0	35	2	37
63 - 68	0	0	37	1	38
69 - 99	0	0	4	0	4
TOTALS	17156	9839	1507	579	29081

Table Description ..... DAILY TRUCK TOTALS BY NUMBER OF AXLES AND CAPACITY

Survey Station ..... ALL INTERVIEW STATIONS - Totals from R01 to R16 Direction of Travel ..... Combined

Including Screenline Factors ..... Yes

NUMBER OF AXLES	VEHICLE TYPE 4A PICK-UP GOODS	7 SINGLE TRUCK	8 COMBIN. TRUCK	9 ARTIC. TRUCK	TOTAL
2	17157	9460	0	0	26617
3	0	358	0	16	374
4	0	20	968	359	1347
5	0	0	441	141	582
6	0	0	95	65	160
7	0	0	2	0	2
TOTALS	17157	9838	1506	581	29082

CARGO CAPACITY (TONNES)	VEHICLE TYPE 4A PICK-UP GOODS	7 SINGLE TRUCK	8 COMBIN. TRUCK	9 ARTIC. TRUCK	TOTAL
0 - 4	17021	966	0	0	17987
5 - 8	128	6162	0	0	6290
9 - 12	3	2245	23	2	2273
13 - 16	0	402	153	24	579
17 - 20	2	55	183	68	308
21 - 24	2	3	134	52	191
25 - 28	1	4	277	111	393
29 - 32	1	2	263	156	422
33 - 36	0	0	192	118	310
37 - 40	0	0	162	43	205
41 - 44	0	0	33	4	37
45 - 48	0	0	47	2	49
49 - 52	0	0	34	1	35
53 - 56	0	0	5	0	5
57 - 60	0	0	1	0	1
61 - 99	0	0	0	0	0
TOTALS	17158	9839	1507	581	29085

ROADSIDE INTERVIEW TABULATIONS

Table Description ..... DAILY TRUCK TOTALS BY GVW - AXLE COMBINATIONS

Survey Station ..... ALL INTERVIEW STATIONS - Totals from R01 to R16 Direction of Travel ..... Combined

Including Screenline Factors ..... Yes

NUMBER OF AXLES	LICENSED FULL WEIGHT	VEHICLE TYPE 4A PICK-UP GOODS	7 SINGLE TRUCK	8 COMBIN. TRUCK	9 ARTIC. TRUCK	TOTAL
2	1 - 2	4487	0	0	0	4487
2	3 - 4	7605	0	0	0	7605
2	5 - 8	5051	934	0	0	5985
2	9 - 12	9	4410	0	0	4419
2	13 - 16	0	2858	0	0	2858
2	17 - 22	2	1119	0	0	1121
2	23 - 26	1	119	0	0	120
2	27 - 99	1	20	0	0	21
2-Axle Truck Totals:		17156	9460	0	0	26616
3	1 - 12	0	26	0	0	26
3	13 - 16	0	42	0	0	42
3	17 - 22	0	184	0	2	186
3	23 - 26	0	74	0	1	75
3	27 - 32	0	27	0	6	33
3	33 - 36	0	3	0	3	6
3	37 - 42	0	2	0	5	7
3	43 - 99	0	0	0	0	0
3-Axle Truck Totals:		0	358	0	17	375
4	1 - 22	0	17	51	0	68
4	23 - 26	0	0	59	6	65
4	27 - 32	0	1	176	37	214
4	33 - 36	0	2	125	45	172
4	37 - 42	0	1	243	80	324
4	43 - 48	0	0	180	127	307
4	49 - 99	0	0	135	65	200
4-Axle Truck Totals:		0	21	969	360	1350
5	1 - 32	0	0	26	11	37
5	33 - 36	0	0	31	11	42
5	37 - 42	0	0	76	34	110
5	43 - 48	0	0	100	42	142
5	49 - 52	0	0	80	29	109
5	53 - 58	0	0	66	11	77
5	59 - 62	0	0	29	2	31
5	63 - 99	0	0	33	1	34
5-Axle Truck Totals:		0	0	441	141	582

Table Description ..... GVW - AXLE COMBINATIONS CONTINUED, PLUS TRUCK LOADING CHARACTERISTICS

Survey Station ..... ALL INTERVIEW STATIONS - Totals from R01 to R16 Direction of Travel ..... Combined

Including Screenline Factors ..... Yes

NUMBER OF AXLES	LICENSED FULL WEIGHT	VEHICLE TYPE 4A PICK-UP GOODS	7 SINGLE TRUCK	8 COMBIN. TRUCK	9 ARTIC. TRUCK	TOTAL
6	1 - 36	0	0	6	28	34
6	37 - 42	0	0	10	7	17
6	43 - 48	0	0	22	16	38
6	49 - 52	0	0	14	8	22
6	53 - 58	0	0	30	6	36
6	59 - 62	0	0	6	0	6
6	63 - 68	0	0	7	0	7
6	69 - 99	0	0	1	0	1
6-Axle Truck Totals:		0	0	96	65	161
7	1 - 42	0	0	0	0	0
7	43 - 48	0	0	1	0	1
7	49 - 52	0	0	0	0	0
7	53 - 58	0	0	0	0	0
7	59 - 62	0	0	0	0	0
7	63 - 68	0	0	1	0	1
7	69 - 99	0	0	0	0	0
7-Axle Truck Totals:		0	0	2	0	2

LOADING CHARACTERISTICS	VEHICLE TYPE 4A PICK-UP GOODS	7 SINGLE TRUCK	8 COMBIN. TRUCK	9 ARTIC. TRUCK	TOTAL
Number Empty	11626	4776	695	280	17377
One-quarter Full	754	201	20	9	984
Vehicle Half Full	1008	393	37	17	1455
Three-quarters Full	1054	756	105	38	1953
Vehicle Full	2715	3712	650	236	7313
Sub-total: With Load	5531	5062	811	301	11795
TOTALS	17157	9838	1507	580	29082
Average Load, Excl. Empty	1.63	6.77	27.30	25.03	6.23
Load Factor, All Vehicles	.25	.47	.50	.47	.34
Load Factor, Loaded Only	.77	.91	.94	.92	.85

ROADSIDE INTERVIEW TABULATIONS

Table Description ..... DAILY VEHICLE TOTALS BY NUMBER OF SEATS AND PERSONS

Survey Station ..... ALL INTERVIEW STATIONS - Totals from R01 to R16 Direction of Travel ..... Combined

Including Screenline Factors ..... Yes

NUMBER OF SEATS	VEHICLE TYPE 1 CAR	2 TAXI CAR	3 TAXI VAN	4A PICKUP GOODS	4B PICKUP PASS.	5 MICRO-BUS	6 BUS	7 SINGLE TRUCK	8 COMB. TRUCK	9 ARTIC. TRUCK	10 OTHER MOTOR	TOTAL
1 - 2	0	0	0	6880	22	0	0	2495	373	153	2199	12122
3 - 4	1858	479	0	10031	50	0	0	7325	1133	422	69	21367
5 - 8	8725	12708	0	238	1	0	0	15	0	7	4	21698
9 - 12	138	262	7368	0	2282	0	0	0	0	0	0	11750
13 - 16	0	0	911	1	318	0	0	0	0	0	0	1230
17 - 22	0	0	92	6	11	176	0	0	0	0	0	285
23 - 26	0	0	0	0	8	893	0	0	0	0	0	901
27 - 32	0	0	0	0	0	85	31	0	0	0	0	116
33 - 36	0	0	0	0	0	0	59	0	0	0	0	59
37 - 42	0	0	0	0	0	0	342	0	0	0	0	342
43 - 48	0	0	0	0	0	0	1480	3	0	0	0	1483
49 - 52	0	0	0	0	0	0	253	0	0	0	0	253
53 - 58	0	0	0	0	0	0	263	0	0	0	0	263
59 - 99	0	0	0	0	0	0	267	0	0	0	0	267
TOTALS	10721	13449	10071	17156	2692	1154	2695	9838	1506	582	2272	72136

NUMBER OF PERSONS	VEHICLE TYPE 1 CAR	2 TAXI CAR	3 TAXI VAN	4A PICKUP GOODS	4B PICKUP PASS.	5 MICRO-BUS	6 BUS	7 SINGLE TRUCK	8 COMB. TRUCK	9 ARTIC. TRUCK	10 OTHER MOTOR	TOTAL
1 - 1	2976	1015	371	2568	112	65	159	2136	214	124	1249	10991
2 - 2	3602	1349	423	10087	126	23	76	5857	1103	364	968	23978
3 - 4	3053	2087	595	4393	165	33	72	1825	189	92	48	12552
5 - 8	1060	8727	906	102	242	44	77	8	0	0	1	11167
9 - 12	26	260	6756	6	1795	50	35	6	0	0	6	8990
13 - 16	4	9	909	0	213	61	81	0	0	0	0	1277
17 - 24	0	0	81	1	29	245	154	0	0	1	1	512
25 - 36	0	0	30	0	11	627	267	1	0	0	0	936
37 - 48	0	0	0	0	0	6	1143	5	0	0	0	1154
49 - 60	0	0	0	0	0	0	508	0	0	0	0	508
61 - 72	0	0	0	0	0	0	46	0	0	0	0	46
73 - 84	0	0	0	0	0	0	12	0	0	0	0	12
85 - 96	0	0	0	0	0	0	12	0	0	0	0	12
97 - 99	0	0	0	0	0	0	4	0	0	0	0	4
TOTALS	10723	13447	10071	17157	2693	1154	2696	9838	1506	581	2273	72139

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Table Description ..... DAILY VEHICLE TOTALS BY TRIP PURPOSE AND OCCUPANCY CHARACTERISTICS

Survey Station ..... ALL INTERVIEW STATIONS - Totals from R01 to R16 Direction of Travel ..... Combined

Including Screenline Factors ..... Yes

TRIP PURPOSE	VEHICLE TYPE 1 CAR	2 TAXI CAR	3 TAXI VAN	4A PICKUP GOODS	4B PICKUP PASS.	5 MICRO-BUS	6 BUS	7 SINGLE TRUCK	8 COMB. TRUCK	9 ARTIC. TRUCK	10 OTHER MOTOR	TOTAL
Work - Business	6027	9983	7757	0	2190	0	0	0	0	0	0	25957
Holiday - Touring	1782	934	461	0	74	0	0	0	0	0	0	3251
Other	2703	2221	1489	0	337	0	0	0	0	0	0	6750
Unknown	209	310	364	17157	90	1154	2695	9838	1507	581	2273	36178
TOTALS	10721	13448	10071	17157	2691	1154	2695	9838	1507	581	2273	72136

OCCUPANCY CHARACTERISTICS	VEHICLE TYPE 1 CAR	2 TAXI CAR	3 TAXI VAN	4A PICKUP GOODS	4B PICKUP PASS.	5 MICRO-BUS	6 BUS	7 SINGLE TRUCK	8 COMB. TRUCK	9 ARTIC. TRUCK	10 OTHER MOTOR	TOTAL
No. without Pass.	2978	1015	371	2568	112	65	159	2136	214	124	124[illegible]	10991
Number With Pass.	7744	12433	9699	14589	2581	1089	2537	7702	1292	457	1024	61147
TOTALS	10722	13448	10070	17157	2693	1154	2696	9838	1506	581	2273	72138
Ave. no. of Seats	5.03	7.09	11.60	2.65	11.39	25.11	47.03	2.77	2.77	2.77	1.86	
Ave. Occupancy, ALL	2.48	5.78	9.97	2.14	9.83	20.78	36.03	2.01	1.99	1.97	1.51	
Ave. Occup With Pass	3.05	6.17	10.32	2.34	10.21	21.96	38.22	2.29	2.15	2.23	2.12	

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ROADSIDE INTERVIEW TABULATIONS

Table Description ..... DAILY VEHICLE TOTALS BY ORIGIN ZONE GROUP

Survey Station ..... ALL INTERVIEW STATIONS - Totals from R01 to R16 Direction of Travel ..... Combined

Including Screenline Factors ..... Yes

ORIGIN ZONES		VEHICLE TYPE 1 CAR	2 TAXI CAR	3 TAXI VAN	4A PICKUP GOODS	4B PICKUP PASS.	5 MICRO-BUS	6 BUS	7 SINGLE TRUCK	8 COMB. TRUCK	9 ARTIC. TRUCK	10 OTHER MOTOR	TOTAL
Sinai:	1	1	5	0	2	0	0	1	1	1	0	0	11
Suez:	64	4	24	3	22	0	3	3	8	8	9	0	84
Ismailia:	8	4	4	1	7	0	0	1	1	3	1	0	22
Port Said:	2	4	2	2	2	0	4	1	2	43	15	0	75
Demietta:	3	1	1	0	9	0	0	0	7	2	0	0	20
Alexandria:	6	27	14	5	75	0	2	8	145	157	65	0	498
Delta:	4,5,9-12,14	27	28	7	408	1	3	30	99	53	10	1	667
W.Dest/Bahria:	7,22	0	0	1	1	0	0	0	0	0	0	0	2
Cairo:	13,15,17,19	1406	1986	434	1985	43	92	425	936	154	66	18	7545
Maadi, Helwan:	16	153	190	153	193	14	15	212	136	87	19	1	1173
Saff:	18	490	688	367	830	19	47	449	939	43	40	37	3943
Faiyoum:	23-27	758	811	467	1801	8	26	213	344	86	43	200	4757
Giza(corridor)	20-21	346	706	163	1050	15	88	146	980	84	2	90	3670
Beni Suef:	28-34	1728	1055	2405	2919	562	172	434	1613	182	61	749	11880
Minia:	35-43	1450	1067	1318	3157	641	53	223	1069	208	89	242	9517
Assuit:	44-46,48-50	3639	5404	4108	3857	1030	560	425	2687	196	78	817	22801
Abnub:	47	75	115	86	131	260	1	1	363	1	0	63	1096
South Assuit:	51-55	432	825	476	424	97	85	55	268	30	21	52	2765
Aswan:	61	5	2	1	12	0	1	1	29	30	13	0	94
Upper Egypt:	56-60	161	506	73	245	3	1	58	202	128	27	3	1407
New Valley:	62	10	14	1	29	0	1	9	8	7	9	0	88
Red Sea:	63	0	0	0	0	0	0	0	1	4	11	0	16
Sub-total: CORRIDOR		8486	9846	8914	13745	2535	947	1891	7995	800	313	2198	57670
Sub-total: OTHERS		2235	3601	1157	3414	158	207	804	1843	707	266	75	14467
TOTALS		10721	13447	10071	17159	2693	1154	2695	9838	1507	579	2273	72137

