

bituminous surface is most satisfactory. It is suggested that for traffic exceeding 500 vehicles per day and not exceeding 750 vehicles per day, a macadam road with bituminous surface treatment should be used; and for traffic exceeding 750 vehicles per day and not exceeding 1,000 vehicles per day, a substantially built asphalt macadam construction should be used. Traffic exceeding 1,000 vehicles per day

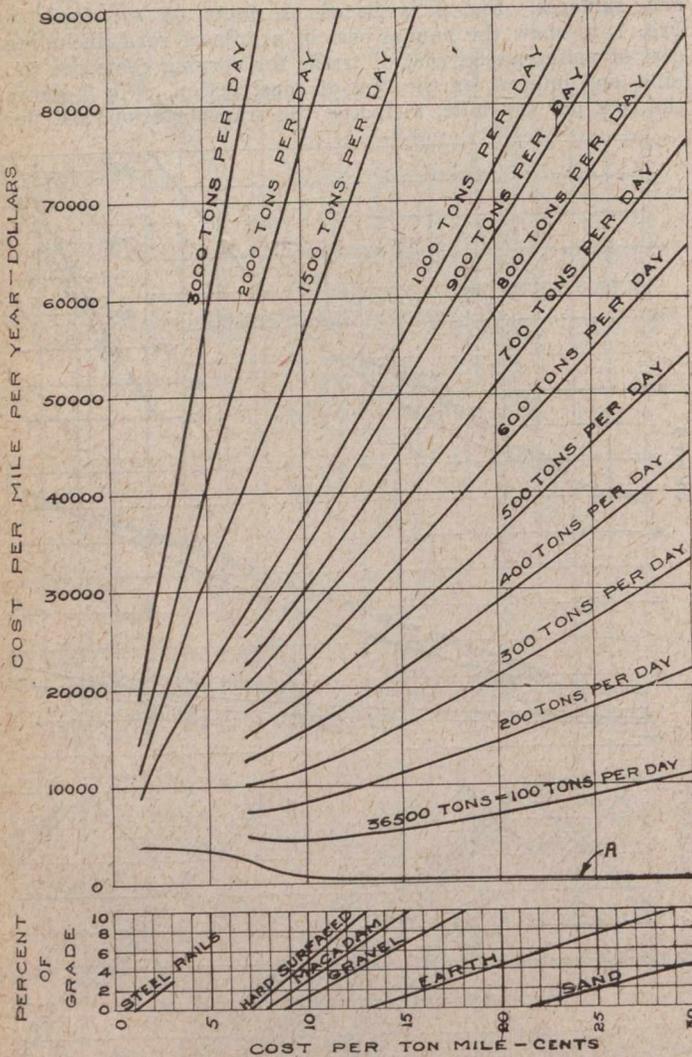


FIG. 2—ANNUAL COST OF A MILE OF ROAD, INCLUDING COST OF MAINTENANCE, COST OF TRAFFIC FOR VARIOUS SURFACES AND GRADES AND INTEREST ON CONSTRUCTION COST

Assuming interest at 5% per annum. Assuming initial cost per mile of concrete at \$40,000; macadam, \$20,000; gravel, \$15,000; earth, \$3,000; sand, \$0. Assuming annual maintenance per mile of concrete at \$400; macadam, \$300; gravel, \$300; earth, \$200; sand, \$0. Bottom curve (A) represents costs per annum of mile of roadway, including maintenance and interest on investment.

should be served with a concrete paving not less than 16 ft. wide. For traffic amounting to as much as 2,000 vehicles per day, a concrete pavement 20 ft. wide should be used, and for traffic exceeding 1,500 vehicles per day a brick pavement is desirable. Traffic exceeding 2,000 vehicles per day should be served with a pavement not less than 20 ft. wide and constructed with concrete foundation not less than 5 ins. thick, with brick, wood block, rock asphalt, sheet asphalt, granite block, or some form of asphaltic concrete not less than 2 ins. thick, should be used. These conclusions are probably in keeping with economy when viewed only by the cost of building and maintaining the highway under the varying intensities of traffic for units formerly used. All of these types of construction are such as will enable traffic such as formerly was found on the highways to continue 365 days a year. Traffic amounting to less than 50 vehicles per day has been provided for by earth roads, occasionally graded and dragged. Traffic amounting to 1, 5 or 10 vehicles per day

has been accustomed to getting along the best it could over the natural surface of the ground.

