

**Question:**

**What is the cost of constructing a mile of highway?**

**Answer:**

Several variables affect the cost of construction on highway projects. Examples of such factors might include terrain type (mountainous or flat), development type (rural or urban), geographic location (high-cost or low-cost State), type of highway (Interstate freeway or two-lane local highway), material type (concrete or asphalt), and pavement thickness, (which depends largely on projected auto and truck volumes). Costs may also be different depending on whether the project involves construction of a new highway or adding lanes to an existing facility. In November of 2003 a study was completed for the FHWA that provides estimates of highway construction cost per lane-mile based on information from several states based on current design procedures and cost factors.

**All costs shown in the following text have been adjusted to 2006 dollars.**

**Adding a Single Lane to an Existing Highway:**

FHWA's Highway Economic Requirements System (HERS) includes input values for the typical costs of a variety of highway improvements, including the cost of adding a lane to an existing highway. The unit cost per lane-mile for adding an additional lane includes a portion of the cost to cover bridges, interchanges, environmental issues, etc. for a normal project. However, a project with a large number of bridges, complicated interchanges, major environmental issues, and other extreme engineering and environmental issues will result in a higher cost per lane-mile.

Separate cost factors are used for urban and rural areas. In urban areas, widening costs are further disaggregated by the type of roadway (freeways, other divided highways, and undivided roads), and vary from \$2.4 million to \$6.9 million per lane-mile. In rural areas, costs depend upon highway functional class (Interstates, arterial roads, and collectors) and terrain type, and range from \$1.6 million to \$3.1 million per lane-mile.

The model also assumes higher construction costs in areas where widening might be especially difficult or costly, such as densely developed urban areas or environmentally sensitive rural areas. These are termed "high cost lanes" and can range from \$7.3 million to \$15.4 million per lane-mile for construction in urban areas to \$5.8 million to \$9.9 million per lane-mile in rural areas.

### **New Construction:**

New construction costs can vary widely due to a number of factors, and the FHWA does not have a standard value for them. However, the November of 2003 study produced estimates of highway construction costs based on information from several states based on current design procedures and cost factors. These costs have been adjusted to 2006 dollars.

The cost to construct one lane-mile of a typical 4-lane divided highway can range from \$3.1 million to \$9.1 million per lane-mile in rural areas depending on terrain type and \$4.9 million to \$19.5 million in urban areas depending on population size. However, in urban areas restrictions (high cost of additional right-of-way, major utility relocation, high volume traffic control, evening work restrictions, etc.) may increase the cost per lane-mile. If restrictions exist the cost to construct one lane-mile of a 4-lane divided highway can range from \$16.8 million to \$74.7 million. The cost of \$74.7 million per-lane-mile in areas of severe restrictions may not represent the maximum cost per-lane-mile and should be used as general guideline only. Individual projects may include extreme conditions warranting a much higher cost.

The costs provided are per lane-mile. To obtain the cost for a section of roadway the cost would need to be multiplied by the number of lanes on the roadway section.