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ROADSIDE INTERVIEW TABULATIONS

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Table Description ..... DAILY VEHICLE TOTALS BY DESTINATION ZONE GROUP

Survey Station ..... ALL INTERVIEW STATIONS - Totals from R01 to R16 Direction of Travel ..... Combined

Including Screenline Factors ..... Yes

DESTINATION ZONES		VEHICLE TYPE 1 CAR	2 TAXI CAR	3 TAXI VAN	4A PICKUP GOODS	4B PICKUP PASS.	5 MICRO-BUS	6 BUS	7 SINGLE TRUCK	8 COMB. TRUCK	9 ARTIC. TRUCK	10 OTHER MOTOR	TOTAL
Sinai:	1	2	1	0	0	0	3	4	1	0	0	0	11
Suez:	64	3	26	6	5	0	0	2	11	5	6	0	64
Ismailia:	8	3	3	1	5	0	0	0	6	0	0	0	18
Port Said:	2	2	4	1	2	0	1	1	2	40	9	0	62
Demietta:	3	0	1	1	9	0	0	0	7	2	0	0	20
Alexandria:	6	23	15	3	88	0	1	7	80	72	44	0	334
Delta:	4,5,9-12,14	27	17	4	408	1	3	12	159	105	12	0	748
W.Dest/Bahria:	7,22	2	3	0	1	0	0	0	0	1	0	0	7
Cairo:	13,15,17,19	1346	2114	459	2435	14	142	375	1067	225	114	33	8324
Maadi, Helwan:	16	172	192	186	268	9	2	235	195	60	13	3	1335
Saff:	18	468	724	347	666	31	35	445	692	73	21	13	3515
Faiyoum:	23-27	755	742	454	1724	15	31	220	362	89	48	179	4619
Giza(corridor)	20-21	372	712	156	808	23	57	212	955	56	0	110	3461
Beni Suef:	28-34	1762	1049	2407	2958	568	181	423	1655	161	70	749	11983
Minia:	35-43	1452	1035	1206	3149	644	54	210	1106	213	85	250	9504
Assuit:	44-46,48-50	3669	5416	4002	3805	1135	566	419	2679	241	75	846	22853
Abnub:	47	79	87	135	123	192	0	8	346	0	0	57	1027
South Assuit:	51-55	419	766	529	434	56	74	51	251	21	22	33	2656
Aswan:	61	7	4	1	17	0	0	2	38	20	14	0	103
Upper Egypt:	56-60	155	521	71	233	3	4	57	218	115	31	1	1409
New Valley:	62	3	18	2	21	0	1	12	6	3	4	0	70
Red Sea:	63	1	0	2	2	0	0	0	0	4	13	0	22
Sub-total: CORRIDOR		8557	9765	8807	12233	2608	924	1937	7795	833	299	2204	56962
Sub-total: OTHERS		2165	3685	1266	3928	83	231	758	2041	674	282	70	15183
TOTALS		10722	13450	10073	17161	2691	1155	2695	9836	1507	581	2274	72145

Table Description ..... DAILY PASSENGER TOTALS (INCLUDING DRIVER) BY TRIP PURPOSE AND CARGO TOTALS BY COMMODITY (TONNES)

Survey Station ..... ALL INTERVIEW STATIONS - Totals from R01 to R16 Direction of Travel ..... Northbound

Including Screenline Factors ..... Yes

VEHICLE TYPE

TRIP PURPOSE	1 CAR	2 TAXI CAR	3 TAXI VAN	4A PICKUP GOODS	4B PICKUP PASS.	5 MICRO-BUS	6 BUS	7 SINGLE TRUCK	8 COMB. TRUCK	9 ARTIC. TRUCK	10 OTHER MOTOR	TOTAL
Work - Business	7339	30833	37346	0	9709	0	0	0	0	0	0	85227
Holiday - Touring	2264	1922	1400	0	169	0	0	0	0	0	0	5755
Other	3220	5063	7174	0	1679	0	0	0	0	0	0	17136
Unknown	306	926	2003	18756	363	12397	46421	9880	1574	619	1666	94911
TOTALS	13129	38744	47923	18756	11920	12397	46421	9880	1574	619	1666	203029

VEHICLE TYPE

CARGO GROUP	1 CAR	2 TAXI CAR	3 TAXI VAN	4A PICKUP GOODS	4B PICKUP PASS.	5 MICRO-BUS	6 BUS	7 SINGLE TRUCK	8 COMB. TRUCK	9 ARTIC. TRUCK	10 OTHER MOTOR	TOTAL
Gasoline - Diesel	0	0	0	36	0	0	0	275	153	310	0	774
Gas Bottles,inc emp.	0	0	0	17	0	0	0	27	18	430	0	492
Other Petroleum Prod	0	0	0	12	0	0	0	222	71	0	0	305
Gen Building Mat.	0	0	0	12	0	0	0	11	0	0	0	23
Sand and Gravel	0	0	0	80	0	0	0	3519	27	13	0	3639
Cement	0	0	0	49	0	0	0	165	163	30	0	407
Other Building Mat.	0	0	0	684	0	0	0	4817	787	136	0	6424
Wheat	0	0	0	16	0	0	0	310	119	326	0	771
Other Cereal Crops	0	0	0	98	0	0	0	407	109	41	0	655
Vegtables and Fruit	0	0	0	2811	0	0	0	887	154	19	0	3871
Seed Cotton / Lint	0	0	0	0	0	0	0	27	88	0	0	115
Other Agriculture	0	0	0	112	0	0	0	319	708	241	0	1380
Flour from Wheat	0	0	0	79	0	0	0	221	264	210	0	774
Other Food Products	0	0	0	245	0	0	0	1171	2174	35	0	3625
General Commodities	0	0	0	0	0	0	0	0	0	0	0	0
Minerals	0	0	0	13	0	0	0	8	70	88	0	179
Live Animals	0	0	0	578	0	0	0	182	39	0	0	799
Animal Products	0	0	0	17	0	0	0	13	0	0	0	30
Textiles and Leather	0	0	0	17	0	0	0	25	76	2	0	120
Timber and Wood Prod	0	0	0	204	0	0	0	186	27	10	0	427
Paper and Paper Prod	0	0	0	13	0	0	0	4	0	0	0	17
Fertilizers	0	0	0	6	0	0	0	486	112	18	0	622
Other Chemicals	0	0	0	10	0	0	0	50	29	13	0	102
Electrical Products	0	0	0	10	0	0	0	27	0	0	0	37
Machinery	0	0	0	16	0	0	0	73	0	27	0	116
Other Metal Products	0	0	0	12	0	0	0	6	74	68	0	160
Other Commodities	0	0	0	225	0	0	0	1245	627	28	0	2125

Table Description ..... DAILY CARGO TOTALS BY SEVEN COMMODITY GROUPS (TONNES)

Survey Station ..... ALL INTERVIEW STATIONS - Totals from R01 to R16 Direction of Travel ..... Northbound

Including Screenline Factors ..... Yes

	VEHICLE TYPE											
CARGO GROUP	1 CAR	2 TAXI CAR	3 TAXI VAN	4A PICKUP GOODS	4B PICKUP PASS.	5 MICRO-BUS	6 BUS	7 SINGLE TRUCK	8 COMB. TRUCK	9 ARTIC. TRUCK	10 OTHER MOTOR	TOTAL
PETROLEUM PRODUCTS	0	0	0	65	0	0	0	524	242	740	0	1571
BUILDING MATERIALS	0	0	0	825	0	0	0	8512	977	179	0	10493
CEREAL CROPS	0	0	0	114	0	0	0	717	228	367	0	1426
VEGTABLES AND FRUITS	0	0	0	2811	0	0	0	887	154	19	0	3871
OTHER AGRICULTURE	0	0	0	112	0	0	0	346	796	241	0	1495
FOOD PRODUCTS	0	0	0	324	0	0	0	1392	2438	245	0	4399
OTHER COMMODITIES	0	0	0	1121	0	0	0	2305	1054	254	0	4734
TOTALS	0	0	0	5372	0	0	0	14683	5889	2045	0	27989

Table Description ..... DAILY PASSENGER TOTALS (INCLUDING DRIVER) BY TRIP PURPOSE AND CARGO TOTALS BY COMMODITY (TONNES)

Survey Station ..... ALL INTERVIEW STATIONS - Totals from R01 to R16 Direction of Travel ..... Southbound

Including Screenline Factors ..... Yes

	VEHICLE TYPE											
TRIP PURPOSE	1 CAR	2 TAXI CAR	3 TAXI VAN	4A PICKUP GOODS	4B PICKUP PASS.	5 MICRO-BUS	6 BUS	7 SINGLE TRUCK	8 COMB. TRUCK	9 ARTIC. TRUCK	10 OTHER MOTOR	TOTAL
Work - Business	7236	27738	39425	0	11783	0	0	0	0	0	0	86182
Holiday - Touring	2515	3367	3360	0	632	0	0	0	0	0	0	9874
Other	3514	6967	8126	0	1574	0	0	0	0	0	0	20181
Unknown	209	882	1606	17960	558	11580	50708	9864	1424	524	1757	97072
TOTALS	13474	38954	52517	17960	14547	11580	50708	9864	1424	524	1757	213309

	VEHICLE TYPE											
CARGO GROUP	1 CAR	2 TAXI CAR	3 TAXI VAN	4A PICKUP GOODS	4B PICKUP PASS.	5 MICRO-BUS	6 BUS	7 SINGLE TRUCK	8 COMB. TRUCK	9 ARTIC. TRUCK	10 OTHER MOTOR	TOTAL
Gasoline - Diesel	0	0	0	54	0	0	0	967	1095	804	0	2920
Gas Bottles,inc emp.	0	0	0	18	0	0	0	59	84	122	0	283
Other Petroleum Prod	0	0	0	29	0	0	0	1135	393	427	0	1984
Gen Building Mat.	0	0	0	11	0	0	0	27	20	4	0	62
Sand and Gravel	0	0	0	129	0	0	0	4652	145	173	0	5099
Cement	0	0	0	103	0	0	0	894	5495	780	0	7272
Other Building Mat.	0	0	0	738	0	0	0	5031	1348	623	0	7740
Wheat	0	0	0	14	0	0	0	130	415	271	0	830
Other Cereal Crops	0	0	0	113	0	0	0	717	701	50	0	1581
Vegtables and Fruit	0	0	0	497	0	0	0	495	174	50	0	1216
Seed Cotton / Lint	0	0	0	2	0	0	0	93	215	0	0	310
Other Agriculture	0	0	0	64	0	0	0	182	332	165	0	743
Flour from Wheat	0	0	0	77	0	0	0	352	886	655	0	1970
Other Food Products	0	0	0	355	0	0	0	978	1441	93	0	2867
General Commodities	0	0	0	0	0	0	0	6	0	0	0	6
Minerals	0	0	0	24	0	0	0	66	86	137	0	313
Live Animals	0	0	0	379	0	0	0	36	12	23	0	450
Animal Products	0	0	0	3	0	0	0	23	14	0	0	40
Textiles and Leather	0	0	0	50	0	0	0	81	71	31	0	233
Timber and Wood Prod	0	0	0	364	0	0	0	844	507	98	0	1813
Paper and Paper Prod	0	0	0	46	0	0	0	61	10	2	0	119
Fertilizers	0	0	0	14	0	0	0	906	880	452	0	2252
Other Chemicals	0	0	0	14	0	0	0	103	280	151	0	548
Electrical Products	0	0	0	44	0	0	0	38	39	14	0	135
Machinery	0	0	0	47	0	0	0	191	30	73	0	341
Other Metal Products	0	0	0	47	0	0	0	128	58	76	0	309
Other Commodities	0	0	0	379	0	0	0	1384	1521	215	0	3499

Table Description ..... DAILY CARGO TOTALS BY SEVEN COMMODITY GROUPS (TONNES)

Survey Station ..... ALL INTERVIEW STATIONS - Totals from R01 to R16 Direction of Travel ..... Southbound

Including Screenline Factors ..... Yes

	VEHICLE TYPE											
CARGO GROUP	1 CAR	2 TAXI CAR	3 TAXI VAN	4A PICKUP GOODS	4B PICKUP PASS.	5 MICRO-BUS	6 BUS	7 SINGLE TRUCK	8 COMB. TRUCK	9 ARTIC. TRUCK	10 OTHER MOTOR	TOTAL
PETROLEUM PRODUCTS	0	0	0	101	0	0	0	2161	1572	1353	0	5187
BUILDING MATERIALS	0	0	0	981	0	0	0	10604	7008	1580	0	20173
CEREAL CROPS	0	0	0	127	0	0	0	847	1116	321	0	2411
VEGTABLES AND FRUITS	0	0	0	497	0	0	0	495	174	50	0	1216
OTHER AGRICULTURE	0	0	0	66	0	0	0	275	547	165	0	1053
FOOD PRODUCTS	0	0	0	432	0	0	0	1330	2327	748	0	4837
OTHER COMMODITIES	0	0	0	1411	0	0	0	3867	3508	1272	0	10058
TOTALS	0	0	0	3615	0	0	0	19579	16252	5489	0	44935

Table Description ..... DAILY PASSENGER TOTALS (INCLUDING DRIVER) BY TRIP PURPOSE AND CARGO TOTALS BY COMMODITY (TONNES)

Survey Station ..... ALL INTERVIEW STATIONS - Totals from R01 to R16 Direction of Travel ..... Combined

