Government of the People's Republic of Bangladesh
Ministry of Communications
Roads and Highways Department

MANUAL CLASSIFIED TRAFFIC COUNTS

INSTRUCTION GUIDE

OCTOBER 2001

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1. INTRODUCTION

1.1 THIS GUIDE

This guide is designed for use by all Roads and Highways Department (RHD) staff involved in conducting manual classified traffic counts (MCC's) in Bangladesh. The guide sets out the standard procedures for conducting an MCC as well as standard forms for recording the data. These procedures have to be rigorously followed in all counts. This guide Version 2, which was previously issued December 1997, has been up-dated uniformly with RHD standard manuals format and incorporates some minor editorial changes: no amendments have been made to the methodology.

This guide is accessible on the RHD Intranet:

F:\ManagementSvcs\Idc3_DFID\02rhd\09StandardDocs\TrafficCounts\Traffic Counts Manual.doc

1.2 WHAT IS A MANUAL CLASSIFIED TRAFFIC COUNT?

A manual classified count (MCC) involves counting all the vehicles passing a selected location on a road for a pre-determined period of time. The count can be for any duration, but is usually conducted for sixteen or twenty four hours in a day, and for three or four days consecutively.

The count is conducted by persons standing at the roadside and recording passing vehicles on a form, hence the term "*manual traffic count*". This distinguishes it from counts by machines that can record passing vehicles automatically, which are known as "automatic traffic counts".

The count records individual vehicles by categories (i.e. a truck or car) and the direction they are travelling in. This is the reason it is called a *'classified count'.*

1.3 WHY COUNT TRAFFIC?

Accurate information on the amount of traffic on the roads of Bangladesh is vital for the planning of both road maintenance and improvement policies.

As the government has a limited amount of money to spend on the road network it is vital that this is spent in the best possible way, i.e. in a planned way.

To do this, the Roads and Highways Department directs investment to those roads with the worst traffic problems. They cannot do this without information on traffic volumes, which you are required to provide.

If you get this data wrong, then the RHD will invest in the wrong roads and waste valuable resources, which means wasting taxpayers money: your money.

1.4 REQUIREMENTS FOR TRAFFIC COUNTS

1.4.1 The National Traffic Census

Most MCC's will take place in November/December as part of the Roads and Highways Department's annual nation-wide traffic census. Instructions for this are released from the Network Management Wing every September. All National and Regional roads are counted every year and Feeder Roads once every three years.

The location of the counting stations (traffic census stations) is set out in the RHD Traffic Stations Gazette. All counts on a link must be conducted at the same station.

The information collected in these surveys will be used to determine priorities for the annual maintenance budget and it is vital that the data is accurate and collected on time.

1.4.2 Project Traffic Counts

MCC's will also be required on a periodic basis for proposed development projects, such as the construction of a new road or bridge. Generally, you will be advised where to conduct these counts. If, however, the description of where and when to conduct the count is not clear please follow the guidelines in Section 2.

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2. GUIDELINES FOR LOCATION OF CENSUS STATIONS AND TIMING OF COUNTS

2.1 LOCATION OF TRAFFIC CENSUS STATIONS

Wherever possible counts should be conducted at the National Census stations set out in the RHD Traffic Stations Gazette. However, if that is not possible or an alternative location is required the location of the census station should be chosen with some care. In general, the traffic counted should be representative of the average traffic flow on a particular section of road. The count should, therefore, not be conducted at locations where traffic is abnormally high on a section of road, i.e. in a village or near to a factory. The following criteria set out some useful guidelines for site selection.

(i) Using judgement and local knowledge choose a location where the traffic flow is typical of the average flow on the road under question.

(ii) Avoid the following locations:

- Built up areas (as a general rule stations should not be located closer than 3km to major towns)
- Market places
- Road junctions
- Bus stops/lorry stops

(iii) The station should be so located that enumerators can take shelter in case of inclement weather and still observe the traffic. A lighted location would be of advantage for counts conducted after daylight.

(iv) Enumerators should have good vision of traffic approaching from both directions. Avoid locating the station on bends or at places where trees/buildings obscure vision.

