SECTION 2-ROAD CAPACITY

0112. Required road capacity may be expressed as:-

a. The number of vehicles which can be moved along the road in one direction in a given time, or

b. The tonnage (in long, metric, or short tons) that can be transported in one direction in a given time.

0113. Specified road capacity affects the road standards adopted, especially as regards width (number of traffic lanes), gradient, and curvature. The standard of construction is also governed by the maximum load class of vehicles and the life required of the road.

0114. Load class. The maximum load class to be allowed on the route must be laid down because excessive loads may cause the breakdown of bridges and culverts, if not of the road structure. Corresponding maximum wheel loads for various load classes are given in Table 7.1

0115. Design loads. Roads for sustained wheeled traffic should be designed for a 10,000-1b wheel load. Roads to carry a large volume of tracked traffic should be designed for not less than a 15,000-1b wheel load. Pavement design is dealt with in Chapter 7.

Volume of traffic

0116. Theoretical capacity. The maximum theoretical capacity of one traffic lane, with vehicles travelling at uniform speed and spacing, is given by the expression;

$$N = \frac{5280V}{1}$$

Where, N=number of vehicles per hour
V=constant speed (mph)
I=spacing of vehicles, center to center (ft)

0117. Actual Capacity.

a. Actual capacity is reduced by variations in speed and spacing, by road surface conditions, and by interference caused by traffic intersections, bottlenecks, and gradients.

b. The over-all capacity of a route is that of the most restricted portion of the route.

c. The average flow of a close column varies directly with speed up to 25 mph. At greater speeds increased spacing is necessary and the rate of flow remains virtually constant.

d. Average maximum capacity, at a speed of 25 mph, is approximately 750 vehicles per hour per traffic lane, provided that there is no marked interference from cross-traffic, adverse road conditions, or bottlenecks