Including Screenline Factors ..... Yes

	VEHICLE TYPE											
TRIP PURPOSE	1 CAR	2 TAXI CAR	3 TAXI VAN	4A PICKUP GOODS	4B PICKUP PASS.	5 MICRO-BUS	6 BUS	7 SINGLE TRUCK	8 COMB. TRUCK	9 ARTIC. TRUCK	10 OTHER MOTOR	TOTAL
Work - Business	14575	58572	76771	0	21493	0	0	0	0	0	0	171411
Holiday - Touring	4779	5290	4760	0	801	0	0	0	0	0	0	15630
Other	6734	12030	15299	0	3254	0	0	0	0	0	0	37317
Unknown	515	1808	3609	36716	921	23977	97129	19745	2997	1143	3423	191983
TOTALS	26603	77700	100439	36716	26469	23977	97129	19745	2997	1143	3423	416341

	VEHICLE TYPE											
CARGO GROUP	1 CAR	2 TAXI CAR	3 TAXI VAN	4A PICKUP GOODS	4B PICKUP PASS.	5 MICRO-BUS	6 BUS	7 SINGLE TRUCK	8 COMB. TRUCK	9 ARTIC. TRUCK	10 OTHER MOTOR	TOTAL
Gasoline - Diesel	0	0	0	90	0	0	0	1242	1248	1114	0	3694
Gas Bottles,inc emp.	0	0	0	35	0	0	0	86	102	553	0	776
Other Petroleum Prod	0	0	0	41	0	0	0	1357	464	427	0	2289
Gen Building Mat.	0	0	0	23	0	0	0	38	20	4	0	85
Sand and Gravel	0	0	0	209	0	0	0	8171	173	186	0	8739
Cement	0	0	0	152	0	0	0	1060	5657	810	0	7679
Other Building Mat.	0	0	0	1423	0	0	0	9848	2134	759	0	14164
Wheat	0	0	0	30	0	0	0	440	534	597	0	1601
Other Cereal Crops	0	0	0	211	0	0	0	1123	810	91	0	2235
Vegtables and Fruit	0	0	0	3307	0	0	0	1382	328	69	0	5086
Seed Cotton / Lint	0	0	0	2	0	0	0	120	303	0	0	425
Other Agriculture	0	0	0	176	0	0	0	501	1040	406	0	2123
Flour from Wheat	0	0	0	156	0	0	0	573	1150	866	0	2745
Other Food Products	0	0	0	600	0	0	0	2149	3615	128	0	6492
General Commodities	0	0	0	1	0	0	0	6	0	0	0	7
Minerals	0	0	0	37	0	0	0	73	156	225	0	491
Live Animals	0	0	0	958	0	0	0	219	51	23	0	1251
Animal Products	0	0	0	20	0	0	0	36	14	0	0	70
Textiles and Leather	0	0	0	67	0	0	0	107	146	33	0	353
Timber and Wood Prod	0	0	0	567	0	0	0	1029	534	108	0	2238
Paper and Paper Prod	0	0	0	59	0	0	0	65	10	2	0	136
Fertilizers	0	0	0	21	0	0	0	1391	991	470	0	2873
Other Chemicals	0	0	0	24	0	0	0	153	309	165	0	651
Electrical Products	0	0	0	54	0	0	0	85	39	14	0	172
Machinery	0	0	0	64	0	0	0	263	30	100	0	457
Other Metal Products	0	0	0	60	0	0	0	133	132	144	0	469
Other Commodities	0	0	0	604	0	0	0	2628	2148	243	0	5623

Table Description ..... DAILY CARGO TOTALS BY SEVEN COMMODITY GROUPS (TONNES)

Survey Station ..... ALL INTERVIEW STATIONS - Totals from R01 to R16 Direction of Travel ..... Combined

Including Screenline Factors ..... Yes

	VEHICLE TYPE											
CARGO GROUP	1 CAR	2 TAXI CAR	3 TAXI VAN	4A PICKUP GOODS	4B PICKUP PASS.	5 MICRO-BUS	6 BUS	7 SINGLE TRUCK	8 COMB. TRUCK	9 ARTIC. TRUCK	10 OTHER MOTOR	TOTAL
PETROLEUM PRODUCTS	0	0	0	166	0	0	0	2685	1814	2094	0	6759
BUILDING MATERIALS	0	0	0	1807	0	0	0	19117	7984	1759	0	30667
CEREAL CROPS	0	0	0	241	0	0	0	1563	1344	688	0	3836
VEGTABLES AND FRUITS	0	0	0	3307	0	0	0	1382	328	69	0	5086
OTHER AGRICULTURE	0	0	0	178	0	0	0	621	1343	406	0	2548
FOOD PRODUCTS	0	0	0	756	0	0	0	2722	4765	994	0	9237
OTHER COMMODITIES	0	0	0	2536	0	0	0	6168	4560	1527	0	14791
TOTALS	0	0	0	8991	0	0	0	34258	22138	7537	0	72924

Table Description ..... DAILY VEHICLE TOTALS BY COMMODITY CARRIED (27 COMMODITY GROUPINGS) + EMPTY TRUCKS

Survey Station ..... ALL INTERVIEW STATIONS - Totals from R01 to R16 Direction of Travel ..... Northbound

Including Screenline Factors ..... Yes

CARGO GROUP	VEHICLE TYPE 1 CAR	2 TAXI CAR	3 TAXI VAN	4A PICKUP GOODS	4B PICKUP PASS.	5 MICRO-BUS	6 BUS	7 SINGLE TRUCK	8 COMB. TRUCK	9 ARTIC. TRUCK	10 OTHER MOTOR	TOTAL
Gasoline - Diesel	0	0	0	20	0	0	0	31	6	13	0	70
Gas Bottles,inc emp.	0	0	0	14	0	0	0	4	1	29	0	48
Other Petroleum Prod	0	0	0	6	0	0	0	26	4	0	0	36
Gen Building Mat.	0	0	0	7	0	0	0	1	0	0	0	8
Sand and Gravel	0	0	0	23	0	0	0	579	1	0	0	603
Cement	0	0	0	31	0	0	0	21	6	1	0	59
Other Building Mat.	0	0	0	268	0	0	0	735	52	6	0	1061
Wheat	0	0	0	6	0	0	0	38	4	10	0	58
Other Cereal Crops	0	0	0	50	0	0	0	46	4	1	0	101
Vegtables and Fruit	0	0	0	1398	0	0	0	154	5	1	0	1558
Seed Cotton / Lint	0	0	0	0	0	0	0	3	5	0	0	8
Other Agriculture	0	0	0	79	0	0	0	56	32	13	0	180
Flour from Wheat	0	0	0	38	0	0	0	24	9	7	0	78
Other Food Products	0	0	0	177	0	0	0	183	64	1	0	425
General Commodities	0	0	0	0	0	0	0	0	0	0	0	0
Minerals	0	0	0	6	0	0	0	1	2	3	0	12
Live Animals	0	0	0	469	0	0	0	48	3	0	0	520
Animal Products	0	0	0	10	0	0	0	2	0	0	0	12
Textiles and Leather	0	0	0	20	0	0	0	6	5	0	0	31
Timber and Wood Prod	0	0	0	199	0	0	0	41	2	1	0	243
Paper and Paper Prod	0	0	0	16	0	0	0	1	0	0	0	17
Fertilizers	0	0	0	4	0	0	0	60	3	1	0	68
Other Chemicals	0	0	0	11	0	0	0	7	1	0	0	19
Electrical Products	0	0	0	11	0	0	0	8	0	0	0	19
Machinery	0	0	0	14	0	0	0	12	0	2	0	28
Other Metal Products	0	0	0	12	0	0	0	1	2	2	0	17
Other Commodities	0	0	0	151	0	0	0	174	31	2	0	358
None - Truck Empty	0	0	0	5715	0	0	0	2637	540	209	0	9101
TOTALS	0	0	0	8755	0	0	0	4899	782	302	0	14738

Table Description ..... DAILY VEHICLE TOTALS BY COMMODITY CARRIED (7 COMMODITY GROUPINGS) + EMPTY TRUCKS

Survey Station ..... ALL INTERVIEW STATIONS - Totals from R01 to R16 Direction of Travel ..... Northbound

Including Screenline Factors ..... Yes

	VEHICLE TYPE											
CARGO GROUP	1 CAR	2 TAXI CAR	3 TAXI VAN	4A PICKUP GOODS	4B PICKUP PASS.	5 MICRO-BUS	6 BUS	7 SINGLE TRUCK	8 COMB. TRUCK	9 ARTIC. TRUCK	10 OTHER ...FOR	TOTAL
PETROLEUM PRODUCTS	0	0	0	40	0	0	0	61	11	42	0	154
BUILDING MATERIALS	0	0	0	329	0	0	0	1336	59	7	0	1731
CEREAL CROPS	0	0	0	56	0	0	0	84	8	11	0	159
VEGTABLES AND FRUITS	0	0	0	1398	0	0	0	154	5	1	0	1558
OTHER AGRICULTURE	0	0	0	79	0	0	0	59	37	13	0	188
FOOD PRODUCTS	0	0	0	215	0	0	0	207	73	8	0	503
OTHER COMMODITIES	0	0	0	923	0	0	0	361	49	11	0	1344
NONE - TRUCK EMPTY	0	0	0	5715	0	0	0	2637	540	209	0	9101
TOTALS	0	0	0	8755	0	0	0	4899	782	302	0	14738

Table Description ..... DAILY VEHICLE TOTALS BY COMMODITY CARRIED (27 COMMODITY GROUPINGS) + EMPTY TRUCKS

Survey Station ..... ALL INTERVIEW STATIONS - Totals from R01 to R16 Direction of Travel ..... Southbound

Including Screenline Factors ..... Yes

CARGO GROUP	VEHICLE TYPE 1 CAR	2 TAXI CAR	3 TAXI VAN	4A PICKUP GOODS	4B PICKUP PASS.	5 MICRO-BUS	6 BUS	7 SINGLE TRUCK	8 COMB. TRUCK	9 ARTIC. TRUCK	10 OTHER MOTOR	TOTAL
Gasoline - Diesel	0	0	0	20	0	0	0	116	44	32	0	212
Gas Bottles,inc emp.	0	0	0	19	0	0	0	9	4	5	0	37
Other Petroleum Prod	0	0	0	16	0	0	0	120	19	17	0	172
Gen Building Mat.	0	0	0	7	0	0	0	4	1	0	0	12
Sand and Gravel	0	0	0	54	0	0	0	674	5	8	0	741
Cement	0	0	0	53	0	0	0	105	161	26	0	345
Other Building Mat.	0	0	0	309	0	0	0	757	51	27	0	1144
Wheat	0	0	0	9	0	0	0	15	11	8	0	43
Other Cereal Crops	0	0	0	59	0	0	0	62	26	2	0	149
Vegtables and Fruit	0	0	0	290	0	0	0	70	7	2	0	369
Seed Cotton / Lint	0	[illegible]	0	1	0	0	0	11	8	0	0	20
Other Agriculture	0	0	0	53	0	0	0	34	11	5	0	103
Flour from Wheat	0	0	0	45	0	0	0	35	31	20	0	131
Other Food Products	0	0	0	299	0	0	0	199	51	4	0	553
General Commodities	0	0	0	0	0	0	0	1	0	0	0	1
Minerals	0	0	0	16	0	0	0	11	3	5	0	35
Live Animals	0	0	0	331	0	0	0	10	0	1	0	342
Animal Products	0	0	0	3	0	0	0	3	1	0	0	7
Textiles and Leather	0	0	0	43	0	0	0	17	5	1	0	66
Timber and Wood Prod	0	0	0	399	0	0	0	134	21	5	0	559
Paper and Paper Prod	0	0	0	38	0	0	0	13	1	0	0	52
Fertilizers	0	0	0	7	0	0	0	106	24	13	0	150
Other Chemicals	0	0	0	11	0	0	0	14	10	5	0	40
Electrical Products	0	0	0	44	0	0	0	7	2	1	0	54
Machinery	0	0	0	38	0	0	0	25	2	5	0	70
Other Metal Products	0	0	0	49	0	0	0	26	3	3	0	81
Other Commodities	0	0	0	274	0	0	0	224	68	10	0	576
None - Truck Empty	0	0	0	5911	0	0	0	2139	155	72	0	8277
TOTALS	0	0	0	8398	0	0	0	4941	725	277	0	14341

Table Description ..... DAILY VEHICLE TOTALS BY COMMODITY CARRIED (7 COMMODITY GROUPINGS) + EMPTY TRUCKS

Survey Station ..... ALL INTERVIEW STATIONS - Totals from R01 to R16 Direction of Travel ..... Southbound

Including Screenline Factors ..... Yes

CARGO GROUP	VEHICLE TYPE 1 CAR	2 TAXI CAR	3 TAXI VAN	4A PICKUP GOODS	4B PICKUP PASS.	5 MICRO-BUS	6 BUS	7 SINGLE TRUCK	8 COMB. TRUCK	9 ARTIC. TRUCK	10 OTHER MOTOR	TOTAL
PETROLEUM PRODUCTS	0	0	0	55	0	0	0	245	67	54	0	421
BUILDING MATERIALS	0	0	0	423	0	0	0	1540	218	61	0	2242
CEREAL CROPS	0	0	0	68	0	0	0	77	37	10	0	192
VEGTABLES AND FRUITS	0	0	0	290	0	0	0	70	7	2	0	369
OTHER AGRICULTURE	0	0	0	54	0	0	0	45	19	5	0	123
FOOD PRODUCTS	0	0	0	344	0	0	0	234	82	24	0	684
OTHER COMMODITIES	0	0	0	1253	0	0	0	591	140	49	0	2033
NONE - TRUCK EMPTY	0	0	0	5911	0	0	0	2139	155	72	0	8277
TOTALS	0	0	0	8398	0	0	0	4941	725	277	0	14341

Table Description ..... DAILY VEHICLE TOTALS BY COMMODITY CARRIED (27 COMMODITY GROUPINGS) + EMPTY TRUCKS

Survey Station ..... ALL INTERVIEW STATIONS - Totals from R01 to R16 Direction of Travel ..... Combined