2.2 TIMING OF COUNTS

The standard MCC will be conducted for 16 hours from 06:00 to 22:00 and for three consecutive days. Counts should be conducted on days for which the traffic flow is typical of an average day of the week. The Monsoon season should be avoided. Generally the best months for counting will be from November to March. Within these months the following days should be avoided:

(i) Public holidays

(ii) School holidays

(iii) Hartal days

(iv) Fridays

(v) Any days when you know from local knowledge that traffic flows will be unusual, i.e. local religious ceremonies, high harvest traffic, high construction traffic.

3. ORGANISATION

3.1 STAFF REQUIREMENTS

The number of persons required to conduct the count will be dependent on the volume of the traffic flow. A minimum of two enumerators will be required at all times, one to count vehicles in each direction of traffic flow. A supervisor will also be required at all times. The supervisor will be responsible for ensuring that the enumerator are filling the forms in correctly, collating the completed forms and acting as a relief for the counters to provide breaks during the shift.

In general, one traffic counting team will work for an 8 hour shift. The following table gives an indication of the number of staff required according to the volume of traffic flow for 16 and 24 hour counts, assuming the standard 8 hour shift for each counting team.

Consideration will have to be given for transport to site and possible overnight accommodation if the site is distant from the base.

Table 1 Staff Requirements for Standard 16 and 24 hour counts

	16 hour count (2 shifts)			24 hour count (3 shifts)		
Traffic Volume (Vehicles per day)	Enumerators	Supervisors	Total Staff	Enumerators	Supervisors	Total Staff
0 - 10,000	4	2	6	6	3	9
10,000 +	8	2	10	12	3	15

3.2 TIMING

Unless otherwise instructed the standard MCC will be conducted for 16 hours form 06:00 to 22:00 and for three consecutive days (excluding Friday). The first shift will count from 06:00-14:00 and the second from 14:00-22:00. If a 24 hour count is required a third shift will count from 22:00-06:00.

3.3 EQUIPMENT REQUIREMENTS

The supervisor will require a watch. It would be preferable if the enumerators also had watches as well but this is not vital. Clipboards, with a weatherproof covering will also be required for each of the team members on a shift together with pencils, erasers and sharpeners.

The equipment requirements for a standard team of two enumerators and one supervisor would be:

- 1 nos. Watch (preferably with alarm)
- 3 nos. Clipboards with waterproof covering
- 6 nos. Pencils
- 2 nos. Pencil sharpeners, erasers
- 1 nos. Paper File (to store forms in)
- 8 nos. Traffic count tally sheets (4 plus spares)
- 2 nos. Daily summary sheets (1 plus spare)
- 3 nos. Vehicle Identification Sheets
- 1 nos. Supervisors Check List

4. CONDUCTING THE COUNT

4.1 GENERAL

Vehicles are recorded onto a standard form, the Traffic Count Tally Sheet, (Form MCC/01), a copy of which is attached in Section 6 of this document.

Data is recorded in hourly time segments in order that variations in traffic flow over the day can be identified. Data is also recorded in both directions of travel. Traffic is classified into the thirteen standard categories, which are described in Section 5.

4.2 PRIOR TO STARTING

The first shift will assemble at the station half an hour before the count is due to start. The supervisor will issue a Traffic Count Tally Sheet (form MCC/01) attached to a clipboard to each enumerator, together with a pencil. The enumerators will then fill in details of the count on the top of the sheet, according to the supervisor's instructions, as follows:

- Name of road: Road name (i.e. Dhaka- Tongi)
- Road number: RHD number (i.e. N3)
- Direction from: Name of nearest large town traffic is coming from (i.e. Dhaka)
- Direction to: Name of nearest large town traffic is going to (i.e. Tongi)
- Date: Date of count (DD/MM/YY)
- Station Name: RHD station name (i.e. Banani)
- Station Reference: RHD station reference number (i.e. N3a)
- Counter: Name of counter
- Supervisor: Name of supervisor

Finally, the enumerator will enter the starting hour of the count in the left hand "Hours Counted" column. An example of a completed form is shown on the following page.

