The Numbers Game: How it Works with the Interstate System
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The Interstate Highway System is a mere youngster when compared to other gigantic engineering feats of mankind, but it serves an infinitely greater purpose than did the Great Pyramid of Cheops in Egypt or the Great Wall of China.

The Interstate System is composed of more than 40,000 miles of four-lane divided highways that link the nation's metropolitan areas and provide access to thousands of lesser communities. The Great Wall of China was purely a defensive structure. The Great Pyramid of Cheops and its temple complex, was built as a royal tomb and as a religious site.

In building the Interstate System, highway contractors have expended nearly 2.4 billion man-hours of time. There are no records of the man-hours expended on the Great Pyramid or the Great Wall, but each of those projects consumed vast amounts of slave and conscript labor. One estimate has it that 100,000 men labored on the Great Pyramid complex, but no one has made a guess at the number of conscript laborers who toiled on the Great Wall of China over the centuries. It is estimated that the Great Pyramid complex required at least 25 years to complete—the present age of the Interstate System. The Great Wall underwent many different construction, renovation and extension periods. It dates back to the 4th Century, B.C., and massive renovation work was done in the 15th and16th Centuries, A.D.

Cost comparisons between these projects are also useless, for money was no object to the Egyptian Pharaohs or to the Chinese emperors. The Federal Government, however, keeps a close eye on Interstate costs; to date, more than $79 billion has been obligated on the world's greatest highway network.

The Interstate Management Branch, FHWA [Federal Highway Administration] Office of Engineering, has compiled come interesting statistics on the Interstate System which give us some inkling of the vastness of the project, and even a few comparisons with the other two great engineering projects mentioned.

One such calculation notes that nearly 482 million barrels of cement, when mixed with aggregate, would make nearly 300 million cubic yards of concrete. By way of comparison, it is estimated that there are some 2,300,000 stone blocks, each weighing from two to 15 tons, are used in the Great Pyramid itself. Each stone, of course, was manually emplaced, for the Egyptians did not know the principle of the lever. The massive stones were probably hauled and pulled up ramps as the pyramid grew in height. Today's highway contractor uses machines that can, with one man in control, move 54 cubic yards of earth at one time and at speeds of up to 40 mph. Other machines with off-road weight capabilities of more than 100 tons are in daily use in the interstate construction program.

Aggregate—sand, gravel and crushed stone of various sizes—is another commodity that was used in great quantity in building the Interstate System. Almost two and one-half billion tons have been used, and that would make a stockpile two miles in diameter and one mile high.

Pipe is still another product that is used extensively in the Interstate System, although it is seldom seen by the driver. If all the various types of sized of pipe were converted to one size—24 inch diameter—there would be enough pipe to encircle the globe.

Steel reinforcing rod ties in with another interesting statistic. If all the steel reinforcing rods used in the Interstate System were converted to one size, a No. 4 bar (one-half inch diameter), that bar would reach to the moon and back 11 times.

High explosives played an important role in the construction of the Interstate System, but the ancients had to rely solely on manpower to move earth in their projects. For instance, along the northern face of the 2,550-mile long Great Wall of China, three deep ditches were dug as a further deterrent to the marauding tribes against which the wall was built as a barrier. Almost one and one-half billion pounds of dynamite and other explosives were used to make tunnels, to cut through hills, and for other purposes for the Interstate System.

The Great Pyramid covers 13 acres and each side is 755 feet long. The Great Wall of China is 25-feet wide at its base and 15-feet wide at the top of the roadway. There are 25,000 towers, each about 40-feet high, along the entire length of the wall, which is basically 30-feet high.

At present, the Interstate System has acquired 1,779,000 acres of right-of-way and has fenced it with enough fence to reach twice around the world.

When one considers the Interstate System, one rarely considers the most prosaic of all building materials—wood—as having a place in the construction of thousands of miles of concrete and cement roads. But timber played an important role, and more than one and one-half billion feet of wood were used in concrete forms and bridge pilings. (A board foot is a piece of lumber one-inch thick by one-foot long and one-foot wide.)

Bituminous material—tar, asphalt cement, etc.—figures prominently in the Interstate System. More than 27 million tons have been used, mostly for surfacing purposes.

These are but a few of the thousands of statistics and data that have been compiled about the Interstate System, but they will suffice to show that the highway network is truly one of man’s greatest engineering accomplishments of all times.