Including Screenline Factors ..... Yes

	VEHICLE TYPE											
CARGO GROUP	1 CAR	2 TAXI CAR	3 TAXI VAN	4A PICKUP GOODS	4B PICKUP PASS.	5 MICRO-BUS	6 BUS	7 SINGLE TRUCK	8 COMB. TRUCK	9 ARTIC. TRUCK	10 OTHER MOTOR	TOTAL
Gasoline - Diesel	0	0	0	40	0	0	0	147	51	46	0	284
Gas Bottles,inc emp.	0	0	0	34	0	0	0	13	4	34	0	85
Other Petroleum Prod	0	0	0	22	0	0	0	146	22	17	0	207
Gen Building Mat.	0	0	0	15	0	0	0	5	1	0	0	21
Sand and Gravel	0	0	0	77	0	0	0	1253	7	8	0	1345
Cement	0	0	0	84	0	0	0	126	166	27	0	403
Other Building Mat.	0	0	0	576	0	0	0	1491	103	33	0	2203
Wheat	0	0	0	16	0	0	0	53	16	18	0	103
Other Cereal Crops	0	0	0	110	0	0	0	108	30	3	0	251
Vegtables and Fruit	0	0	0	1687	0	0	0	224	12	2	0	1925
Seed Cotton / Lint	0	0	0	1	0	0	0	14	13	0	0	28
Other Agriculture	0	0	0	132	0	0	0	90	42	18	0	282
Flour from Wheat	0	0	0	84	0	0	0	59	40	27	0	210
Other Food Products	0	0	0	476	0	0	0	302	116	5	0	979
General Commodities	0	0	0	0	0	0	0	1	0	0	0	1
Minerals	0	0	0	23	0	0	0	13	5	7	0	48
Live Animals	0	0	0	800	0	0	0	58	3	1	0	862
Animal Products	0	0	0	13	0	0	0	5	1	0	0	19
Textiles and Leather	0	0	0	62	0	0	0	23	10	1	0	96
Timber and Wood Prod	0	0	0	599	0	0	0	174	23	6	0	802
Paper and Paper Prod	0	0	0	54	0	0	0	14	1	0	0	69
Fertilizers	0	0	0	11	0	0	0	166	27	14	0	218
Other Chemicals	0	0	0	23	0	0	0	20	11	6	0	60
Electrical Products	0	0	0	55	0	0	0	15	2	1	0	73
Machinery	0	0	0	52	0	0	0	36	2	8	0	98
Other Metal Products	0	0	0	62	0	0	0	27	5	5	0	99
Other Commodities	0	0	0	425	0	0	0	398	99	12	0	934
None - Truck Empty	0	0	0	11626	0	0	0	4776	695	280	0	17377
TOTALS	0	0	0	17159	0	0	0	9837	1507	579	0	29032

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Table Description ..... DAILY VEHICLE TOTALS BY COMMODITY CARRIED (7 COMMODITY GROUPINGS) + EMPTY TRUCKS

Survey Station ..... ALL INTERVIEW STATIONS - Totals from R01 to R16 Direction of Travel ..... Combined

Including Screenline Factors ..... Yes

	VEHICLE TYPE											
CARGO GROUP	1 CAR	2 TAXI CAR	3 TAXI VAN	4A PICKUP GOODS	4B PICKUP PASS.	5 MICRO-BUS	6 BUS	7 SINGLE TRUCK	8 COMB. TRUCK	9 ARTIC. TRUCK	10 OTHER MOTOR	TOTAL
PETROLEUM PRODUCTS	0	0	0	96	0	0	0	306	77	97	0	576
BUILDING MATERIALS	0	0	0	752	0	0	0	2875	277	68	0	3972
CEREAL CROPS	0	0	0	126	0	0	0	161	46	21	0	354
VEGTABLES AND FRUITS	0	0	0	1687	0	0	0	224	12	2	0	1925
OTHER AGRICULTURE	0	0	0	133	0	0	0	104	55	18	0	310
FOOD PRODUCTS	0	0	0	560	0	0	0	441	156	32	0	1189
OTHER COMMODITIES	0	0	0	2179	0	0	0	950	189	61	0	3379
NONE - TRUCK EMPTY	0	0	0	11626	0	0	0	4776	695	280	0	17377
TOTALS	0	0	0	17159	0	0	0	9837	1507	579	0	29082

Appendix 1H

TRUCK WEIGHING SURVEY TABULATIONS

This Appendix contains extracts from tabulations resulting from analysis of the Truck Weighing Survey data. As described in Appendix 1D, seven types of tabulations were prepared as follows:

1. Number of Empty Vehicles by Licensed Empty Weight and Total Measured Weight;
2. Number of Loaded Vehicles by Load Condition, Licensed Full Weight and Total Measured Weight (Tonnes);
3. Number of Vehicles by Commodity, Truck/Trailer Category and Total Measured Weight (Tonnes);
4. Number of Vehicles by Commodity, Truck/Trailer Category and Equivalent Axles;
5. Number of Axle Groups by Truck/Trailer Category and Tire Class;
6. Number of Axle Groups by Type of Axle Group, Tires and Measured Axle Group Load (excluding Empty Trucks); and,
7. Number of Axle Groups by Type of Axle Groups, Tires and Calculated Equivalent Axles (excluding Empty Trucks).

The pages which follow contain examples of all seven types of tabulation, and provide an overall summary of the information gathered during the Axle Weighing Survey.

Cairo-Assuit Highway Feasibility Study

AXLE WEIGHT SURVEY TABULATIONS

Date: 04-03-86
Time: 08:42:01
Page: 1

Table Description ..... NUMBER OF EMPTY VEHICLES BY LICENCED EMPTY WEIGHT AND TOTAL MEASURED WEIGHT (TONNES)

Vehicle Type ..... SINGLE TRUCKS

Survey Station ..... ALL TRUCK WEIGHING STATIONS - Totals from W1 to W3

LICENSED EMPTY WEIGHT	TOTAL VEHICLE WEIGHT (TONNES) .1 TO 5.0	5.1 TO 6.0	6.1 TO 7.0	7.1 TO 8.0	8.1 TO 9.0	9.1 TO 10.0	10.1 TO 11.0	11.1 TO 12.0	12.1 TO 13.0	13.1 TO 14.0	14.1 TO 15.0	15.1 TO 16.0	16.1 TO 17.0	17.1 TO 18.0	18.1 TO 19.0	19.1 OR MORE	TOTALS
.1 - 1.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1 - 2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2.1 - 3.0	35	3	0	1	0	0	0	0	0	0	0	0	0	0	0	0	39
3.1 - 4.0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
4.1 - 5.0	8	11	2	0	0	0	0	0	0	0	0	0	0	0	0	0	21
5.1 - 6.0	1	19	15	1	1	0	0	0	0	0	0	0	0	0	0	0	37
6.1 - 7.0	0	0	11	10	2	0	2	0	0	0	0	0	0	0	0	0	25
7.1 - 8.0	0	0	0	14	8	1	0	0	0	0	0	0	0	0	0	0	23
8.1 - 9.0	0	0	0	1	5	7	0	1	0	0	0	0	0	0	0	0	14
9.1 - 10.0	0	0	0	0	0	3	4	0	0	0	0	0	0	0	0	0	7
10.1 - 11.0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	4
11.1 - 12.0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
12.1 - 13.0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
13.1 - 14.0	0	0	0	0	0	0	0	0	0	1	3	0	0	0	0	0	4
14.1 - 15.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15.1 - 16.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16.1 - 17.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17.1 - 18.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18.1 - 19.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19.1 OR MORE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	51	33	28	27	16	11	6	5	0	3	3	0	0	0	0	0	183

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AXLE WEIGHT SURVEY TABULATIONS

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Table Description ..... NUMBER OF EMPTY VEHICLES BY LICENCED EMPTY WEIGHT AND TOTAL MEASURED WEIGHT (TONNES)

Vehicle Type ..... TRUCK COMBINATIONS

Survey Station ..... ALL TRUCK WEIGHING STATIONS - Totals from W1 to W3

LICENSED EMPTY WEIGHT	TOTAL VEHICLE WEIGHT (TONNES) .1 TO 5.0	5.1 TO 6.0	6.1 TO 7.0	7.1 TO 8.0	8.1 TO 9.0	9.1 TO 10.0	10.1 TO 11.0	11.1 TO 12.0	12.1 TO 13.0	13.1 TO 14.0	14.1 TO 15.0	15.1 TO 16.0	16.1 TO 17.0	17.1 TO 18.0	18.1 TO 19.0	19.1 OR MORE	TOTALS
.1 - 1.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1 - 2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2.1 - 3.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3.1 - 4.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4.1 - 5.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5.1 - 6.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6.1 - 7.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7.1 - 8.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8.1 - 9.0	0	0	0	0	0	0	0	1	1	0	0	1	0	0	0	0	3
9.1 - 10.0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	3
10.1 - 11.0	0	0	0	0	0	0	4	3	0	0	0	0	0	0	0	0	7
11.1 - 12.0	0	0	0	0	0	0	0	2	0	1	0	0	0	0	0	0	3
12.1 - 13.0	0	0	0	0	0	0	0	0	1	2	1	2	0	0	0	0	6
13.1 - 14.0	0	0	0	0	0	0	0	0	0	2	3	0	1	0	0	0	6
14.1 - 15.0	0	0	0	0	0	0	0	0	0	0	0	3	1	0	2	0	6
15.1 - 16.0	0	0	0	0	0	0	0	0	0	1	0	0	4	1	0	0	6
16.1 - 17.0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2
17.1 - 18.0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	2
18.1 - 19.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
19.1 OR MORE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3
TOTALS	0	0	0	0	0	3	4	6	2	6	4	6	7	3	3	5	49

Table Description ..... NUMBER OF EMPTY VEHICLES BY LICENCED EMPTY WEIGHT AND TOTAL MEASURED WEIGHT (TONNES)

Vehicle Type ..... ARTICULATED TRUCKS

Survey Station ..... ALL TRUCK WEIGHING STATIONS - Totals from W1 to W3

LICENSED EMPTY WEIGHT	TOTAL VEHICLE WEIGHT (TONNES) .1 TO 5.0	5.1 TO 6.0	6.1 TO 7.0	7.1 TO 8.0	8.1 TO 9.0	9.1 TO 10.0	10.1 TO 11.0	11.1 TO 12.0	12.1 TO 13.0	13.1 TO 14.0	14.1 TO 15.0	15.1 TO 16.0	16.1 TO 17.0	17.1 TO 18.0	18.1 TO 19.0	19.1 OR MORE	TOTALS
.1 - 1.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.1 - 2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2.1 - 3.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3.1 - 4.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4.1 - 5.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5.1 - 6.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6.1 - 7.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7.1 - 8.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8.1 - 9.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9.1 - 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
10.1 - 11.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11.1 - 12.0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
12.1 - 13.0	0	0	0	0	0	0	0	0	0	1	0	1	1	1	0	3	7
13.1 - 14.0	0	0	0	0	0	0	0	0	0	1	2	0	1	0	1	2	7
14.1 - 15.0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	0	3
15.1 - 16.0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	3
16.1 - 17.0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2
17.1 - 18.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2
18.1 - 19.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
19.1 OR MORE	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	2	3
TOTALS	0	0	0	0	0	0	0	0	1	2	3	2	3	4	5	11	31

Table Description ..... NUMBER OF VEHICLES BY COMMODITY, TRUCK/TRAILER CATEGORY AND TOTAL MEASURED WEIGHT (TONNES)

Vehicle Type ..... SINGLE TRUCKS

Commodity Carried ..... PETROLEUM PRODUCTS

Survey Station ..... ALL TRUCK WEIGHING STATIONS - Totals from W1 to W3

TOTAL VEHICLE WEIGHT	SINGLE TRUCK CLASS 1	2	3	TOTAL	TRUCK COMBIN. TOTAL	ARTIC. TRUCK TOTAL	TOTAL FOR ALL TRUCKS
.1 - 5.0	1	0	0	1	0	0	1
5.1 - 10.0	11	2	0	13	0	0	13
10.1 - 15.0	25	0	0	25	1	1	27
15.1 - 20.0	55	1	0	56	1	0	57
20.1 - 30.0	14	2	0	16	7	1	24
30.1 - 40.0	0	1	0	1	28	11	40
40.1 - 50.0	0	0	0	0	17	8	25
50.1 - 60.0	0	0	0	0	9	8	17
60.1 - 70.0	0	0	0	0	0	2	2
70.1 - 80.0	0	0	0	0	3	0	3
80.1 - 90.0	0	0	0	0	0	0	0
90.1 OR MORE	0	0	0	0	0	0	0
TOTALS	106	6	0	112	66	31	209
AVERAGE	15.8	21.2	.0	16.1	40.7	43.2	27.9

Table Description ..... NUMBER OF VEHICLES BY COMMODITY, TRUCK/TRAILER CATEGORY AND TOTAL MEASURED WEIGHT (TONNES)

Vehicle Type ..... SINGLE TRUCKS

Commodity Carried ..... SAND AND GRAVEL

Survey Station ..... ALL TRUCK WEIGHING STATIONS - Totals from W1 to W3

TOTAL VEHICLE WEIGHT	SINGLE TRUCK CLASS				TRUCK COMBIN. TOTAL	ARTIC. TRUCK TOTAL	TOTAL FOR ALL TRUCKS
	1	2	3	TOTAL			
.1 - 5.0	0	0	0	0	0	0	0
5.1 - 10.0	6	1	0	7	0	0	7
10.1 - 15.0	37	0	0	37	0	0	37
15.1 - 20.0	17	0	0	17	0	0	17
20.1 - 30.0	23	1	0	24	0	0	24
30.1 - 40.0	0	2	0	2	0	0	2
40.1 - 50.0	0	0	0	0	2	0	2
50.1 - 60.0	0	0	0	0	1	0	1
60.1 - 70.0	0	0	0	0	1	0	1
70.1 - 80.0	0	0	0	0	1	0	1
80.1 - 90.0	0	0	0	0	0	0	0
90.1 OR MORE	0	0	0	0	0	0	0
TOTALS	83	4	0	87	5	0	92
AVERAGE	16.0	27.8	.0	16.5	57.5	.0	18.7

Table Description ..... NUMBER OF VEHICLES BY COMMODITY, TRUCK/TRAILER CATEGORY AND TOTAL MEASURED WEIGHT (TONNES)