4.3 COUNTING

The supervisor will direct the enumerators to their assigned sides of the road five minutes prior to the start. At the start the supervisor will announce the start of the count and the counters will begin to record **all** vehicles passing on their side of the road. A five bar tally should be used (see example sheet).

In most circumstances one row of the tally sheet should be used to record one hours traffic flow, as on the first two rows of the example sheet. If, however, there is not sufficient space to do this the counter should move onto the second row, taking care that he marks this in the hours column, as is shown on rows three and four of the example sheet.

At the end of each hour the supervisor will tell the counters to move to the next time band on the tally sheet. Prior to the end of each four hour period the supervisor will prepare the tally sheets for the next four hour period and hand these out.

ROADS AND HIGHWAYS DEPARTMENT **TRAFFIC COUNT TALLY SHEET** Sheet : 1 of 1

Name of Road : DHAKA - TONGI Road No. : N3 Direction From : BANANI To : TONGI

Station Name : BANANI Station Number : N3a Date: 25 / 10 / 01 (DD / MM / YY)

Enumerator : EKRAM Supervisor : NAZMUL **EXAMPLE**

	MOTORISED										NON-MOTORISED		
	1	2	3	4	5	6	7	8	9	10	11	12	13
HOURS COUNTED	Heavy Truck	Medium Truck	Small Truck	Large Bus	Mini Bus	Microbus	Utility	Car	Auto Rickshaw	Motor Cycle	Bicycle	Cycle Rickshaw	Animal/Push Cart
06 : 00 to 07 : 00	1	𝍸 𝍸 𝍸 III	III	𝍸 𝍸 𝍸	𝍸 II	III	II	III	𝍸 II	II	IIII	𝍸 II	II
07 : 00 to 08 : 00	II	𝍸 𝍸 𝍸 𝍸 𝍸 III	𝍸 II	𝍸 𝍸 𝍸	𝍸 II	𝍸 III	III	𝍸 III	𝍸 III	IIII	𝍸	𝍸 𝍸	IIII
08 : 00 to :	IIII	𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸	𝍸 𝍸 𝍸 III	𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸	𝍸 𝍸 𝍸 III	𝍸 𝍸 III	𝍸 𝍸 𝍸 II	𝍸 𝍸 𝍸 II	𝍸 𝍸 𝍸 𝍸 IIII	𝍸 II	𝍸 𝍸 𝍸 III	𝍸 𝍸 𝍸 𝍸 𝍸	𝍸 III
: to 09 : 00		𝍸 𝍸 𝍸 𝍸		𝍸 𝍸 𝍸 𝍸 𝍸 𝍸									

Form MCC/01

4.4 HIGH TRAFFIC VOLUMES

If traffic volumes are above 10,000 vehicles per day two enumerators will be used for each direction. One will record trucks and buses (Categories 1-5) and the other light vehicles (Categories 6-13).

4.5 SUPERVISION

The supervisor will ensure that the enumerators are filling in the tally sheets correctly. He will also act as a relief to the enumerators allowing them to have alternate meal breaks.

In addition to these duties the supervisor will be responsible for completing a short report on the shifts count. This will be done on form MCC/03 Traffic Count Report. This should include a brief summary of the weather conditions, and incidents that may have affected the validity of the count (especially accidents or road closures in the vicinity of the count station). Holidays and Hat days should be recorded in the next space. The final space if for any additional comments, these may relate to absent enumerators or time periods missed for various reasons.

The supervisor should add up the tallies and enter the hourly totals on the daily traffic summary sheet (Form MCC/02). Unless otherwise directed the supervisor is not required to add up any totals and should not fill in the grey shaded areas on the form.

At the end of the shift the supervisor should collate all the sheets in order and number each of them in the space in the top right hand corner of the form (sheet.....of.....). These should then be attached to the bottom of the report with a tag and returned to the Zonal Planning, Monitoring and Evaluation Circle by the supervisor.

A check list is attached to this section to help the supervisor ensure all the activities are achieved. A copy of this should be kept by each supervisor and the items ticked off during the survey.

