

SECTION 3-PARTS OF A ROAD

0118. Essentially a road consists of two main parts; a carriageway on which the vehicles move and a drainage system which, by keeping the carriageway firm, enables vehicles to keep moving. Whenever possible, shoulders, which are strips of ground between the carriageway and the side drains, should be provided to give a road lateral stability.

0119. Drainage System Efficient drainage of the roadway is vital to prevent deterioration of the pavement and of the underlying subgrade. The drainage system normally comprises six elements:

- a. Crossfall or Camber. The haping of the upper surface of the subgrade (the formation) and of the pavement to spill the water to one or both sides of the carriageway. The highest point of a cambered road is termed the crown.
- b. Channels. Shallow depressions at the sides of the carriageway in which the water spilled by camber or crossfall is first collected.
- c. Grips. Shallow trenches cut through the shoulders to carry away water collected in the channels.
- d. Side Drains. Trenches cut at a little distance from the edge of the carriageway to collect water from the grips, and surface water from the surrounding country flowing towards the road, and lead it to disposal points. Side drains must have a longitudinal gradient to remove water to the desired disposal points, usually at culverts.
- e. Intercepting Drains. Whenever necessary, intercepting or catchwater drains should be provided clear of the side drains to prevent surface water from reaching the road from outside areas; these drains are commonly needed on hillsides.
- f. Culverts. Enclosed drainage channels under the road to carry a natural watercourse across a road, or water from the uphill side drain to disposal.
- g. Surface water is spilled from the road surface either by camber (outwards from the crown) or by cross fall (transverse slope in on direction).

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- h. Subsoil drainage is sometimes necessary to remove water reaching the subgrade by percolation.

0120. Carriage Way. The part of the road used by vehicles. The carriageway may be single-lane, double-lane, or multi-lane construction. A lane being the width of carriageway required to accommodate one line of traffic. It entails treating the natural ground (subgrade) by clearing, shaping, compacting and consolidating. The resulting surface is termed as the formation. Then it follows the laying, compacting and consolidating, in turn, the sub-base, the base and the surfacing, which together make up the pavement.

The main features of carriage way are:-

- a. The formation (surface of the subgrade) must be formed to the correct shape.
- b. The pavement or surfacing layer is designed to spread the load on the subgrade, to provide a wearing surface and of keep out water.
- c. Width gradient and curvature are governed by the standards laid down.
- d. Increased width and super-elevation are required on curves of short radius.

0121. Shoulders (formerly called “verges”). Their main purpose is to support the edges of the road, but they also allow vehicles to draw clear of the carriageway in emergency. In military road construction the shoulders usually form a continuation of the camber.

0122. In civilian practice, arterial and main roads have raised shoulders. In this case, channels are formed along the edges of the carriage-way, from which water reaches the side drains by way of grips cut through the shoulders.

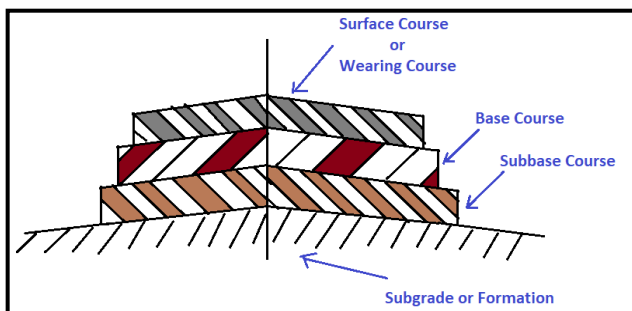


Figure 1-2: Components of Roads

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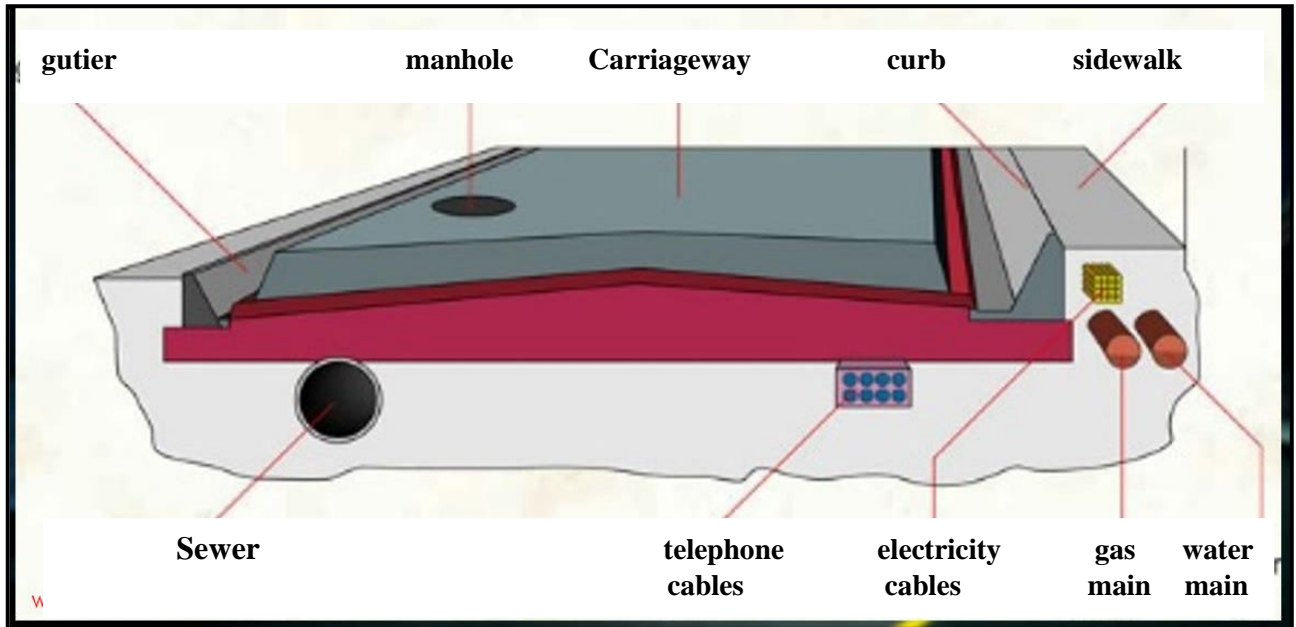


Figure 1-3: Cross Section of Parts of Roads

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