Vehicle Type ..... SINGLE TRUCKS

Commodity Carried ..... CEMENT

Survey Station ..... ALL TRUCK WEIGHING STATIONS - Totals from W1 to W3

TOTAL VEHICLE WEIGHT	SINGLE TRUCK CLASS 1	2	3	TOTAL	TRUCK COMBIN. TOTAL	ARTIC. TRUCK TOTAL	TOTAL FOR ALL TRUCKS
.1 - 5.0	0	0	0	0	0	0	0
5.1 - 10.0	3	0	0	3	0	0	3
10.1 - 15.0	38	0	0	38	0	0	38
15.1 - 20.0	8	0	0	8	0	0	8
20.1 - 30.0	26	2	0	28	2	0	30
30.1 - 40.0	0	0	0	0	1	1	2
40.1 - 50.0	0	1	0	1	19	1	21
50.1 - 60.0	0	0	0	0	24	7	31
60.1 - 70.0	0	0	0	0	39	6	45
70.1 - 80.0	0	0	0	0	25	1	26
80.1 - 90.0	0	0	0	0	8	0	8
90.1 OR MORE	0	0	0	0	1	0	1
TOTALS	75	3	0	78	119	16	213
AVERAGE	17.6	30.8	.0	18.1	63.2	58.0	46.3

Table Description ..... NUMBER OF VEHICLES BY COMMODITY, TRUCK/TRAILER CATEGORY AND TOTAL MEASURED WEIGHT (TONNES)

Vehicle Type ..... SINGLE TRUCKS

Commodity Carried ..... OTHER BUILDING MATERIALS

Survey Station ..... ALL TRUCK WEIGHING STATIONS - Totals from W1 to W3

TOTAL VEHICLE WEIGHT	SINGLE TRUCK CLASS 1	2	3	TOTAL	TRUCK COMBIN. TOTAL	ARTIC. TRUCK TOTAL	TOTAL FOR ALL TRUCKS
.1 - 5.0	4	0	0	4	0	0	4
5.1 - 10.0	41	0	0	41	0	0	41
10.1 - 15.0	85	0	0	85	0	0	85
15.1 - 20.0	75	1	0	76	0	1	77
20.1 - 30.0	72	12	0	84	3	7	94
30.1 - 40.0	1	26	0	27	5	6	38
40.1 - 50.0	0	0	0	0	20	10	30
50.1 - 60.0	0	0	0	0	26	6	32
60.1 - 70.0	0	0	0	0	20	0	20
70.1 - 80.0	0	0	0	0	4	0	4
80.1 - 90.0	0	0	0	0	0	0	0
90.1 OR MORE	0	0	0	0	0	0	0
TOTALS	278	39	0	317	78	30	425
AVERAGE	15.9	30.4	.0	17.6	53.8	38.6	25.8

Table Description ..... NUMBER OF VEHICLES BY COMMODITY, TRUCK/TRAILER CATEGORY AND TOTAL MEASURED WEIGHT (TONNES)

Vehicle Type ..... SINGLE TRUCKS

Commodity Carried ..... TOTAL BUILDING MATERIALS

Survey Station ..... ALL TRUCK WEIGHING STATIONS - Totals from W1 to W3

TOTAL VEHICLE WEIGHT	SINGLE TRUCK CLASS 1	2	3	TOTAL	TRUCK COMBIN. TOTAL	ARTIC. TRUCK TOTAL	TOTAL FOR ALL TRUCKS
.1 - 5.0	4	0	0	4	0	0	4
5.1 - 10.0	50	1	0	51	0	0	51
10.1 - 15.0	160	0	0	160	0	0	160
15.1 - 20.0	100	1	0	101	0	1	102
20.1 - 30.0	121	15	0	136	5	7	148
30.1 - 40.0	1	28	0	29	6	7	42
40.1 - 50.0	0	1	0	1	41	11	53
50.1 - 60.0	0	0	0	0	51	13	64
60.1 - 70.0	0	0	0	0	60	6	66
70.1 - 80.0	0	0	0	0	30	1	31
80.1 - 90.0	0	0	0	0	8	0	8
90.1 OR MORE	0	0	0	0	1	0	1
TOTALS	436	46	0	482	202	46	730
AVERAGE	16.2	30.2	.0	17.5	59.4	45.4	30.9

Table Description ..... NUMBER OF VEHICLES BY COMMODITY, TRUCK/TRAILER CATEGORY AND TOTAL MEASURED WEIGHT (TONNES)

Vehicle Type ..... SINGLE TRUCKS

Commodity Carried ..... CEREAL CROPS

Survey Station ..... ALL TRUCK WEIGHING STATIONS - Totals from W1 to W3

TOTAL VEHICLE WEIGHT	SINGLE TRUCK CLASS				TRUCK COMBIN. TOTAL	ARTIC. TRUCK TOTAL	TOTAL FOR ALL TRUCKS
	1	2	3	TOTAL			
.1 - 5.0	2	0	0	2	0	0	2
5.1 - 10.0	5	0	0	5	0	0	5
10.1 - 15.0	9	0	0	9	0	0	9
15.1 - 20.0	23	0	0	23	0	0	23
20.1 - 30.0	2	0	0	2	2	1	5
30.1 - 40.0	0	2	0	2	8	1	11
40.1 - 50.0	0	0	0	0	6	4	10
50.1 - 60.0	0	0	0	0	13	22	35
60.1 - 70.0	0	0	0	0	22	13	35
70.1 - 80.0	0	0	0	0	2	1	3
80.1 - 90.0	0	0	0	0	0	0	0
90.1 OR MORE	0	0	0	0	0	0	0
TOTALS	41	2	0	43	53	42	138
AVERAGE	15.0	33.3	.0	15.9	54.3	55.9	42.8

Table Description ..... NUMBER OF VEHICLES BY COMMODITY, TRUCK/TRAILER CATEGORY AND TOTAL MEASURED WEIGHT (TONNES)

Vehicle Type ..... SINGLE TRUCKS

Commodity Carried ..... VEGTABLES AND FRUITS

Survey Station ..... ALL TRUCK WEIGHING STATIONS - Totals from W1 to W3

TOTAL VEHICLE WEIGHT	SINGLE TRUCK CLASS 1	2	3	TOTAL	TRUCK COMBIN. TOTAL	ARTIC. TRUCK TOTAL	TOTAL FOR ALL TRUCKS
.1 - 5.0	2	0	0	2	0	0	2
5.1 - 10.0	58	0	0	58	0	0	58
10.1 - 15.0	39	0	0	39	0	0	39
15.1 - 20.0	29	0	0	29	0	0	29
20.1 - 30.0	12	0	0	12	1	1	14
30.1 - 40.0	0	0	0	0	2	0	2
40.1 - 50.0	0	0	0	0	1	0	1
50.1 - 60.0	0	0	0	0	0	0	0
60 1 - 70.0	0	0	0	0	1	0	1
70.1 - 80.0	0	0	0	0	0	0	0
80.1 - 90.0	0	0	0	0	0	0	0
90.1 OR MORE	0	0	0	0	0	0	0
TOTALS	140	0	0	140	5	1	146
AVERAGE	12.1	.0	.0	12.1	39.6	27.6	13.1

Table Description ..... NUMBER OF VEHICLES BY COMMODITY, TRUCK/TRAILER CATEGORY AND TOTAL MEASURED WEIGHT (TONNES)

Vehicle Type ..... SINGLE TRUCKS

Commodity Carried ..... OTHER AGRICULTURE

Survey Station ..... ALL TRUCK WEIGHING STATIONS - Totals from W1 to W3

TOTAL VEHICLE WEIGHT	SINGLE TRUCK CLASS				TRUCK COMBIN. TOTAL	ARTIC. TRUCK TOTAL	TOTAL FOR ALL TRUCKS
	1	2	3	TOTAL			
.1 - 5.0	3	0	0	3	0	0	3
5.1 - 10.0	5	0	0	5	0	0	5
10.1 - 15.0	3	1	0	4	0	0	4
15.1 - 20.0	4	0	0	4	0	0	4
20.1 - 30.0	0	0	0	0	1	1	2
30.1 - 40.0	0	0	0	0	9	2	11
40.1 - 50.0	0	0	0	0	5	1	6
50.1 - 60.0	0	0	0	0	0	0	0
60.1 - 70.0	0	0	0	0	1	0	1
70.1 - 80.0	0	0	0	0	0	0	0
80.1 - 90.0	0	0	0	0	0	0	0
90.1 OR MORE	0	0	0	0	0	0	0
TOTALS	15	1	0	16	16	4	36
AVERAGE	10.6	14.1	.0	10.9	39.0	35.6	26.1

Table Description ..... NUMBER OF VEHICLES BY COMMODITY, TRUCK/TRAILER CATEGORY AND TOTAL MEASURED WEIGHT (TONNES)

Vehicle Type ..... SINGLE TRUCKS

Commodity Carried ..... FOOD PRODUCTS

Survey Station ..... ALL TRUCK WEIGHING STATIONS - Totals from W1 to W3

TOTAL VEHICLE WEIGHT	SINGLE TRUCK CLASS				TRUCK COMBIN. TOTAL	ARTIC. TRUCK TOTAL	TOTAL FOR ALL TRUCKS
	1	2	3	TOTAL			
.1 - 5.0	12	0	0	12	0	0	12
5.1 - 10.0	43	0	0	43	0	0	43
10.1 - 15.0	33	0	0	33	0	0	33
15.1 - 20.0	27	0	0	27	1	0	28
20.1 - 30.0	4	1	0	5	12	1	18
30.1 - 40.0	0	0	0	0	18	2	20
40.1 - 50.0	0	0	0	0	9	4	13
50.1 - 60.0	0	0	0	0	22	4	26
60.1 - 70.0	0	0	0	0	11	0	11
70.1 - 80.0	0	0	0	0	6	0	6
80.1 - 90.0	0	0	0	0	0	0	0
90.1 OR MORE	0	0	0	0	1	0	1
TOTALS	119	1	0	120	80	11	211
AVERAGE	11.1	27.2	.0	11.2	47.7	45.3	26.8

Table Description ..... NUMBER OF VEHICLES BY COMMODITY, TRUCK/TRAILER CATEGORY AND TOTAL MEASURED WEIGHT (TONNES)

Vehicle Type ..... SINGLE TRUCKS

Commodity Carried ..... OTHER COMMODITIES

Survey Station ..... ALL TRUCK WEIGHING STATIONS - Totals from W1 to W3

TOTAL VEHICLE WEIGHT	SINGLE TRUCK CLASS 1	2	3	TOTAL	TRUCK COMBIN. TOTAL	ARTIC. TRUCK TOTAL	TOTAL FOR ALL TRUCKS
.1 - 5.0	64	0	0	64	0	0	64
5.1 - 10.0	173	0	0	173	0	0	173
10.1 - 15.0	160	1	0	161	4	0	165
15.1 - 20.0	97	2	0	99	17	3	119
20.1 - 30.0	40	9	0	49	27	23	99
30.1 - 40.0	0	3	0	3	26	10	39
40.1 - 50.0	0	0	0	0	35	7	42
50.1 - 60.0	0	0	0	0	26	25	51
60.1 - 70.0	0	0	0	0	23	1	24
70.1 - 80.0	0	0	0	0	8	0	8
80.1 - 90.0	0	0	0	0	1	0	1
90.1 OR MORE	0	0	0	0	0	0	0
TOTALS	534	15	0	549	167	69	785
AVERAGE	11.4	23.9	.0	11.8	42.4	39.3	20.7

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Table Description ..... NUMBER OF VEHICLES BY COMMODITY, TRUCK/TRAILER CATEGORY AND TOTAL MEASURED WEIGHT (TONNES)

Vehicle Type ..... SINGLE TRUCKS

Commodity Carried ..... ALL CARGO TYPES (EXCL EMPTY)

Survey Station ..... ALL TRUCK WEIGHING STATIONS - Totals from W1 to W3

TOTAL VEHICLE WEIGHT	SINGLE TRUCK CLASS 1	2	3	TOTAL	TRUCK COMBIN. TOTAL	ARTIC. TRUCK TOTAL	TOTAL FOR ALL TRUCKS
.1 - 5.0	88	0	0	88	0	0	88
5.1 - 10.0	345	3	0	348	0	0	348
10.1 - 15.0	429	2	0	431	5	1	437
15.1 - 20.0	335	4	0	339	19	4	362
20.1 - 30.0	193	27	0	220	55	35	310
30.1 - 40.0	1	34	0	35	97	33	165
40.1 - 50.0	0	1	0	1	114	35	150
50.1 - 60.0	0	0	0	0	121	72	193
60.1 - 70.0	0	0	0	0	118	22	140
70.1 - 80.0	0	0	0	0	49	2	51
80.1 - 90.0	0	0	0	0	9	0	9
90.1 OR MORE	0	0	0	0	2	0	2
TOTALS	1391	71	0	1462	589	204	2255
AVERAGE	13.4	27.9	.0	14.1	49.7	44.9	26.2

Table Description ..... NUMBER OF VEHICLES BY COMMODITY, TRUCK/TRAILER CATEGORY AND TOTAL MEASURED WEIGHT (TONNES)

Vehicle Type ..... SINGLE TRUCKS

Commodity Carried ..... NO CARGO - VEHICLE EMPTY

Survey Station ..... ALL TRUCK WEIGHING STATIONS - Totals from W1 to W3

TOTAL VEHICLE WEIGHT	SINGLE TRUCK CLASS 1	2	3	TOTAL	TRUCK COMBIN. TOTAL	ARTIC. TRUCK TOTAL	TOTAL FOR ALL TRUCKS
.1 - 5.0	51	0	0	51	0	0	51
5.1 - 10.0	110	5	0	115	3	0	118
10.1 - 15.0	4	13	0	17	22	6	45
15.1 - 20.0	0	0	0	0	21	17	38
20.1 - 30.0	0	0	0	0	3	8	11
30.1 - 40.0	0	0	0	0	0	0	0
40.1 - 50.0	0	0	0	0	0	0	0
50.1 - 60.0	0	0	0	0	0	0	0
60.1 - 70.0	0	0	0	0	0	0	0
70.1 - 80.0	0	0	0	0	0	0	0
80.1 - 90.0	0	0	0	0	0	0	0
90.1 OR MORE	0	0	0	0	0	0	0
TOTALS	165	18	0	183	49	31	263
AVERAGE	5.9	11.6	.0	6.4	14.8	18.3	9.4