Supervisors Check List

Time of Check	Item to be Checked	Checked
Day before count	• Traffic Count Tally Sheets MCC/01	
	• Daily Traffic Summary Sheets MCC/02	
	• Traffic Count Reports MCC/03	
	• Vehicle Identification Sheets	
	• Clipboards	
	• Pencils/erasers/sharpeners	
	• Watch	
Day of count before start	• Issue clipboard with forms	
	• Form correctly filled in	
Start	• Announce start	
During count	• Categories correctly recorded	
	• Announce change of hour every hour	
	• Enumerators using correct row on form	
	• Tally Sheets replaced after four hours (or earlier if required)	
	• Daily Traffic Summary Sheet filled in	
After finish	• Complete Traffic Report and Daily Traffic Summary sheet	
	• Attach Tally Sheets and Summary Sheet to Report	
	• Return completed forms to headquarters	

5. VEHICLE CLASSIFICATIONS

Vehicles have to be recorded according to the following thirteen categories. To help with identification a *Vehicle Identification Sheet,* showing pictures of typical vehicles in each category, is attached on the following page. Each enumerator should be provided with a copy of this when counting. The following list gives a brief description of the vehicles to be included in each category.

Category	Type	Description
1.	Heavy Truck	Three or more axles. Includes multi-axle tandem trubcks, container carriers and other articulated vehicles.
2.	Medium Truck	All 2-axle rigid trucks over three tonnes payload. Typical medium trucks are the Hindustan Bedford, "English" Bedford and Hino trucks of about 10 tonnes gross vehicle weight. Agricultural tractors and trailers are also included in this category.
3.	Light Truck	Small trucks up to 3 tonne payload. The most typical example is the Jeep based conversion.
4.	Large Bus	More than 40 seats on 36 foot or longer chassis. Includes double decker buses.
5.	Minibus	Between 16 and 39 seats. Typical minibuses are the TATA 909 and Hindustan Mascot.
6.	Microbus	Up to 16 seats. Typical microbuses are the 12/15 seat Toyota Hi-ace, and the Mitsubishi L300.
7.	Utility	Pick-ups, jeeps and four wheels drive vehicles, such as Pajero's and LandRover's.
8.	Car/Taxi	All types of car used either for personal or taxi services.
9.	Baby-taxi	Includes Babytaxi and Mishuks
10.	Tempo	Auto-Tempo and Auto-Vans.
11.	Motor Cycle	All two wheeled motorised vehicles.
12.	Bicycle	All pedal cycles.
13.	Rickshaw Standard	Three wheeled cycle rickshaws (not rickshaw vans)
14.	Rickshaw Van	Rickshaw vans
15.	Cart	All animal and manually drawn/pushed carts.

6. STANDARD FORMS

The attached forms are to be used in all counts.

Form	Reference
❑ Traffic Count Tally Sheet	MCC/01
❑ Daily Traffic Summary Sheet	MCC/02
❑ Traffic Count Report	MCC/03
❑ Supervisors Check List	MCC/04

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VEHICLE IDENTIFICATION SHEET (PAGE 1)
TRUCKS AND BUSES

No.	CATEGORY	CHARACTERISTICS	TYPICAL VEHICLES			
1	HEAVY TRUCK	3 OR MORE AXLES				
2	MEDIUM TRUCK	2 AXLES OVER THREE TONNES UNLOADED WEIGHT				
3	LIGHT TRUCK	2 AXLES UNDER THREE TONNES UNLOADED WEIGHT				
4	LARGE BUS	OVER 39 SEATS				
5	MINI BUS	16-39 SEATS				

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VEHICLE IDENTIFICATION SHEET (PAGE 2)
LIGHT MOTORISED VEHICLES

No.	CATEGORY	CHARACTERISTICS	TYPICAL VEHICLES
6	MICROBUS	LESS THAN 16 SEATS	
7	UTILITY	PICK UPS AND FOUR WHEEL DRIVE VEHICLES	  
8	CAR	ALL CARS AND TAXIS	 
9	BABY TAXI	BABY TAXIS AND MISHUKS	 
10	TEMPO	AUTO TEMPOS AND AUTO VANS	 

