

Introduction

1.1 Role of Transportation

The importance of transportation in the development of a country is multidimensional. Transportation is vital for the economic development of any region, since every product produced such as food, clothing, industrial products or medicine needs transport at all stages from production to distribution.

The inadequate transportation facilities retard the process of socio- economic development of a country. All human beings are interacting over distance and time for food, shelter, work, business, recreation and security. All agricultural and industrial raw materials, products and equipments are needed to be transported from one place.

1.2 Different Modes of Transportation

Three basic mode of transports are:

- (i) Land: Road Transport, Railway Transport
- (ii) Water: Water ways
- (iii) Air: Airways

The four major modes of transportation are:

- | | |
|--------------|-------------|
| 1. Roadways | 2. Railways |
| 3. Waterways | 4. Airways |

In this book, we will discussed about the roadways or highways in the succeeding units.

1.3 Roadways or Highways

Road transport is one of the most common mode of transport. The transportation by road is the only mode which could give maximum service to one and all. This mode also has the maximum flexibility for travel with reference to route, direction, time and speed of travel etc. through any mode of road vehicle. Door to door service can only be provided by road transport.

The planning, design, construction and maintenance of road and roadway facilities need of road traffic are covered under Highway Engineering.

1.4 Characteristics of Road Transport

- (i) Roads have ability to accommodate various types of vehicles at a time, like passenger cars, trucks, pedal cycles and animal drawn vehicles.
- (ii) Road transport requires a relatively low capital investment for the government.
- (iii) Road transport offers a complete freedom to road users to transfer the vehicle from one lane to another and from one road to another according to the need and convenience.
- (iv) In particular for short distance travels, road transport saves time.
- (v) Road transport is the only means of transport that offers itself to the whole community alike.

1.5 Importance of Roads in India

Road development in India has contributed greatly to the increment in agricultural, commercial and industrial sectors. It is essential to provide road links between the villages and market centres.

Overall economic progress can be achieved, only if reasonably adequate transport facilities are made available between the villages and commercial centres. Road development also generates considerable employment potential.

Revenue from the road transport in India has been much higher than the investment made on road development plans.

1.6 Classification of Rural Roads

The roads are classified on the basis of:

1. Traffic volume:
 - (a) Heavy
 - (b) Medium
 - (c) Light
2. Load Transport:
 - (a) Class A
 - (b) Class B etc.
3. Nagpur road plan classified roads into following 5 categories based on location and function
 - (a) National Highway
 - (b) State Highway
 - (c) Major District Roads
 - (d) Other District Roads
 - (e) Village Roads

1.7 Classification of Urban Roads

The urban roads are classified as:

1. Arterial roads
2. Sub arterial roads
3. Collector streets
4. Local streets
5. Expressways

1.8 Scope of Highway Engineering

Highway engineering deals with the following broad elements:

- (i) Planning and Location
- (ii) Alignment selection and Geometric design
- (iii) Pavement design
- (iv) Materials, Construction and Maintenance
- (v) Traffic operations and it's control
- (vi) Economics, Finance and Administration
- (vii) Environmental and Social aspects