Table Description ..... NUMBER OF VEHICLES BY COMMODITY, TRUCK/TRAILER CATEGORY AND TOTAL MEASURED WEIGHT (TONNES)

Vehicle Type ..... SINGLE TRUCKS

Commodity Carried ..... ALL CARGO TYPES (INCL. EMPTY)

Survey Station ..... ALL TRUCK WEIGHING STATIONS - Totals from W1 to W3

TOTAL VEHICLE WEIGHT	SINGLE TRUCK CLASS				TRUCK COMBIN. TOTAL	ARTIC. TRUCK TOTAL	TOTAL FOR ALL TRUCKS
	1	2	3	TOTAL			
.1 - 5.0	139	0	0	139	0	0	139
5.1 - 10.0	455	8	0	463	3	0	466
10.1 - 15.0	433	15	0	448	27	7	482
15.1 - 20.0	335	4	0	339	40	21	400
20.1 - 30.0	193	27	0	220	58	43	321
30.1 - 40.0	1	34	0	35	97	33	165
40.1 - 50.0	0	1	0	1	114	35	150
50.1 - 60.0	0	0	0	0	121	72	193
60.1 - 70.0	0	0	0	0	118	22	140
70.1 - 80.0	0	0	0	0	49	2	51
80.1 - 90.0	0	0	0	0	9	0	9
90.1 OR MORE	0	0	0	0	2	0	2
TOTALS	1556	89	0	1645	638	235	2518
AVERAGE	12.6	24.6	.0	13.2	47.0	41.4	24.4

Table Description ..... NUMBER OF VEHICLES BY COMMODITY, TRUCK/TRAILER CATEGORY AND TOTAL MEASURED WEIGHT (TONNES)

Vehicle Type ..... TRUCK COMBINATIONS

Commodity Carried ..... ALL CARGO TYPES (EXCL EMPTY)

Survey Station ..... ALL TRUCK WEIGHING STATIONS - Totals from W1 to W3

TOTAL VEHICLE WEIGHT	TRUCK - TRAILER CATEGORY									
	1/4	1/5	1/6	2/4	2/5	2/6	3/4	3/5	3/6	TOTAL
.1 - 5.0	0	0	0	0	0	0	0	0	0	0
5.1 - 10.0	0	0	0	0	0	0	0	0	0	0
10.1 - 15.0	5	0	0	0	0	0	0	0	0	5
15.1 - 20.0	19	0	0	0	0	0	0	0	0	19
20.1 - 30.0	52	2	0	1	0	0	0	0	0	55
30.1 - 40.0	85	6	0	5	1	0	0	0	0	97
40.1 - 50.0	95	17	0	1	1	0	0	0	0	114
50.1 - 60.0	77	34	0	7	3	0	0	0	0	121
60.1 - 70.0	3	89	0	1	23	0	0	2	0	118
70.1 - 80.0	0	19	0	0	30	0	0	0	0	49
80.1 - 90.0	0	0	0	0	9	0	0	0	0	9
90.1 OR MORE	0	0	0	0	2	0	0	0	0	2
TOTALS	336	167	0	15	69	0	0	2	0	589
AVERAGE	39.9	60.6	.0	45.2	71.9	.0	.0	62.5	.0	49.7

Table Description ..... NUMBER OF VEHICLES BY COMMODITY, TRUCK/TRAILER CATEGORY AND TOTAL MEASURED WEIGHT (TONNES)

Vehicle Type ..... ARTICULATED TRUCKS

Commodity Carried ..... ALL CARGO TYPES (EXCL EMPTY)

Survey Station ..... ALL TRUCK WEIGHING STATIONS - Totals from W1 to W3

TOTAL VEHICLE WEIGHT	TRUCK - TRAILER CATEGORY															TOTAL
	1/7	1/8	1/9	1/10	1/11	2/7	2/8	2/9	2/10	2/11	3/7	3/8	3/9	3/10	3/11	
.1 - 5.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5.1 - 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10.1 - 15.0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
15.1 - 20.0	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	4
20.1 - 30.0	0	9	2	10	0	0	5	5	4	0	0	0	0	0	0	35
30.1 - 40.0	0	13	1	7	0	0	4	5	3	0	0	0	0	0	0	33
40.1 - 50.0	0	5	0	17	0	0	7	3	3	0	0	0	0	0	0	35
50.1 - 60.0	0	15	1	26	0	0	6	16	8	0	0	0	0	0	0	72
60.1 - 70.0	0	0	0	9	0	0	0	6	7	0	0	0	0	0	0	22
70.1 - 80.0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	2
80.1 - 90.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
90.1 OR MORE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	1	46	4	69	1	0	22	35	25	0	0	0	0	0	1	204
AVERAGE	15.9	38.9	35.9	47.0	72.5	.0	40.3	48.7	49.1	.0	.0	.0	.0	.0	71.8	44.9

Table Description ..... NUMBER OF VEHICLES BY COMMODITY, TRUCK/TRAILER CATEGORY AND EQUIVALENT AXLES

Vehicle Type ..... SINGLE TRUCKS

Commodity Carried ..... PETROLEUM PRODUCTS

Survey Station ..... ALL TRUCK WEIGHING STATIONS - Totals from W1 to W3

CALCULATED EQUIVALENT AXLES	SINGLE TRUCK CLASS 1	2	3	TOTAL	TRUCK COMBIN. TOTAL	ARTIC. TRUCK TOTAL	TOTAL FOR ALL TRUCKS
.01 - .10	4	2	0	6	1	0	7
.11 - .50	6	0	0	6	1	1	8
.51 - 1.00	6	1	0	7	0	0	7
1.01 - 2.00	11	0	0	11	0	0	11
2.01 - 3.00	7	0	0	7	2	0	9
3.01 - 4.00	9	0	0	9	2	0	11
4.01 - 5.00	7	0	0	7	3	1	11
5.01 - 10.00	36	2	0	38	16	9	63
10.01 - 20.00	14	1	0	15	16	9	40
20.01 - 30.00	3	0	0	3	13	4	20
30.01 - 40.00	3	0	0	3	6	0	9
40.01 - 50.00	0	0	0	0	2	1	3
50.01 - 60.00	0	0	0	0	1	1	2
60.01 - 70.00	0	0	0	0	0	1	1
70.01 - 80.00	0	0	0	0	1	1	2
80.01 OR MORE	0	0	0	0	2	3	5
TOTALS	106	6	0	112	66	31	209
AVERAGE	7.0	3.7	.0	6.8	20.0	27.8	14.1

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Table Description ..... NUMBER OF VEHICLES BY COMMODITY, TRUCK/TRAILER CATEGORY AND EQUIVALENT AXLES

Vehicle Type ..... SINGLE TRUCKS

Commodity Carried ..... SAND AND GRAVEL

Survey Station ..... ALL TRUCK WEIGHING STATIONS - Totals from W1 to W3

CALCULATED EQUIVALENT AXLES	SINGLE TRUCK CLASS 1	2	3	TOTAL	TRUCK COMBIN. TOTAL	ARTIC. TRUCK TOTAL	TOTAL FOR ALL TRUCKS
.01 - .10	0	0	0	0	0	0	0
.11 - .50	5	0	0	5	0	0	5
.51 - 1.00	4	1	0	5	0	0	5
1.01 - 2.00	19	0	0	19	0	0	19
2.01 - 3.00	13	0	0	13	0	0	13
3.01 - 4.00	4	0	0	4	0	0	4
4.01 - 5.00	3	0	0	3	0	0	3
5.01 - 10.00	11	1	0	12	0	0	12
10.01 - 20.00	13	1	0	14	1	0	15
20.01 - 30.00	9	1	0	10	0	0	10
30.01 - 40.00	2	0	0	2	0	0	2
40.01 - 50.00	0	0	0	0	2	0	2
50.01 - 60.00	0	0	0	0	1	0	1
60.01 - 70.00	0	0	0	0	0	0	0
70.01 - 80.00	0	0	0	0	0	0	0
80.01 OR MORE	0	0	0	0	1	0	1
TOTALS	83	4	0	87	5	0	92
AVERAGE	7.6	12.7	.0	7.8	57.3	.0	10.5

Table Description ..... NUMBER OF VEHICLES BY COMMODITY, TRUCK/TRAILER CATEGORY AND EQUIVALENT AXLES

Vehicle Type ..... SINGLE TRUCKS

Commodity Carried ..... CEMENT

Survey Station ..... ALL TRUCK WEIGHING STATIONS - Totals from W1 to W3

CALCULATED EQUIVALENT AXLES	SINGLE TRUCK CLASS 1	2	3	TOTAL	TRUCK COMBIN. TOTAL	ARTIC. TRUCK TOTAL	TOTAL FOR ALL TRUCKS
.01 - .10	0	0	0	0	0	0	0
.11 - .50	3	0	0	3	0	0	3
.51 - 1.00	1	0	0	1	0	0	1
1.01 - 2.00	1	0	0	1	0	0	1
2.01 - 3.00	2	0	0	2	0	0	2
3.01 - 4.00	3	1	0	4	0	1	5
4.01 - 5.00	29	1	0	30	2	0	32
5.01 - 10.00	9	0	0	9	1	1	11
10.01 - 20.00	14	0	0	14	3	2	19
20.01 - 30.00	7	1	0	8	11	2	21
30.01 - 40.00	0	0	0	0	15	0	15
40.01 - 50.00	1	0	0	1	18	0	19
50.01 - 60.00	0	0	0	0	17	2	19
60.01 - 70.00	4	0	0	4	26	0	30
70.01 - 80.00	0	0	0	0	10	3	13
80.01 OR MORE	1	0	0	1	16	5	22
TOTALS	75	3	0	78	119	16	213
AVERAGE	13.1	11.4	.0	13.0	56.5	61.9	41.0

Table Description ..... NUMBER OF VEHICLES BY COMMODITY, TRUCK/TRAILER CATEGORY AND EQUIVALENT AXLES

Vehicle Type ..... SINGLE TRUCKS

Commodity Carried ..... OTHER BUILDING MATERIALS

Survey Station ..... ALL TRUCK WEIGHING STATIONS - Totals from W1 to W3

CALCULATED EQUIVALENT AXLES	SINGLE TRUCK CLASS 1	2	3	TOTAL	TRUCK COMBIN. TOTAL	ARTIC. TRUCK TOTAL	TOTAL FOR ALL TRUCKS
.01 - .10	10	0	0	10	0	0	10
.11 - .50	30	1	0	31	0	2	33
.51 - 1.00	26	0	0	26	0	6	32
1.01 - 2.00	21	4	0	25	0	2	27
2.01 - 3.00	24	1	0	25	0	0	25
3.01 - 4.00	13	2	0	15	1	2	18
4.01 - 5.00	18	2	0	20	2	0	22
5.01 - 10.00	54	9	0	63	2	6	71
10.01 - 20.00	32	15	0	47	9	1	57
20.01 - 30.00	24	5	0	29	10	3	42
30.01 - 40.00	14	0	0	14	10	2	26
40.01 - 50.00	6	0	0	6	10	2	18
50.01 - 60.00	4	0	0	4	12	1	17
60.01 - 70.00	1	0	0	1	8	2	11
70.01 - 80.00	0	0	0	0	5	0	5
80.01 OR MORE	1	0	0	1	9	1	11
TOTALS	278	39	0	317	78	30	425
AVERAGE	10.1	10.8	.0	10.1	46.8	19.8	17.6

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Table Description ..... NUMBER OF VEHICLES BY COMMODITY, TRUCK/TRAILER CATEGORY AND EQUIVALENT AXLES

Vehicle Type ..... SINGLE TRUCKS

Commodity Carried ..... TOTAL BUILDING MATERIALS

Survey Station ..... ALL TRUCK WEIGHING STATIONS - Totals from W1 to W3

CALCULATED EQUIVALENT AXLES	SINGLE TRUCK CLASS				TRUCK COMBIN. TOTAL	ARTIC. TRUCK TOTAL	TOTAL FOR ALL TRUCKS
	1	2	3	TOTAL			
.01 - .10	10	0	0	10	0	0	10
.11 - .50	38	1	0	39	0	2	41
.51 - 1.00	31	1	0	32	0	6	38
1.01 - 2.00	41	4	0	45	0	2	47
2.01 - 3.00	39	1	0	40	0	0	40
3.01 - 4.00	20	3	0	23	1	3	27
4.01 - 5.00	50	3	0	53	4	0	57
5.01 - 10.00	74	10	0	84	3	7	94
10.01 - 20.00	59	16	0	75	13	3	91
20.01 - 30.00	40	7	0	47	21	5	73
30.01 - 40.00	16	0	0	16	25	2	43
40.01 - 50.00	7	0	0	7	30	2	39
50.01 - 60.00	4	0	0	4	30	3	37
60.01 - 70.00	5	0	0	5	34	2	41
70.01 - 80.00	0	0	0	0	15	3	18
80.01 OR MORE	2	0	0	2	26	6	34
TOTALS	436	46	0	482	202	46	730
AVERAGE	10.1	11.0	.0	10.2	52.8	34.4	23.5

Table Description ..... NUMBER OF VEHICLES BY COMMODITY, TRUCK/TRAILER CATEGORY AND EQUIVALENT AXLES

Vehicle Type ..... SINGLE TRUCKS

Commodity Carried ..... CEREAL CROPS

Survey Station ..... ALL TRUCK WEIGHING STATIONS - Totals from W1 to W3

CALCULATED EQUIVALENT AXLES	SINGLE TRUCK CLASS 1	2	3	TOTAL	TRUCK COMBIN. TOTAL	ARTIC. TRUCK TOTAL	TOTAL FOR ALL TRUCKS
.01 - .10	3	0	0	3	0	0	3
.11 - .50	4	0	0	4	0	1	5
.51 - 1.00	0	0	0	0	0	0	0
1.01 - 2.00	3	0	0	3	0	0	3
2.01 - 3.00	4	0	0	4	2	0	6
3.01 - 4.00	3	0	0	3	0	1	4
4.01 - 5.00	6	0	0	6	4	0	10
5.01 - 10.00	13	1	0	14	2	1	17
10.01 - 20.00	5	1	0	6	8	7	21
20.01 - 30.00	0	0	0	0	3	2	5
30.01 - 40.00	0	0	0	0	8	3	11
40.01 - 50.00	0	0	0	0	8	5	13
50.01 - 60.00	0	0	0	0	5	2	7
60.01 - 70.00	0	0	0	0	6	6	12
70.01 - 80.00	0	0	0	0	0	6	6
80.01 OR MORE	0	0	0	0	7	8	15
TOTALS	41	2	0	43	53	42	138
AVERAGE	5.2	12.9	.0	5.6	41.7	54.8	34.4

