

## **ROADS**

Transportation is a non-separable part of any society and is responsible for the development of civilizations. It meets travel requirement of people and transport requirement of goods and it is one of the key infrastructures of a country & considered a mark of its progress.

The roles of transportation in society are:

- Advancement of community
- Economic prosperity and general development of a country
- Strategic movement in emergency
- Safety, Pollution, Energy consumption
- Other impacts

Roadways or Highways are one of the primary modes of transportation. Roads provide best bet for achieving inclusive growth of our society than any other modes of transport. Following are the characteristics of roadways

- Maximum flexibility for travel
  - ✓ Route, Direction, Time and Speed
  - ✓ Safety decreases
- Door to door service
- Feeder system for other modes
- Used by various types of vehicles
- For short distance travel – saves time
- Requires relatively small investment

India has the second largest road network in the world, next only to USA. However, large stretches of our roads still suffer from deficiencies in road geometry and riding quality resulting in hazardous conditions and poor road safety. Civil engineers face the challenge of designing safe highways and at the same time improving the operational speeds of the vehicles to reduce the travel time.

### **Classification of Roads**

Based on road pavement

- Paved roads
- Unpaved roads

Based on use during different seasons

- All-weather roads
- Fair-weather roads

Based on traffic volume

- Heavy
- Medium and
- Light traffic

Based on tonnage

- Class I, II etc. or Class A, B etc.

Based on location and function

Non-Urban Roads – as per Nagpur Road Plan

- National Highways (NH)
- State Highways (SH)
- Major District Roads (MDR)
- Other District Roads (ODR)
- Village Roads (VR)

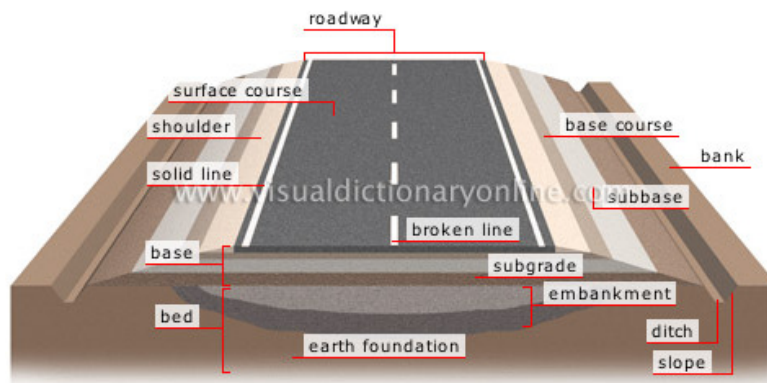
Non-Urban Roads – as per third road development plan

- Primary system – Expressways and NH
- Secondary system – SH and MDR
- Tertiary system or rural roads – ODR and VR

Urban Roads

- Arterial roads
- Sub-arterial roads
- Collector streets
- Local streets

## Components of a Road



**Typical section of a roadway**

A roadway consists of Geometric Elements and Structural Elements. The geometric elements are the visible elements across the roadway while the various layers in the carriage way constitute the structural elements. The geometric elements include Cross section Elements, Sight distance considerations, Horizontal and Vertical alignment details, and Intersection elements. The structural elements consist of typical layers of varying thicknesses and materials. The common layers in a roadway are: Soil Subgrade, Sub-base course, Base course and Surface course.

-----