The approximate costs of transportation are as follows: Upon an unimproved road, 30 cts. per ton mile; on an improved earth or sand-clay road, 25 cts. per ton mile; on a hard gravel road, 20 cts. per ton mile; on a bituminous surfaced gravel road, 15 cts. per ton mile; on a concrete or brick road, 10 cts. per ton mile.

Fig. 3 is based on more conservative assumptions, as follows:—

- Cost per ton mile on 9 ft. gravel road, 22 cts.
- Cost per ton mile on 16 ft. gravel road, 21 cts.
- Cost per ton mile on 16 ft. bituminous road, 20 cts.
- Cost per ton mile on 16 ft. asphalt macadam road, 19 cts.
- Cost per ton mile on 9 ft. concrete road, 18 cts.
- Cost per ton mile on 16 ft. concrete road, 17 cts.
- Cost per ton mile on 16 ft. brick road, 16 cts.

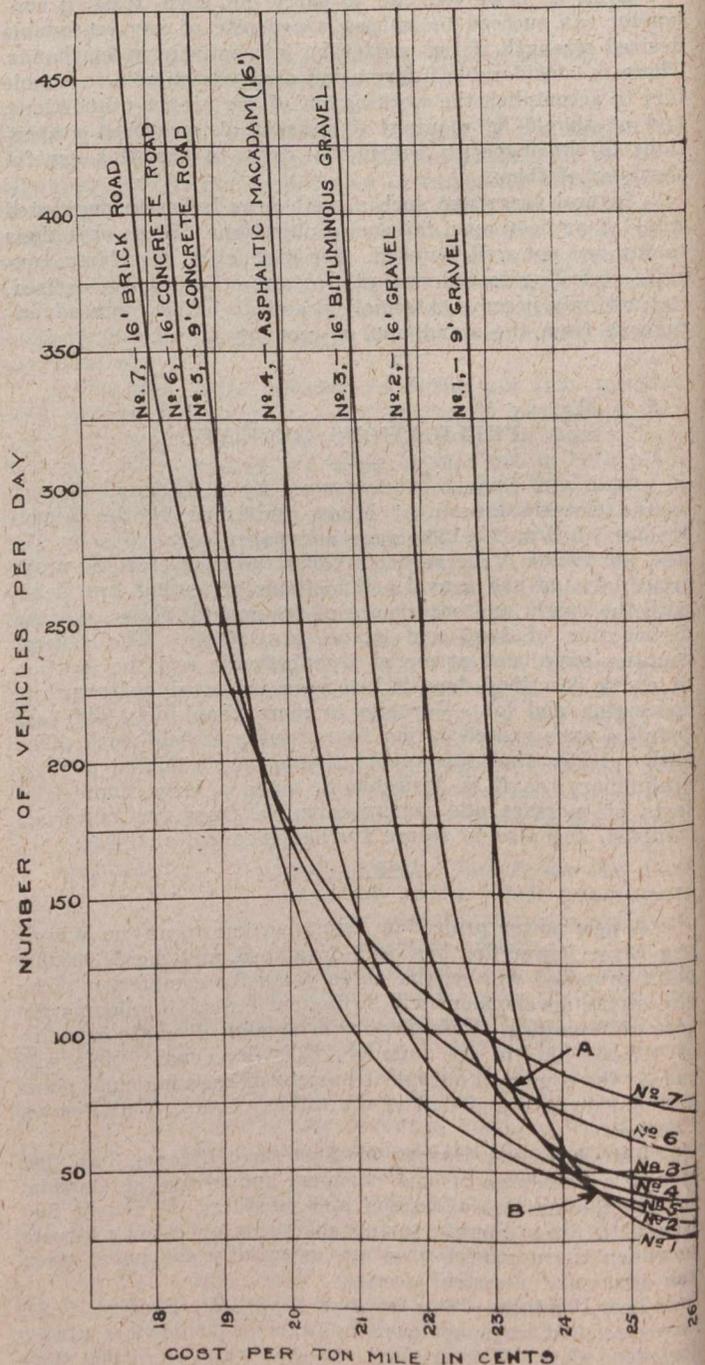


FIG. 3—TOTAL COST OF TRAFFIC PER TON MILE, INCLUDING TRANSPORTATION COSTS FOR VARIOUS TYPES OF SURFACES —SEE TABLE 1 FOR ASSUMPTIONS USED IN CALCULATING ABOVE CURVES

At point A, No. 2 equals No. 6, at 82 1/4 vehicles a day. At point B, No. 1 equals No. 5, at 43 1/4 vehicles a day.