Table Description ..... NUMBER OF VEHICLES BY COMMODITY, TRUCK/TRAILER CATEGORY AND EQUIVALENT AXLES

Vehicle Type ..... SINGLE TRUCKS

Commodity Carried ..... VEGTABLES AND FRUITS

Survey Station ..... ALL TRUCK WEIGHING STATIONS - Totals from W1 to W3

CALCULATED EQUIVALENT AXLES	SINGLE TRUCK CLASS 1	2	3	TOTAL	TRUCK COMBIN. TOTAL	ARTIC. TRUCK TOTAL	TOTAL FOR ALL TRUCKS
.01 - .10	26	0	0	26	0	0	26
.11 - .50	34	0	0	34	0	0	34
.51 - 1.00	2	0	0	2	0	1	3
1.01 - 2.00	12	0	0	12	0	0	12
2.01 - 3.00	11	0	0	11	0	0	11
3.01 - 4.00	16	0	0	16	1	0	17
4.01 - 5.00	6	0	0	6	1	0	7
5.01 - 10.00	16	0	0	16	1	0	17
10.01 - 20.00	14	0	0	14	0	0	14
20.01 - 30.00	2	0	0	2	1	0	3
30.01 - 40.00	0	0	0	0	0	0	0
40.01 - 50.00	0	0	0	0	1	0	1
50.01 - 60.00	0	0	0	0	0	0	0
60.01 - 70.00	1	0	0	1	0	0	1
70.01 - 80.00	0	0	0	0	0	0	0
80.01 OR MORE	0	0	0	0	0	0	0
TOTALS	140	0	0	140	5	1	146
AVERAGE	3.9	.0	.0	3.9	16.4	.7	4.3

Table Description ..... NUMBER OF VEHICLES BY COMMODITY, TRUCK/TRAILER CATEGORY AND EQUIVALENT AXLES

Vehicle Type ..... SINGLE TRUCKS

Commodity Carried ..... OTHER AGRICULTURE

Survey Station ..... ALL TRUCK WEIGHING STATIONS - Totals from W1 to W3

CALCULATED EQUIVALENT AXLES	SINGLE TRUCK CLASS 1	2	3	TOTAL	TRUCK COMBIN. TOTAL	ARTIC. TRUCK TOTAL	TOTAL FOR ALL TRUCKS
.01 - .10	3	0	0	3	0	0	3
.11 - .50	6	1	0	7	0	0	7
.51 - 1.00	1	0	0	1	1	0	2
1.01 - 2.00	0	0	0	0	1	2	3
2.01 - 3.00	1	0	0	1	0	0	1
3.01 - 4.00	1	0	0	1	1	1	3
4.01 - 5.00	0	0	0	0	1	0	1
5.01 - 10.00	3	0	0	3	6	0	9
10.01 - 20.00	0	0	0	0	3	0	3
20.01 - 30.00	0	0	0	0	1	1	2
30.01 - 40.00	0	0	0	0	1	0	1
40.01 - 50.00	0	0	0	0	1	0	1
50.01 - 60.00	0	0	0	0	0	0	0
60.01 - 70.00	0	0	0	0	0	0	0
70.01 - 80.00	0	0	0	0	0	0	0
80.01 OR MORE	0	0	0	0	0	0	0
TOTALS	15	1	0	16	16	4	36
AVERAGE	2.0	.2	.0	1.9	11.7	6.4	6.7

Table Description ..... NUMBER OF VEHICLES BY COMMODITY, TRUCK/TRAILER CATEGORY AND EQUIVALENT AXLES

Vehicle Type ..... SINGLE TRUCKS

Commodity Carried ..... FOOD PRODUCTS

Survey Station ..... ALL TRUCK WEIGHING STATIONS - Totals from W1 to W3

CALCULATED EQUIVALENT AXLES	SINGLE TRUCK CLASS 1	2	3	TOTAL	TRUCK COMBIN. TOTAL	ARTIC. TRUCK TOTAL	TOTAL FOR ALL TRUCKS
.01 - .10	35	0	0	35	0	0	35
.11 - .50	25	0	0	25	1	1	27
.51 - 1.00	18	0	0	18	0	0	18
1.01 - 2.00	5	0	0	5	6	0	11
2.01 - 3.00	3	0	0	3	4	1	8
3.01 - 4.00	6	0	0	6	1	0	7
4.01 - 5.00	9	1	0	10	2	0	12
5.01 - 10.00	11	0	0	11	13	1	25
10.01 - 20.00	5	0	0	5	9	2	16
20.01 - 30.00	1	0	0	1	6	1	8
30.01 - 40.00	0	0	0	0	10	1	11
40.01 - 50.00	0	0	0	0	1	2	3
50.01 - 60.00	0	0	0	0	3	0	3
60.01 - 70.00	0	0	0	0	11	0	11
70.01 - 80.00	1	0	0	1	5	1	7
80.01 OR MORE	0	0	0	0	8	1	9
TOTALS	119	1	0	120	80	11	211
AVERAGE	2.9	4.2	.0	2.9	35.8	33.8	17.0

Table Description ..... NUMBER OF VEHICLES BY COMMODITY, TRUCK/TRAILER CATEGORY AND EQUIVALENT AXLES

Vehicle Type ..... SINGLE TRUCKS

Commodity Carried ..... OTHER COMMODITIES

Survey Station ..... ALL TRUCK WEIGHING STATIONS - Totals from W1 to W3

CALCULATED EQUIVALENT AXLES	SINGLE TRUCK CLASS 1	2	3	TOTAL	TRUCK COMBIN. TOTAL	ARTIC. TRUCK TOTAL	TOTAL FOR ALL TRUCKS
.01 - .10	146	0	0	146	1	0	147
.11 - .50	118	2	0	120	17	4	141
.51 - 1.00	37	1	0	38	6	8	52
1.01 - 2.00	50	5	0	55	11	9	75
2.01 - 3.00	26	3	0	29	10	10	49
3.01 - 4.00	14	0	0	14	7	1	22
4.01 - 5.00	27	1	0	28	3	3	34
5.01 - 10.00	71	1	0	72	11	13	96
10.01 - 20.00	24	0	0	24	23	4	51
20.01 - 30.00	14	2	0	16	24	2	42
30.01 - 40.00	4	0	0	4	19	2	25
40.01 - 50.00	0	0	0	0	12	4	16
50.01 - 60.00	3	0	0	3	10	1	14
60.01 - 70.00	0	0	0	0	5	2	7
70.01 - 80.00	0	0	0	0	5	1	6
80.01 OR MORE	0	0	0	0	3	5	8
TOTALS	534	15	0	549	167	69	785
AVERAGE	3.4	5.1	.0	3.4	22.7	18.8	8.9

Table Description ..... NUMBER OF VEHICLES BY COMMODITY, TRUCK/TRAILER CATEGORY AND EQUIVALENT AXLES

Vehicle Type ..... SINGLE TRUCKS

Commodity Carried ..... ALL CARGO TYPES (EXCL EMPTY)

Survey Station ..... ALL TRUCK WEIGHING STATIONS - Totals from W1 to W3

CALCULATED EQUIVALENT AXLES	SINGLE TRUCK CLASS 1	2	3	TOTAL	TRUCK COMBIN. TOTAL	ARTIC. TRUCK TOTAL	TOTAL FOR ALL TRUCKS
.01 - .10	227	2	0	229	2	0	231
.11 - .50	231	4	0	235	19	9	263
.51 - 1.00	95	3	0	98	7	15	120
1.01 - 2.00	122	9	0	131	18	13	162
2.01 - 3.00	91	4	0	95	18	11	124
3.01 - 4.00	69	3	0	72	13	6	91
4.01 - 5.00	105	5	0	110	18	4	132
5.01 - 10.00	224	14	0	238	52	31	321
10.01 - 20.00	121	18	0	139	72	25	236
20.01 - 30.00	60	9	0	69	69	15	153
30.01 - 40.00	23	0	0	23	69	8	100
40.01 - 50.00	7	0	0	7	55	14	76
50.01 - 60.00	7	0	0	7	49	7	63
60.01 - 70.00	6	0	0	6	56	11	73
70.01 - 80.00	1	0	0	1	26	12	39
80.01 OR MORE	2	0	0	2	46	23	71
TOTALS	1391	71	0	1462	589	204	2255
AVERAGE	5.8	8.9	.0	6.0	35.8	31.6	16.1

Table Description ..... NUMBER OF VEHICLES BY COMMODITY, TRUCK/TRAILER CATEGORY AND EQUIVALENT AXLES

Vehicle Type ..... SINGLE TRUCKS

Commodity Carried ..... NO CARGO - VEHICLE EMPTY

Survey Station ..... ALL TRUCK WEIGHING STATIONS - Totals from W1 to W3

CALCULATED EQUIVALENT AXLES	SINGLE TRUCK CLASS 1	2	3	TOTAL	TRUCK COMBIN. TOTAL	ARTIC. TRUCK TOTAL	TOTAL FOR ALL TRUCKS
.01 - .10	137	5	0	142	16	0	158
.11 - .50	28	13	0	41	32	27	100
.51 - 1.00	0	0	0	0	1	2	3
1.01 - 2.00	0	0	0	0	0	2	2
2.01 - 3.00	0	0	0	0	0	0	0
3.01 - 4.00	0	0	0	0	0	0	0
4.01 - 5.00	0	0	0	0	0	0	0
5.01 - 10.00	0	0	0	0	0	0	0
10.01 - 20.00	0	0	0	0	0	0	0
20.01 - 30.00	0	0	0	0	0	0	0
30.01 - 40.00	0	0	0	0	0	0	0
40.01 - 50.00	0	0	0	0	0	0	0
50.01 - 60.00	0	0	0	0	0	0	0
60.01 - 70.00	0	0	0	0	0	0	0
70.01 - 80.00	0	0	0	0	0	0	0
80.01 OR MORE	0	0	0	0	0	0	0
TOTALS	165	18	0	183	49	31	263
AVERAGE	.1	.2	.0	.1	.2	.4	.1

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AXLE WEIGHT SURVEY TABULATIONS

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Table Description ..... NUMBER OF VEHICLES BY COMMODITY, TRUCK/TRAILER CATEGORY AND EQUIVALENT AXLES

Vehicle Type ..... SINGLE TRUCKS

Commodity Carried ..... ALL CARGO TYPES (INCL. EMPTY)

Survey Station ..... ALL TRUCK WEIGHING STATIONS - Totals from W1 to W3

CALCULATED EQUIVALENT AXLES	SINGLE TRUCK CLASS 1	2	3	TOTAL	TRUCK COMBIN. TOTAL	ARTIC. TRUCK TOTAL	TOTAL FOR ALL TRUCKS
.01 - .10	364	7	0	371	18	0	389
.11 - .50	259	17	0	276	51	36	363
.51 - 1.00	95	3	0	98	8	17	123
1.01 - 2.00	122	9	0	131	18	15	164
2.01 - 3.00	91	4	0	95	18	11	124
3.01 - 4.00	69	3	0	72	13	6	91
4.01 - 5.00	105	5	0	110	18	4	132
5.01 - 10.00	224	14	0	238	52	31	321
10.01 - 20.00	121	18	0	139	72	25	236
20.01 - 30.00	60	9	0	69	69	15	153
30.01 - 40.00	23	0	0	23	69	8	100
40.01 - 50.00	7	0	0	7	55	14	76
50.01 - 60.00	7	0	0	7	49	7	63
60.01 - 70.00	6	0	0	6	56	11	73
70.01 - 80.00	1	0	0	1	26	12	39
80.01 OR MORE	2	0	0	2	46	23	71
TOTALS	1556	89	0	1645	638	235	2518
AVERAGE	5.2	7.2	.0	5.3	33.1	27.5	14.4

Table Description ..... NUMBER OF VEHICLES BY COMMODITY, TRUCK/TRAILER CATEGORY AND EQUIVALENT AXLES

Vehicle Type ..... TRUCK COMBINATIONS

Commodity Carried ..... ALL CARGO TYPES (EXCL EMPTY)

Survey Station ..... ALL TRUCK WEIGHING STATIONS - Totals from W1 to W3

EQUIVALENT VEHICLE AXLES	TRUCK - TRAILER CATEGORY									
	1/4	1/5	1/6	2/4	2/5	2/6	3/4	3/5	3/6	TOTAL
.01 - .10	2	0	0	0	0	0	0	0	0	2
.11 - .50	19	0	0	0	0	0	0	0	0	19
.51 - 1.00	6	0	0	1	0	0	0	0	0	7
1.01 - 2.00	14	1	0	2	1	0	0	0	0	18
2.01 - 3.00	16	0	0	2	0	0	0	0	0	18
3.01 - 4.00	10	2	0	1	0	0	0	0	0	13
4.01 - 5.00	15	3	0	0	0	0	0	0	0	18
5.01 - 10.00	45	5	0	0	2	0	0	0	0	52
10.01 - 20.00	48	8	0	4	10	0	0	2	0	72
20.01 - 30.00	39	15	0	3	12	0	0	0	0	69
30.01 - 40.00	33	23	0	1	12	0	0	0	0	69
40.01 - 50.00	22	23	0	0	10	0	0	0	0	55
50.01 - 60.00	20	16	0	1	12	0	0	0	0	49
60.01 - 70.00	21	32	0	0	3	0	0	0	0	56
70.01 - 80.00	7	17	0	0	2	0	0	0	0	26
80.01 OR MORE	19	22	0	0	5	0	0	0	0	46
TOTALS	336	167	0	15	69	0	0	2	0	589
AVERAGE	27.1	52.9	.0	16.0	42.3	.0	.0	14.5	.0	35.8

