

of construction. Other factors are governed by the geometrics of design, such as vertical and horizontal curvature, width of roadway, number and frequency of interchanges, etc., and by the type of terrain, which may be mountainous, rolling, or flat. For rural roads in rolling terrain some average construction costs are as follows (excluding land acquisition and on-site engineering costs):

Roadway width	Type	Average cost per mile
24 feet.....	Federal-aid secondary.....	\$70-\$80,000
Do.....	Federal-aid primary, noninterstate (medium type).....	100-125,000
Do.....	Federal-aid primary, noninterstate (high type).....	160-200,000
48 feet divided.....	Federal-aid interstate.....	600-700,000

The cost of urban highways is generally much greater than that of the rural sections. On the Federal-aid Interstate System, the costs to build urban sections (again excluding land acquisition and on-site engineering costs) can be expected to average \$1.5 million per mile for four-lane construction; \$3.3 million for six-lane; and \$5.3 million for eight-lane construction, based on current price levels.

Typical annual maintenance and operating costs. Here again there are many variables, such as traffic volume and frequency of heavy axle loads, terrain, number of lanes and interchanges, winter maintenance (snow and ice control), other traffic services, toll road operations, etc. In 1964, \$1,055 million was expended for maintenance of the 681,000 miles of rural State-administered highways, or slightly more than \$1,500 per mile, on the average. During the same year, \$171 million was identified as maintenance on the 62,000 miles of municipal State highways, or over \$2,700 per mile, average.

From preliminary studies, the cost of maintenance and traffic services on completed sections of the Interstate System show the following weighted average annual costs:

	<i>Costs per mile</i>
Rural sections (excluding interchanges).....	\$2,593
Urban sections (excluding interchanges).....	5,120
Rural sections (including interchanges).....	3,153
Urban sections (including interchanges).....	9,698

2. USER CHARGES

Although highways have many aspects of a public utility in that they provide a service to the users, and the pricing of this service is in many respects based upon frequency and extent of use, here the analogy ceases. Many students of highway taxation argue that there are three classes of beneficiaries of highways, and that costs of highway transportation should be borne among the three according to the benefits derived. These three are: (1) The *user*, who would be expected to pay most of the costs of freeways and other major traffic arteries; but lesser amounts of the costs of collector roads and local land-access roads and streets; (2) the *community* which benefits collectively from highways that make possible such community services as fire and police protection, ambulance, and other lifesaving services, and sanitation facilities among others; and that should pay for a large share of the cost of collector and local roads from general