

WHY DO HIGHWAYS COST SO MUCH?

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INTRODUCTION

The title of this paper is "Why Do Highways Cost So Much?" but maybe a better title would be "Why Does Everything Cost So Much?"

In order to talk about the gigantic inflation that has occurred in the road building industry, and not get mired down in a set of hopeless statistics, I have decided to break down the major root factors and discuss their impact on the road building industry.

ENERGY CRISIS—OIL AND NATURAL GAS

The energy crisis certainly is one of these critical factors. Many articles have been written about the energy crisis, some factual and some not. A brief historical review of why we have critical shortages of crude oil and natural gas in this country can be traced to our squandering of our natural resources.

Development of Oil and Gas Resources

The first commercial well was drilled by Colonel Drake many years ago in Titusville, Pennsylvania. From that moment on, petroleum energy was found in abundance in the Midwest including our own Gas City, Indiana. Gas was so plentiful in that area that today we still have many glass manufacturing companies located there. At Bluffton, Indiana, they used to pipe natural gas under the Wabash River and ignite it for a tourist attraction. The gas is now gone—it was finite.

At this early time in our energy history, there was not a system of pipelines to use this natural resource in an efficient manner. As large deposits of crude oil were found in Texas, Oklahoma, Louisiana, Kansas, and California, the by-product of natural gas was vented to the atmosphere and ignited. I am sure many remember trips through the oil fields where gigantic flares burned the natural gas.

Eventually state organizations like the Texas Railroad Commission were used to control this wild energy business. Before the event of proration, a system which controlled the supply of crude oil to meet the demand, huge quantities of energy were being squandered. The price of crude oil could vary from 20 cents per barrel to five dollars per barrel in a single year. Many people felt state organizations like the Texas Railroad Commission were used to stabilize this chaotic market.

In fairness, however, this proration also allowed oil wells to be produced at their most economic flows. It was during this time that the idea of piping gas interstate was conceived and carried out. Obviously, the gas being generated in many of the states was far in excess of what could be consumed locally. This was the beginning of the interstate pipelines and local distribution gas companies.

Controls Keep Gas Cheap

The oil producers were happy to be able to recover any money that they could get for their gas and they sold this at 12 cents to 16 cents per thousand cubic feet. At this time, crude oil was selling at \$2.50 per barrel, so, comparing these two fuels on an energy basis, gas was selling at the fields for 16 cents/MM BTU, compared to crude oil selling at 44 cents/MM BTU. Of course there was an immediate market created for this premium fuel. Not only was it cheaper, but easier to burn and with less investment in combustion and heating equipment. It became obvious that gas wells would have to be drilled to support this market and that these new wells would not be created by a price of 16 cents per thousand cubic feet. All gas sold in interstate commerce was controlled by the Federal Power Commission and they refused to let interstate gas prices be raised at the wellhead.

The gas distributing companies in large metropolitan areas helped create a political climate with their customers that precluded any rate increases. Everybody likes cheap energy. In 1956, the Phillips Gas Act, an act to decontrol interstate gas prices, was passed by both the House and Senate by just a few votes. President Eisenhower vetoed the bills, not on the basis that it was not needed, but because a top executive of a petroleum company had given \$100,000 to a senator to vote for this bill.

Imported Cheap Middle East Oil—Eisenhower Era

It was during the Eisenhower era that much cheap crude oil was being discovered in the Middle East. Aramco was developing wells in Saudi Arabia, and Gulf and others had found large deposits in Kuwait. All of this production was in shallow reserves under high gas pressure—

the average well produced 11,500 barrels per day compared to the United State's production average of 20 barrels per day. The United States was being flooded with this foreign oil and, in order to protect our own resources in the event of further war, Eisenhower restricted the amount of foreign crude we could import and under an allocation program, distributed uniformly this price savings throughout the country. Although the price of domestic oil in a sense was protected from extreme foreign competition, the average domestic price of oil from 1956 to 1973 went from \$2.75 per barrel to \$3.50 per barrel. This, of course, did not keep pace with the inflationary rate of our country.