Table Description ..... NUMBER OF VEHICLES BY COMMODITY, TRUCK/TRAILER CATEGORY AND EQUIVALENT AXLES

Vehicle Type ..... ARTICULATED TRUCKS

Commodity Carried ..... ALL CARGO TYPES (EXCL EMPTY)

Survey Station ..... ALL TRUCK WEIGHING STATIONS - Totals from W1 to W3

EQUIVALENT VEHICLE AXLES	TRUCK - TRAILER CATEGORY															TOTAL
	1/7	1/8	1/9	1/10	1/11	2/7	2/8	2/9	2/10	2/11	3/7	3/8	3/9	3/10	3/11	
.01 - .10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
.11 - .50	0	2	0	0	0	0	2	4	1	0	0	0	0	0	0	9
.51 - 1.00	1	4	0	3	0	0	3	3	1	0	0	0	0	0	0	15
1.01 - 2.00	0	3	0	3	0	0	2	3	2	0	0	0	0	0	0	13
2.01 - 3.00	0	4	2	2	0	0	1	1	1	0	0	0	0	0	0	11
3.01 - 4.00	0	1	0	2	0	0	1	1	1	0	0	0	0	0	0	6
4.01 - 5.00	0	1	0	0	0	0	2	1	0	0	0	0	0	0	0	4
5.01 - 10.00	0	9	0	4	0	0	4	11	3	0	0	0	0	0	0	31
10.01 - 20.00	0	3	1	5	0	0	7	9	0	0	0	0	0	0	0	25
20.01 - 30.00	0	2	0	8	0	0	0	2	3	0	0	0	0	0	0	15
30.01 - 40.00	0	1	0	5	0	0	0	0	1	0	0	0	0	0	1	8
40.01 - 50.00	0	6	1	2	0	0	0	0	5	0	0	0	0	0	0	14
50.01 - 60.00	0	2	0	4	0	0	0	0	1	0	0	0	0	0	0	7
60.01 - 70.00	0	2	0	6	0	0	0	0	3	0	0	0	0	0	0	11
70.01 - 80.00	0	4	0	7	0	0	0	0	1	0	0	0	0	0	0	12
80.01 OR MORE	0	2	0	18	1	0	0	0	2	0	0	0	0	0	0	23
TOTALS	1	46	4	69	1	0	22	35	25	0	0	0	0	0	1	204
AVERAGE	.8	26.7	16.1	53.7	109.0	.0	7.1	7.3	35.5	.0	.0	.0	.0	.0	36.5	31.6

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AXLE WEIGHT SURVEY TABULATIONS

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Table Description ..... NUMBER OF AXLE GROUPS BY TRUCK/TRAILER CATEGORY AND TYRE CLASS

Vehicle Type ..... SINGLE TRUCKS

Survey Station ..... ALL TRUCK WEIGHING STATIONS - Totals from W1 to W3

TYRE CLASS	SINGLE TRUCK CLASS 1	2	3	TOTAL	TRUCK COMBIN. TOTAL	ARTIC. TRUCK TOTAL	TOTAL FOR ALL TRUCKS
Axle Group Type ..... SINGLE AXLE - FRONT							
Single Tyre	1555	89	0	1644	636	234	2514
Dual Tyres	1	0	0	1	0	0	1
Mixed Tyres	0	0	0	0	0	0	0
Total	1556	89	0	1645	636	234	2515
Axle Group Type ..... SINGLE AXLE - OTHER							
Single Tyre	10	0	0	10	19	1	30
Dual Tyres	1546	0	0	1546	1550	351	3447
Mixed Tyres	0	0	0	0	0	0	0
Total	1556	0	0	1556	1569	352	3477
Axle Group Type ..... TANDEM AXLE - FRONT							
Single Tyre	0	0	0	0	0	1	1
Dual Tyres	0	0	0	0	2	0	2
Mixed Tyres	0	0	0	0	0	0	0
Total	0	0	0	0	2	1	3
Axle Group Type ..... TANDEM AXLE - OTHER							
Single Tyre	0	0	0	0	1	0	1
Dual Tyres	0	89	0	89	341	183	613
Mixed Tyres	0	0	0	0	3	0	3
Total	0	89	0	89	345	183	617
Axle Group Type ..... TRIDEM AXLE							
Single Tyre	0	0	0	0	0	0	0
Dual Tyres	0	0	0	0	0	43	43
Mixed Tyres	0	0	0	0	0	0	0
Total	0	0	0	0	0	43	43
Axle Group Type ..... ALL AXLE TYPES							
Single Tyre	1565	89	0	1654	656	236	2546
Dual Tyres	1547	89	0	1636	1893	577	4106
Mixed Tyres	0	0	0	0	3	0	3
Total	3112	178	0	3290	2552	813	6655

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AXLE WEIGHT SURVEY TABULATIONS

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Table Description ..... NUMBER OF AXLE GROUPS BY TRUCK/TRAILER CATEGORY AND TYRE CLASS

Vehicle Type ..... TRUCK COMBINATIONS

Survey Station ..... ALL TRUCK WEIGHING STATIONS - Totals from W1 to W3

TYRE CLASS	TRUCK - TRAILER CATEGORY									
	1/4	1/5	1/6	2/4	2/5	2/6	3/4	3/5	3/6	TOTAL
Axle Group Type ..... SINGLE AXLE - FRONT										
Single Tyre	368	180	0	15	73	0	0	0	0	636
Dual Tyres	0	0	0	0	0	0	0	0	0	0
Mixed Tyres	0	0	0	0	0	0	0	0	0	0
Total	368	180	0	15	73	0	0	0	0	636
Axle Group Type ..... SINGLE AXLE - OTHER										
Single Tyre	8	6	0	0	5	0	0	0	0	19
Dual Tyres	1096	354	0	30	68	0	0	2	0	1550
Mixed Tyres	0	0	0	0	0	0	0	0	0	0
Total	1104	360	0	30	73	0	0	2	0	1569
Axle Group Type ..... TANDEM AXLE - FRONT										
Single Tyre	0	0	0	0	0	0	0	0	0	0
Dual Tyres	0	0	0	0	0	0	0	2	0	2
Mixed Tyres	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	2	0	2
Axle Group Type ..... TANDEM AXLE - OTHER										
Single Tyre	0	0	0	0	1	0	0	0	0	1
Dual Tyres	0	180	0	14	143	0	0	4	0	341
Mixed Tyres	0	0	0	1	2	0	0	0	0	3
Total	0	180	0	15	146	0	0	4	0	345
Axle Group Type ..... TRIDEM AXLE										
Single Tyre	0	0	0	0	0	0	0	0	0	0
Dual Tyres	0	0	0	0	0	0	0	0	0	0
Mixed Tyres	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0
Axle Group Type ..... ALL AXLE TYPES										
Single Tyre	376	186	0	15	79	0	0	0	0	656
Dual Tyres	1096	534	0	44	211	0	0	8	0	1893
Mixed Tyres	0	0	0	1	2	0	0	0	0	3
Total	1472	720	0	60	292	0	0	8	0	2552

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Table Description ..... NUMBER OF AXLE GROUPS BY TRUCK/TRAILER CATEGORY AND TYRE CLASS

Vehicle Type ..... ARTICULATED TRUCKS

Survey Station ..... ALL TRUCK WEIGHING STATIONS - Totals from W1 to W3

TYRE CLASS	TRUCK - TRAILER CATEGORY															TOTAL
	1/7	1/8	1/9	1/10	1/11	2/7	2/8	2/9	2/10	2/11	3/7	3/8	3/9	3/10	3/11	
Axle Group Type ..... SINGLE AXLE - FRONT																
Single Tyre	1	56	5	74	1	0	29	38	30	0	0	0	0	0	0	234
Dual Tyres	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mixed Tyres	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	1	56	5	74	1	0	29	38	30	0	0	0	0	0	0	234
Axle Group Type ..... SINGLE AXLE - OTHER																
Single Tyre	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Dual Tyres	2	55	5	222	4	0	0	0	60	0	0	0	0	0	3	351
Mixed Tyres	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	2	56	5	222	4	0	0	0	60	0	0	0	0	0	3	352
Axle Group Type ..... TANDEM AXLE - FRONT																
Single Tyre	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Dual Tyres	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mixed Tyres	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Axle Group Type ..... TANDEM AXLE - OTHER																
Single Tyre	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dual Tyres	0	56	0	0	0	0	58	38	30	0	0	0	0	0	1	183
Mixed Tyres	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	56	0	0	0	0	58	38	30	0	0	0	0	0	1	183
Axle Group Type ..... TRIDEM AXLE																
Single Tyre	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dual Tyres	0	0	5	0	0	0	0	38	0	0	0	0	0	0	0	43
Mixed Tyres	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	5	0	0	0	0	38	0	0	0	0	0	0	0	43
Axle Group Type ..... ALL AXLE TYPES																
Single Tyre	1	57	5	74	1	0	29	38	30	0	0	0	0	0	1	236
Dual Tyres	2	111	10	222	4	0	58	76	90	0	0	0	0	0	4	577
Mixed Tyres	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	3	168	15	296	5	0	87	114	120	0	0	0	0	0	5	813

Table Description ..... NUMBER OF AXLE GROUPS BY TYPE OF AXLE GROUP, TYRES AND MEASURED AXLE GROUP LOAD (EXCL. EMPTY TRUCKS)

Vehicle Type ..... ALL TRUCK TYPES

Survey Station ..... ALL TRUCK WEIGHING STATIONS - Totals from W1 to W3

MEASURED AXLE LOAD (TONNES)	SINGLE AXLE		TANDEM AXLE			TRIDEM AXLE			TOTALS
	Single Tyre	Dual Tyre	Single Tyre	Dual Tyres	Mixed Tyres	Single Tyre	Dual Tyres	Mixed Tyres	
.01 - 2.00	115	33	0	0	0	0	0	0	148
2.01 - 4.00	704	176	0	2	0	0	0	0	882
4.01 - 6.00	657	324	0	3	0	0	0	0	984
6.01 - 8.00	537	321	0	4	0	0	0	0	862
8.01 - 10.00	243	369	0	19	0	0	5	0	636
10.01 - 12.00	10	496	0	20	0	0	0	0	526
12.01 - 14.00	4	497	1	20	0	0	1	0	523
14.01 - 16.00	5	455	0	33	0	0	3	0	496
16.01 - 18.00	4	346	0	25	0	0	2	0	377
18.01 - 20.00	0	88	0	49	0	0	2	0	139
20.01 - 22.00	0	18	0	61	3	0	2	0	84
22.01 - 24.00	0	0	0	75	0	0	0	0	75
24.01 - 26.00	0	0	1	100	0	0	4	0	105
26.01 - 28.00	0	0	0	74	0	0	9	0	83
28.01 - 30.00	0	0	0	37	0	0	5	0	42
30.01 - 32.00	0	0	0	19	0	0	3	0	22
32.01 - 34.00	0	0	0	2	0	0	1	0	3
34.01 - 36.00	0	0	0	0	0	0	1	0	1
36.01 - 38.00	0	0	0	1	0	0	1	0	2
38.01 - 40.00	0	0	0	0	0	0	0	0	0
40.01 OR MORE	0	0	0	0	0	0	0	0	0
TOTALS	2279	3123	2	544	3	0	39	0	5990
AVERAGE	5.2	11.0	18.9	21.7	20.5	.0	22.2	.0	9.9
AXLE GROUPS ABOVE 6.00 TONNES									
TOTAL	803	2590	2	539	3	0	39	0	3976
PERCENT	35.2	82.9	100.0	99.1	100.0	.0	100.0	.0	66.4
AXLE GROUPS ABOVE 10.00 TONNES									
TOTAL	23	1900	2	516	3	0	34	0	2478
PERCENT	1.0	60.8	100.0	94.9	100.0	.0	87.2	.0	41.4
AXLE GROUPS ABOVE 16.00 TONNES									
TOTAL	4	452	1	443	3	0	30	0	933
PERCENT	.2	14.5	50.0	81.4	100.0	.0	76.9	.0	15.4
AXLE GROUPS ABOVE 22.00 TONNES									
TOTAL	0	0	1	308	0	0	24	0	333
PERCENT	.0	.0	50.0	56.6	.0	.0	61.5	.0	5.6

Table Description ..... NUMBER OF AXLE GROUPS BY TYPE OF AXLE GROUP, TYRES AND CALCULATED EQUIVALENT AXLES (EXCL. EMPTY TRUCKS)

Vehicle Type ..... ALL TRUCK TYPES

Survey Station ..... ALL TRUCK WEIGHING STATIONS - Totals from W1 to W3

CALCULATED EQUIVALENT AXLES	SINGLE AXLE		TANDEM AXLE			TRIDEM AXLE			TOTALS
	Single Tyre	Dual Tyre	Single Tyre	Dual Tyres	Mixed Tyres	Single Tyre	Dual Tyres	Mixed Tyres	
.01 - .10	996	324	0	21	0	0	6	0	1347
.11 - .50	648	360	0	40	0	0	6	0	105'
.51 - 1.00	292	190	1	24	0	0	3	0	510
1.01 - 2.00	271	248	0	38	3	0	2	0	562
2.01 - 3.00	45	170	0	38	0	0	11	0	264
3.01 - 4.00	8	136	0	34	0	0	3	0	181
4.01 - 5.00	4	165	0	31	0	0	4	0	204
5.01 - 10.00	4	492	0	145	0	0	3	0	644
10.01 - 20.00	3	502	1	140	0	0	1	0	647
20.01 - 30.00	4	287	0	30	0	0	0	0	321
30.01 - 40.00	3	150	0	2	0	0	0	0	155
40.01 - 50.00	1	50	0	0	0	0	0	0	51
50.01 - 60.00	0	25	0	1	0	0	0	0	26
60.01 - 70.00	0	11	0	0	0	0	0	0	11
70.01 - 80.00	0	8	0	0	0	0	0	0	8
80.01 OR MORE	0	5	0	0	0	0	0	0	5
TOTALS	2279	3123	2	544	3	0	39	0	5990
AVERAGE	.6	9.8	6.8	7.9	1.2	.0	2.4	.0	6.1