

USAGE FACTORS FOR MAJOR HIGHWAY CONSTRUCTION MATERIALS AND LABOR¹

**U.S. WEIGHTED AVERAGES FOR ALL FEDERAL-AID HIGHWAY CONSTRUCTION
CONTRACTS OVER \$1,000,000 ON THE NATIONAL HIGHWAY SYSTEM
REPORTED AS COMPLETED DURING CALENDAR YEARS 1992, 1993, 1994**

FEDERAL-AID AND DESIGN DIVISION
OFFICE OF ENGINEERING

TABLE PT-4
SEPTEMBER 1995

TYPE OF MATERIALS AND LABOR	UNIT	NUMBER OF UNITS PER MILLION DOLLARS OF CONSTRUCTION COST ²
Cement (excludes cement in concrete pipe)	Ton	669
Bituminous material	Ton	359
Aggregates ³		
Purchased (by contractors)	Ton	14,499
Produced (by contractors)	Ton	3,731
Steel		
Structural (shapes, plates, H and sheet piling)	Ton	28
Reinforcing (pavement and structural reinforcement)	Ton	51
Culvert pipe (corrugated metal and structural plate, pipe arches and arches)	Ton	2
Miscellaneous (joint devices, tubular piling, etc.)	Ton	5
Concrete pipe (plain and reinforced)	Ton	82
Clay pipe and tile (includes some pvc pipe)	Ton	1
Lumber (all lumber products except timber piling)	Board foot	7,844
Petroleum products ⁴	Gallon	25,837
Guardrail (all types)	Linear foot	843
Bridge railing (all types)	Linear foot	201
Corrugated aluminum culvert	Pound	116
Signs (complete in place)	Dollar	9,774
Lighting (complete in place)	Dollar	11,011
Labor	Employee-hour	13,200

1 For comparable standards of design, the usage of materials and labor on Federal-aid work is not appreciably different from their usage on non-Federal-aid work. The data in this table are obtained from Form FHWA-47.

2 Right-of-way, preliminary engineering, and construction engineering costs excluded.

3 Includes sand, gravel, clay gravel, slag, crushed stone, etc.; used for all highway construction including bases, subbases, concrete surfaces, bituminous surfaces, structural concrete, and drainage work.

4 Fuel and lubricants for equipment and trucks. Grease converted to gallons on basis of 8 pounds per gallon.