Much of this foreign crude oil could be delivered to our ports at \$1.50 per barrel less than domestic oil. The people on the east coast of the United States were incensed that they could not exclusively have this source of energy as it was cheaper than domestic sources. In the light of history, we can see that it was important that we did not destroy our domestic energy business.

Petro-Chemical Industry Grew in the 1960's

In the 1960's, the petro-chemical industry which consumed large quantities of gas grew and this intrastate gas was sold in the 60-80 cents per thousand cubic feet range as compared to 22 cents per thousand cubic feet in the interstate market. This, of course, made less and less natural gas available for the interstate market.

Domestic Oil and Gas Peak in 1970's

By the early 1970's, domestic crude oil production had peaked at approximately ten million barrels per day. Petroleum demand throughout the 1960's had grown at the rate of 3.5 percent, but because of environmental restraints on automotive equipment and power plants buying coal, petroleum demand was increasing at a seven percent rate per year. In 1972, natural gas production had peaked and was on the decline. Many gas distributors had lent money to gas producers to find more gas or develop their own drilling programs. Even they were dismayed that they could not financially support these programs at the natural gas interstate price, even though this rate had been raised to 52 cents per thousand cubic feet.

Many of these companies are selling this gas at \$1.50 per thousand cubic feet in the intrastate market in order to recover their investment. It is interesting to note that new crude oil is selling at \$13/barrel, or \$2.26/MM BTU, and intrastate gas at \$1.50/MM BTUs. Obviously, the price of natural gas will have to rise substantially to pay for its discovery and production. Gas reserves will last only nine years, and oil reserves can last only 11 years at the current production rate.

Arab Embargo and Alaskan Pipeline—1973

In 1973, the Arab embargo showed us our vulnerability and our dependence on foreign sources. In the meantime, because of unreasonable environmental restraints, the Alaskan pipeline was delayed three years at an increase of \$4 times 10⁹. Thus, two million barrels per day of crude oil will not be available until 1977, or early 1978. During this period, the east coast politicians have reversed their position; they want high cost foreign oil to be allocated across the country uniformly, but the eastern seaboard's zoning board is still refusing to site refineries on the east coast.

Effects of Energy Crisis on Highway Industry

How has this energy crisis effected the highway industry? Comparing the prices of 1972 versus 1975, crude oil has jumped 200 percent; and as asphalt is a product of this crude oil, its price has increased 150 percent. In the operation of a stone quarry, the following energy-related products have increased in cost:

Electrical energy	26%
Diesel fuel	178
Dynamite	200

In the manufacturing of cement, current information indicates that where coal-fired utilities were furnishing electricity, the price had increased 26 percent; and where the utilities were burning natural gas with oil stand-by, the price has increased 102 percent. Where coal is used for calcination of limestone, the energy costs have increased 78 percent; and where natural gas is used, 117 percent.

Trucking is another industry badly hurt by the energy crisis. Here are a few items with their increased costs since 1972:

Fuel	178%
Tires	88
Parts	55

I mention these select industries as they are vital elements of the highway construction industry. The energy cost increment of producing trucks, bulldozers, graders, pans, crushers, kilns, hot mix plants, has had much to do with the cost of this equipment increasing in excess of 50 percent.

Although our national economist, based on economic computer modeling, told us that the energy crisis produced approximately 2.5 percent of our 12 percent inflation rate for 1974, I feel a more careful economic

analysis would put this cost closer to six percent, or 50 percent of the 1974 inflation rate.

Coal Use May Stop Inflation Spiral

To sum up this energy discussion, we do have a crisis, and at the moment our 300 years of coal reserves look like our best bet to stop this inflationary spiral.

