WIDTH AND ALLOCATION OF SPACE IN ROADS.*

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I N approaching the subject of "the width and allocation of space in roads" one is at once struck by the impracticability of attempting too much in the way of standardization. There is such a large diversity, for instance, in what may be termed the "quality" of traffic, that two roads carrying the same number of vehicles may require quite different widths. As an illustration of what I mean, take the heavy and slow moving traffic in a road serving the docks, and compare it with an equal volume of fast moving motor traffic on an ordinary road; the latter will only require about a third of the width necessary for the former.

Collection of Statistics.—It will be appreciated, therefore, at the outset that a careful classification of roads is needed, having as the chief consideration the prevailing type of traffic, and secondly, the volume of such traffic. A great deal of preliminary investigation is required in order to obtain accurate statistics for both the classification and subsequent design.

A certain amount of work of this kind has been done in more or less isolated cases up and down the country, and the investigations of the London Traffic Branch of the Board of Trade made for some of the principal London streets afford a valuable example of the method in which these inquiries should be conducted.

Observations were made on weekdays in both summer and winter, which showed that while there was considerably more passenger traffic in summer, the commercial traffic remained fairly steady throughout the year.

The fluctuations in volume during the day were, of course, very marked in and near the city, where the full stream of the morning influx and the evening exodus was felt, and the maximum volume was found to be on the whole about twice the average. Provision should be made in consequence for the maximum traffic.

The distinguishing between through and local traffic ^{was} found to be difficult of accomplishment, but this information is of the greatest importance, and some means of obtaining it must be found.

The mere number of vehicles passing does not afford sufficient data, and a scale of values was adopted, based on the amount of obstruction caused by the various types of vehicles, having regard to their size, speed and flexibility

It is essential to assign values to the various classes of vehicle, for it is obvious that a heavy and slow moving goods lorry is a far greater obstruction, owing to its slowness and lack of flexibility, than, for instance, a taxicab, and the measure of the capacity of a street is therefore not its capacity of providing for such and such a number of vehicles, but for so many units of obstruction.

I have tried so far—very imperfectly, I know—to give a brief outline of the kind of data that it is desirable to collect for the purpose of determining the volume of traffic which has to be dealt with, and before I pass on to the use of this data in designing the road I would like to put in a plea for a systematic traffic census to be taken throughout the country twice a year—summer and winter. In this way we should accumulate statistics which would prove of inestimable value to town planners at a relatively insignificant cost

*From a paper read at a meeting of the Town Planning Institute, held on March 10th, 1916. **Determination of Width.**—While the great complexity of modern traffic—the mixture of fast and slow, cumbrous and flexible, local and through—makes it almost impossible to determine mathematically the utmost carrying capacity of a road, or conversely to calculate the necessary width for a given volume, it is possible from a consideration of—(I) The nature of the district, (2) the class of traffic, (3) the general importance of the traffic, (4) the observed volume of the traffic, to determine from general principles the number of lines of traffic to provide for, and hence the width of road to allow.

Provision must, of course, be made for the future, and it is here that the lack of reliable records handicaps us a good deal.

In our eagerness to avoid the costly mistake of underestimating future needs, we must guard against providing excessive width where it will never be required.

In this connection there is one very important safeguard in the hands of the town planner, which, however, requires careful and discriminating use.

It is possible—and indeed it should be the basis of 'design—so to plan the streets as regards position, direction, gradient, and width that the character of the street is definitely settled. Traffic streets should always be the widest, most direct, and best graded, and there should be no inducement for traffic to leave them and invade the quiet and seclusion of the residential roads.

The importance of settling the character of the street in this way can hardly be over-estimated.

It has the great advantage of enabling the designer to consecrate his energies on the provision of adequate width where it is certain to be wanted, and it furthermore has the most beneficial effect on the property fronting the various types of street, for where the character of the street is settled there is no risk of it being spoilt for its particular purpose, and its value is therefore assured.

This brings us at once to the need for classifying roads according to their use. They naturally divide themselves into two principal classes—traffic roads and residential roads.

Traffic roads lend themselves to sub-division under numerous headings, but it will be convenient to limit them to main avenues, main streets, secondary streets, local streets, boulevards and parkways.

Main Avenues.—The function of the main avenue is to form the chief artery by means of which traffic from one of the trunk roads of the country enters or leaves the city.

It will be desirable to provide for either a service of motor omnibuses, a surface tramway, or an underground tramway, or possibly some combination of these. My own personal feeling is that the motor omnibus will gradually oust the tramcar from the streets, and that tramways will develop much more on the lines of electric railways, and be located consequently either in a shallow subway under the road or, where space permits, in an open cutting.

Up till now it has been usual to allow at least one double track of tramway on the surface in proposals for main avenues, and the Advisory Board of Engineers to the Royal Commission on London Traffic, 1905, suggested that, in addition to a double track of fast trams in the centre of the road, there should be a line of stopping cars on each side, while they also provide a subway to take double tracks for both fast and slow electric trains. These proposals are perhaps excessive, and I think they might very well be limited to a double track for trains on the surface, and a subway with a double track for electric trains.

The number of lines of ordinary traffic which should be provided is essentially a matter which ought to be