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VEHICLE IDENTIFICATION SHEET (PAGE 3)
NON MOTORISED VEHICLES

No.	CATEGORY	CHARACTERISTICS	TYPICAL VEHICLES			
11	MOTOR CYCLE	ALL TWO WHEELED MOTORISED VEHICLES				
12	BICYCLE	PUSH BICYCLE				
13	RICKSHAW STANDARD	ALL THREE WHEELED NON MOTORISED VEHICLES				
14	RICKSHAW VAN	ALL THREE WHEELED NON MOTORISED VEHICLES				
15	CART	ALL ANIMAL AND PERSON DRAWN/PUSHED CARTS				

ROADS AND HIGHWAYS DEPARTMENT **TRAFFIC COUNT TALLY SHEET** Sheet :.....of.....

Name of Road :..... Road No. : ..... Direction From : ..... To : .....

Station Name :..... Station Number :..... Date:...../...../.....
DD MM YY

Enumerator : ..... Supervisor : .....

	MOTORISED										NON-MOTORISED		
	1	2	3	4	5	6	7	8	9	10	11	12	13
HOURS COUNTED	**Heavy Truck**	**Medium Truck**	**Small Truck**	**Large Bus**	**Mini Bus**	**Microbus**	**Utility**	**Car**	**Auto Rickshaw**	**Motor Cycle**	**Bicycle**	**Cycle Rickshaw**	**Animal/Push Cart**
: to :													
: to :													
: to :													
: to :													

Form MCC/01

ROADS AND HIGHWAYS DEPARTMENT **DAILY TRAFFIC SUMMARY SHEET**

Road Name: ..... **Road Number:** …… **Station Name:** ..... **Station Ref:** ..... **Zone:** ..... **Circle:** .....

Date: ...../...../..... **Directions of count** **To:** ..... **Hours Counted** **From:** ....:.... Hours **To:** ....:.... Hours

(DD/MM/YY) **From:** ..... **Supervisor:** .....

	1 Heavy Truck		2 Medium Truck		3 Small Truck		4 Large Bus		5 Medium Bus		6 Micro Bus		7 Utility		8 Car		9 Auto-Rickshaw		10 Motor Cycle		11 Bicycle		12 Cycle-Rickshaw		13 Cart		Total Motor	Total Non-M	Grand Total
Time	To	From	To	From	To	From	To	From	To	From	To	From	To	From	To	From	To	From	To	From	To	From	To	From	To	From			
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22:00-23:00																													
23:00-24:00																													
Tot. One Way																													
Tot. Two Way																													

Date completed: ...../...../..... By:.....

Note to Traffic Count Supervisors: Do not fill in grey shaded areas unless requested to. (DD/MM/YY) (Signature)

FORM MCC/02

ROADS AND HIGHWAYS DEPARTMENT **TRAFFIC COUNT REPORT**

Road Name:..... Road Number :.....

Station Name:..... Station Number:.....

Date :...../...../..... Shift From:.....Hrs To:.....Hrs
DD MM YY

Supervisors Name :.....

Weather :

Incidents :

Holidays/Hats :

Other Comments :

..../...../..... **Form : MCC/03**
Signature of Supervisor Date (DD/MM/YY)

Supervisors Check List For MCC

Time of Check	Item to be Checked	Checked
Day before count	• Traffic Count Tally Sheets MCC/01	
	• Daily Traffic Summary Sheets MCC/02	
	• Traffic Count Reports MCC/03	
	• Vehicle Identification Sheets	
	• Clipboards	
	• Pencils/erasers/sharpeners	
	• Watch	
Day of count before start	• Issue clipboard with forms	
	• Form correctly filled in	
Start	• Announce start	
During count	• Categories correctly recorded	
	• **Announce change of hour every hour**	
	• Enumerators using correct row on form	
	• Tally Sheets replaced after four hours (or earlier if required)	
	• Daily Traffic Summary Sheet filled in	
After finish	• Complete Traffic Report and Daily Traffic Summary sheet	
	• Attach Tally Sheets and Summary Sheet to Report	
	• Return completed forms to headquarters	

Form MCC/04