

**USAGE FACTORS FOR
MAJOR HIGHWAY CONSTRUCTION MATERIALS AND LABOR 1/
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 2000, 2001, 2002**

OCTOBER 2003

TABLE PT-4

TYPE OF MATERIALS AND LABOR	UNIT	NUMBER OF UNITS PER MILLION DOLLARS OF CONSTRUCTION COST 2/
Cement (excludes cement in concrete pipe)	Ton	446
Bituminous material	Ton	331
Aggregates 3/ Purchased (by contractors)	Ton	11,654
Produced (by contractors)	Ton	2,945
Steel		
Structural (shapes, plates, H and sheet piling)	Ton	17
Reinforcing (pavement and structural reinforcement)	Ton	38
Culvert pipe (corrugated metal and structural plate, pipe arches and arches)	Ton	1
Miscellaneous (joint devices, tubular piling, etc.)	Ton	3
Concrete pipe (plain and reinforced)	Ton	51
Clay pipe and tile (includes some PVC pipe)	Ton	-
Lumber (all lumber products except timber piling)	Board foot	2,620
Petroleum products 4/	Gallon	12,626
Guardrail (all types)	Linear foot	618
Bridge railing (all types)	Linear foot	91
Corrugated aluminum culvert	Pound	116
Signs (complete in place)	Dollar	8,071
Lighting (complete in place)	Dollar	9,664
Labor	Employee-hour	9,115

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, prepared by the Office of Program Administration in the Office of Infrastructure.

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.