LABOR

The next element that plays a substantial part in "Why Highways Cost So Much?" is labor. As you know, construction labor contracts have had notorious high wage rate settlements. This is a segment of the labor force which has consistently won higher increases than corresponding unions in other fields. Since 1972, the average increase for most of the trades has been 63 percent. At this rate, construction wages will double every five and one-half years. It appears this trend may accelerate. Because of the 1975 recession, overtime was held to a minimum, and take-home pay suffered accordingly. Another factor is the federal graduated income tax which requires higher and higher wage settlements in order to maintain the same take home pay. In my opinion, a complete revaluation of the graduated income tax is desperately needed if we are to control our inflation.

EPA AND OSHA

There are two other factors which have substantially increased costs. According to the federal government's figures of 1972-1975, \$11.8 billion increase is needed to complete the interstate system. \$1.1 billion dollars was a direct result of more stringent environmental requirements, or roughly ten percent of the increased costs. In addition, there has been substantial increases in costs due to tougher safety standards required by federal law.

The EPA Law of 1972 and recent environmental mine regulations have greatly increased the cost of producing energy such as coal, gas, and oil and are further increasing the costs of electricity generated from these fuels. There has also been an obvious increase of construction costs due to complying with OSHA standards (Occupational Safety and Health Act).

HIGHWAYS AND INCOME 1954-1975

We have discussed some of the problems that have resulted in higher highway costs. In closing, I would like to talk about the other side of the problem and that is income.

Income Peaks Compared at Current and Constant Dollars

Following are four figures showing the total money spent by federal, state, and local governments from 1954 to 1975. Figure 1* shows that this peaked at \$25 billion in 1974; however, this is in current dollars.

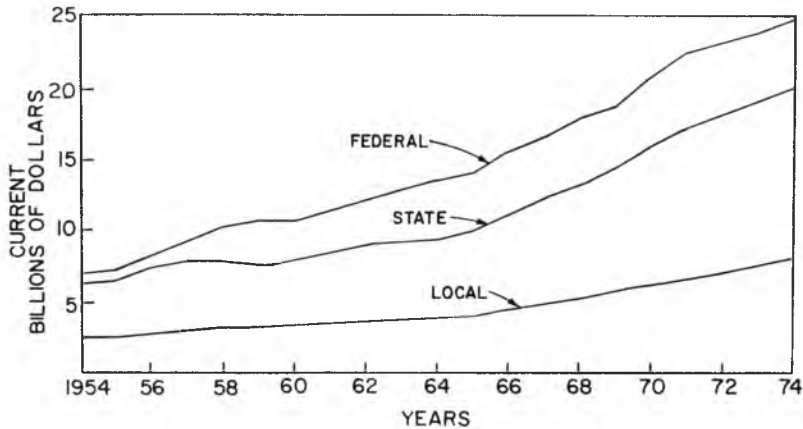


Figure 1. Total Disbursements for Highways by Federal, State, and Local Governments 1954-74 (in current dollars) Source: Highway Statistics Division

If these same figures are shown with the gross national product deflator based on 1967 as 100, Figure 2* shows that the total money spent on roads peaked in 1971 at \$17.7 billion, and in 1974 this figure had shrunk to \$14.4 billion, a decline of 19 percent.

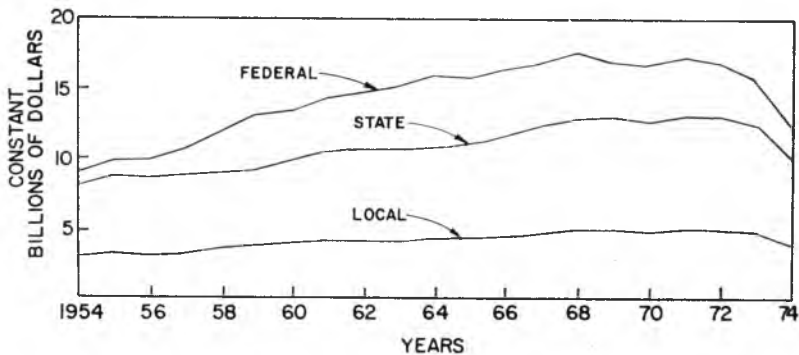


Figure 2. Total Disbursements for Highways by Federal, State, and Local Governments 1954-74 (in constant dollars) Source: Highway Statistics Division

* Graphs are somewhat generalized—statistical data in text is more accurate.

