

# Transportation in the Final 20/20

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## INTRODUCTION

As contractors, government officials, engineers, and businessmen, you are interested in this country's transportation program. Whether you plan, design, build, or provide for transportation, we are facing the final 20 years of the 20th century in an atmosphere that is confused and unclear. Government regulations, new and revised, modified and updated, are printed at such a rapid pace that even agencies interested in a single subject can't adequately review and evaluate how the changes will affect them.

Federal and state gasoline taxes are largely based on a fixed amount per gallon. With conservation efforts and more fuel-efficient vehicles we are consuming less gas, transportation revenues are stagnating while inflation keeps taking bigger and bigger pieces of revenue and less and less is accomplished. Construction and maintenance costs have also escalated the past few years.

As we enter the final 20 years of the 20th century, there are many transportation problems currently going unanswered and it is impossible to make predictions with any degree of confidence.

As a nation we are faced with fear of wars; leftist and rightist terrorists strike without warning; we have runaway inflation; we have too much government, our balance of payments is out of balance the wrong way; there are problems in our schools; we are faced with natural disasters; water and air pollution threaten our health, public employees are out on strike; and women are fighting for equal rights. We have never faced a period with such uncertainty than what we are facing now right? Perhaps *we* haven't, but what did our ancestors of 100 years ago face as they looked forward to the final 20 years of the 1800s? Let's look back and see.

One hundred years ago, world affairs seemed in a hopeless muddle. Members of the will-of-the-people terrorist movement were stalking key government leaders in Moscow, Berlin and Rome. Political division had all but paralyzed the government in France. A ministerial crisis in Italy

had created near anarchy in the chamber of deputies. In Asia, China was massing troops along the Sino-Russian border to forestall Russian territorial aggression. In the western hemisphere relations between the United States and Canada were strained over rights to certain fishing grounds. Canada was bedeviled too, by internal stress—Nova Scotia and New Brunswick were conferring informally on a possible union of the two provinces into a larger one.

Here in the United States, a yellow fever epidemic that struck first in South America, moved north to the United States striking New Orleans. Within weeks the killer had spread to most of the other southern states and, during one week in August, the population of Granada, Mississippi was reduced from 2,200 to 300. In New Orleans, an estimated 11,000 persons perished before the epidemic finally abated.

A major issue in the United States then was whether the nation's schools should introduce bilingual classroom instruction. It was a particularly hot issue in cities such as Cleveland and St. Louis where a large number of German immigrants had settled. Advocates of foreign language classes argued that they would ease the transition from alien to citizen and this policy was favored by naturalized citizens. Others argued that "if (the immigrants) are to become full-fledged American citizens they must learn to read, write and think in English. Teaching them in their former native tongue will only perpetuate their old ways and prevent accommodation to the new." The advocates of bilingual teaching in the nation's classrooms lost that battle. Today, we're placing bilingual teaching in many of our schools to preserve the old customs and traditions of foreign-born citizens.

Do you think California's Proposition 13 is new? A century ago, the New York board of apportionment estimated that \$30,000,000 would be required to run the City's government during the next fiscal year. Only 3/5 could be counted on from existing tax sources and the remaining 2/5 would have to come from new sources, tax increases or cost cutting.

Many taxpayers of course, favored cutbacks especially after a study of the city's payroll was made public. The study said, "Officials and employees of New York City now number over 7,500 and their total yearly pay is more than \$11 million. There are 52 employees who each draw \$5,000 or over and two get \$15,000 apiece." Most certainly, the taxpayers argued, the span of bureaucratic banditti in city hall could be greatly reduced without hindering services.

Some New Yorkers argued that economies could be effected in other ways. They complained the city, like too many others in the United States, was investing its tax dollars in frivolous ways. Expensive

experiments were being conducted with new-fangled street hydrants allegedly capable of throwing jets of water upon burning buildings without the use of fire engine pumps. Transportation was being expanded beyond all reasonable future need and New York City's new 6th avenue elevated railroad was an outstanding example.

Rising costs were not the only frustrations encountered by city dwellers, strikes by labor unions for more pay often disrupted city services.

The feminist movement was a disruptive force as more and more women demonstrated not only for the right to vote, but also for equal work rights with men. Some employers sympathized with their plight, as did some labor groups such as the Noble Order of the Knights of Labor, which adopted a new constitution "to secure for both sexes equal pay for equal work, an 8-hour workday and weekly pay." But the knights were the exception rather than the rule and even appeals to congress for backup legislation on women's rights met with vacillation.

Congress in those years endured a great deal of criticism. One of the worst acts of Congress as far as many critics were concerned was the congressional approval of a law which required the treasury to buy and mint a minimum of \$2 million and maximum of \$4 million worth of silver per month. Holders of U.S. paper money could then redeem it in silver as well as gold. Farm and labor groups believed that increasing the amount of money in circulation would boost income but by thus doubling the money supplies, said a New York financier, Congress "has only added to the upward spiral of an already runaway inflation" which was then running at about 7 percent.

That law had been passed over the veto of President Rutherford B. Hayes who, even more than congress, faced growing criticism of his policies. Under his administration the United States developed a balance of trade problem, imports one year had exceeded exports by \$167 million. His authorizing an ecological study of the Great Lakes was belittled as just another executive boondoggle. There was a greater need, his critics argued, for a solution to water pollution problems which had forced a temporary shutdown of seaside resorts at Brighton, New York and Atlantic City, New Jersey and the bathing beaches of San Francisco Bay.

Nor was the president's personal life beyond public comment with even his personal conversations finding their way to public print. But the shenanigans of his 9-year old daughter, Fanny, were a different matter. She was being "pampered," "mollycoddled," and "overdressed," said the critics. Worse, because she was "permitted to dine with her elders and their visitors" she was "growing too old too fast for her years."

