1. ROADS

1.1 INTRODUCTION

A road network is a valuable Government asset and failure to maintain the roads that form the network will lead to their rapid deterioration which in turn will lead to increases in road user costs and accidents and the need for expensive reconstruction works. Well-maintained roads make a valuable contribution towards the country’s economy.

This guide is accessible on the RHD Intranet.

1.2 ROADS UNDER ROADS & HIGHWAYS DEPARTMENT

The main road network of the country is under Roads and Highways Department (RHD). Maintenance of the roads including bridges is carried out by RHD. There is approximately 20,850 km of roads under this department.

The road network capable to carry vehicles has increased significantly and is increasing every year.

Bangladesh government realises the importance of road maintenance and the RHD has given more emphasis on this subject. Only a few years back there was no proper planning and system for road maintenance. Therefore International agencies assisted the Government of Bangladesh to address and solve the problem.

RHD has created an HDM Circle within the department. The HDM Circle will assist with road maintenance planning and implementation by using modern technology. "The Road Condition Survey" is a step forward for the government in order to achieve proper road maintenance.

1.3 ROAD CLASSIFICATION

The Roads and Highways Department (RHD) within the Ministry of Communications, is responsible for the management of approximately 20,850 km comprising three categories of road classes; National, Regional and Feeder type ‘A’ roads.

1.3.1 National Highways

National Highways are defined as Highways connecting national capital with different divisional and old district headquarters port cities and international highways.

These roads have been categorised as National Highways considering the national importance and geographical positions. Each National Highway has been provided
with a name and a number, such as Dhaka-Chittagong Highway has been numbered **N-1** whereas N stands for National. This number can only be changed by RHD head quarter.

### 1.3.2 Regional Highways

Regional Highways are defined as Highways connecting different regions and new district headquarters not connected by National Highways Feeder Road.

Regional Highways are named after National Highways of national importance. Names and numbers of these highways are decided such as Comilla-Lalmai, **R-140**, whereas R stands for Regional meaning the Region. This number can only be changed by RHD head quarter.

### 1.3.3 Feeder Road

Feeder Roads are defined as Roads connecting Upazila head quarters and other important rural centres (growth centres) with the existing Road network.

These connecting roads are defined as Feeder Roads. There are two types of Feeder roads. Feeder road - Type A and Feeder road - Type B. Name and numbers of these roads are decided such as Akhaura-Agartala, **F-1203** whereas F stands for feeder.

### 1.4 ROAD LINK

#### 1.4.1 Definition

Every road has been divided into one or more links. Every link has got a link name and a number, such as Moulavibazar-Fenchuganj-Sylhet road, **N-28**, which has got three links; (1) Moulavibazar-Rajnagar **link no. 322**, (2) Rajnagar- Fenchuganj **link no. 323**, (3) Fenchuganj-Sylhet **link no. 324**.

#### 1.4.2 Same Road and Link number

Some roads have not been divided in to more than one link. Road number and link number is same, such as Brahmanbaria-Lalpur, which has got road number **F- 1210** and also link number **1210**.

#### 1.4.3 Link conditions

Links are not dependent on distance. Links depend on important places, traffic volume, road intersections and other factors. A link will be named and start with 0
kilometres where it begins and proceed towards the next link and measure its length in kilometres. Thereafter the next link will also start with 0 kilometres and measure the link length as previously described. The RHD head quarter has prepared these links and provided them with a number. Therefore only the RHD head quarter is allowed to change these.

1.4.4 Survey order

The Road condition survey should start from the beginning of the link name and proceed towards the end of the link name. If the survey is started from the opposite side, it will not be useful. If any place or any bridge is mentioned by K.M. it means the distance of the place or the bridge from beginning of that particular link.

1.5 ROAD COMPONENT

Different Road Components are shown in the figure on next page.
1.5.1 Road components

The road Embankment is build with earth. Earth is filled and Compacted up to the required height. The Pavement is constructed on the top for traffic movement. Earth at the bottom of the pavement is called the Sub-grade. The Base Course is placed on top of it in two or more than two layers. Finally the Surface Course is placed on top of it. The Shoulder on both sides of the pavement is for the pedestrian, light vehicle movement and car park.

The Pavement has slopes on both sides from the centre of the road. This slope is called the Camber and has its own Camber Design. Sometimes this camber is also called Crossfall. Each Embankment has Slopes on both sides according to the design. At the end of the toe of the Slope, the earth is prepared such so that the Embankment remains stable. This part is called Berm.

2. ROAD MAINTENANCE

2.1 WHY MAINTENANCE

Of all the possible types of spending on the road network Preventive Maintenance is the most beneficial. This is because a small amount of money on timely maintenance can preserve the huge initial expenditure that was made at the time of construction.

Maintenance expenditure saves money in two ways. Firstly it reduces the overall costs to the roads agency (in this case the RHD). Secondly it reduces the costs to the road users.

Maintenance is done to keep the vehicle operating cost lower. There will be less accident and the road will reach its design life when properly maintained. It will have satisfactory level of economic rate of return.

2.2 TYPE OF MAINTENANCE

Preventive maintenance is usually classed as either Routine or Periodic. Routine maintenance consists of minor works that must be carried out at frequent intervals, usually several times a year. Periodic maintenance consists of actions that must be carried out every few years

2.2.1 Routine Maintenance