The next two figures show the same information, but instead of gross dollars disbursed, they show the cost based on registered motor vehicles. Figure 3* shows a peak in 1971 of \$199 per car, declining to \$189 per car by 1974. When we again take inflation into account we find, according to Figure 4*, that the motorist paid the most in 1959, \$187 per car; but in 1974, he was only paying \$110 per car, or a decline in real cost of 41 percent. These of course are national figures and I would like to make a similar comparison in Indiana.

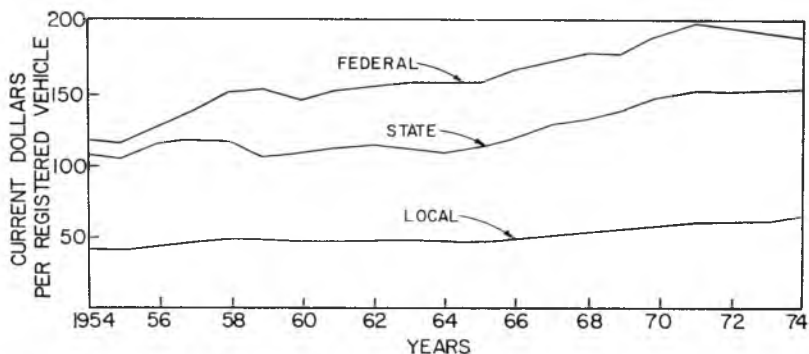


Figure 3. Total Disbursements for Highways by Federal, State, and Local Governments Per Registered Motor Vehicle 1954-74 (in current dollars) Source: Highway Statistics Division

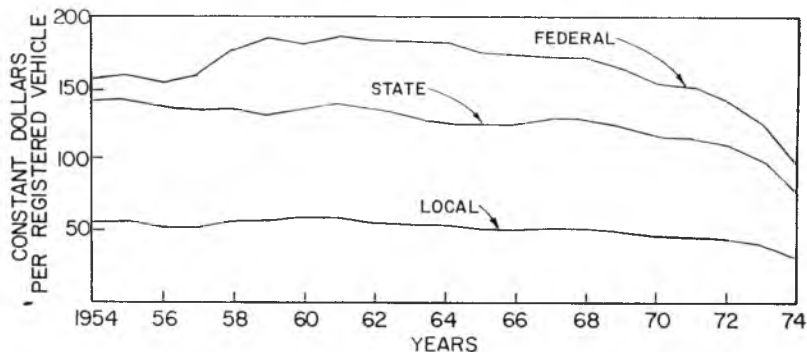


Figure 4. Total Disbursements for Highways by Federal, State, and Local Governments Per Registered Motor Vehicle 1954-74 (in constant dollars) Source: Highway Statistics Division

State Gasoline Tax Should be on Percentage Basis

In 1969, the state tax on gasoline was eight cents per gallon (this tax of course is distributed to the state, cities, and counties) and the

gasoline purchase price at the service station level averaged 35.9 cents per gallon. This means that the motorist was paying 22 percent of his gasoline costs for the use of the highways in Indiana. In 1975, the motorist was paying an average of 56.9 cents per gallon, and the tax of eight cents per gallon represented 14 percent of his cost of gasoline.

If the motorist was paying 22 percent state gasoline tax today, the eight cents per gallon tax would have grown to 12½ cents per gallon and this additional income of \$135 million would have allowed the state highway commission, county commissioners, and the mayors of our cities to have met their highway needs without having to use federal revenue sharing funds for this purpose.

SUMMARY

In summary, as I can see no lesser need for our great road system and I cannot see any substantial reduction of construction costs in the near future. We must get our gasoline tax placed on a percentage basis so that our public leaders can build and keep our roads properly maintained.