William Cullen Bryant, influential editor of New York's *Evening Post* wrote: "We are living in a corrupt social state which we have all helped to create a looseness in our commercial dealings, by connivance at small frauds, the persistent pursuit of low aims and neglect of our fellow human beings." Bryant's sentiments were shared by many, for the nation's sense of morality appeared to be deteriorating alarmingly. Divorce was increasing, saloons were proliferating, and alcoholic consumption was on the rise. News reports of wife beating, usually winked at as a private matter between mates, were beginning to appear sporadically in some journals. Cases of child abuse were also being aired in print. There were reports of children being brutally beaten with broomsticks, burned with cigar butts, or kept chained to bedposts. Waifs roamed the streets of the nation's cities while in New York City alone an estimated 22,000 runaways under the age of 10 called the city's paving stones their home. Alarmed at the situation, the American Humane Association adopted a new constitution and dedicated itself to the prevention of cruelty to children as well as animals.

But progress was being made in technology, the first all-steel bridge, a 2700-foot structure built by the Chicago and Alton Railroad Company was opened for use across the Missouri River at Glasgow, Missouri. The Tidewater Oil Company created a sensation when it began pumping oil over the Allegheny Mountains in pipes instead of shipping it in barrels. The first commercial telephone exchange had been installed in New Haven, Connecticut. Proctor and Gamble Company introduced a new kind of soap, later called Ivory Soap, and promoted it with the sales slogan—99 and 44/100 percent pure. In Brooklyn, New York, an enterprising dairyman had been the first to deliver milk in glass bottles. In New Orleans, a coffee bean importer introduced "compressed coffee." Freshly roasted, fine ground beans were put in molds and under pressure formed into cakes resembling chocolate bars. A housewife, harried for time, needed only to break off a teaspoon-sized piece and add water to produce a cup of "instant" coffee. Another household device was known as a "solar cooker," a copper-tinned inside, painted black outside and covered with glass. Solar rays passing through the glass cover heated the copper and tin to create a blanket of hot air that was supposed to cook the food placed inside. And, would you believe, in France, experiments were being conducted with solar reflections that could convert solar heat into energy for industrial use?

In fashionable clothing, an innovative accessory called "Madame Foy's corset skirt supporter" guaranteed a smooth figure for generously proportioned women. For the less well endowed, there was the "American elastic bosom," also known as the "gay deceiver."

In New York, work on a railroad tunnel under the Hudson river that would connect New York and New Jersey, resumed after a five-year delay caused by various injunctions and law suits.

Thomas A. Edison startled Americans with the first public exhibition of his *newest* inventions—an incandescent lamp and a current-distribution system to activate it. Another inventor, George B. Selden became the first American to apply for a patent on a carriage that would be powered by an internal combustion engine, a forerunner of the gasoline automobile.

Well, you've probably recognized that many of the kinds of problems faced by our ancestors a century ago still face us today and some things we think are relatively new, are in fact, at least a hundred years old. So, many of the problems that faced the world and our nation 100 years ago were not all that different than those we face today.

## DEPENDENCE ON PETROLEUM

Ah, but there is at least one very significant difference, isn't there?

In this century we have become dependent on petroleum for our lifestyle and standard of living. Too much of the petroleum we use however, comes from outside the U.S. Here in America, we currently use almost *twice* the amount of oil we produce in our own country, and are dependent on foreign sources for the balance. We have endured several oil embargos imposed by the oil producing and exporting states and you know what happened. The gas lines, the increased price for gasoline and other petroleum products, and the end is not yet in sight. For as long as we are dependent, we are vulnerable to: interruption of supply and major price increases. We shudder when we think of the volatility of the politics in the countries that supply us.

In 1973 we imported 15 million barrels of oil a day—a third of what we consumed. Last year we imported between 8 and 9 million barrels a day, just under half of our consumption of almost 20 million barrels a day.

In spite of President Carter's statement that we will never import more foreign oil than we did 1977, a realist in the energy business estimates that by 1990 our imports will amount to 14 million barrels a day, and unless our relations with Canada and Mexico on the issue of oil improve, it will all come from overseas. We have been on an energy binge for almost 50 years. Government policies have held prices of gasoline down and we've happily taken advantage of it. We've developed our cities in sprawling patterns and pointed with pride at our standard of living and the mobility we've enjoyed.

Can it continue? Clearly, no. Not, at least, as it has in the past. Using the Department of Energy's most optimistic projections, the free

world's oil production could be outstripped by demand by 1984 or sooner.

This projection comes on the heels of the national transportation policy study commission report that *also* foretells of serious energy problems that we will face in the coming decades. The report tells us domestic production of crude oil will continue to decline until 1985 and then increase gradually. Despite price increases and improved conservation, demand will far exceed domestic supply and prior to 1990, demand will be met through increased imports, at prices that, if stated today, would be classed as inconceivable.

The report goes on to say sufficient petroleum based fuel can be made available for transportation *only* if all domestic energy resources are exploited, such as solar, nuclear, oil shale, tar sands, coal liquification, and biomass, to meet our total national energy needs. Clearly with the current stage of development of these alternative energy sources *conservation* in our use of petroleum is the most effective short-term strategy. To maintain our mobility, that strategy must *not* focus on reducing dependence on the car nor on passenger miles driven, but on increasing the efficiency at which those miles are driven. Well constructed and maintained streets and highways, fuel efficient vehicles; observance and enforcement of the 55-mile speed limit; high quality maintenance of the vehicle fleet; and well designed, properly maintained traffic control devices will contribute to this conservation effort.

## ENERGY CONSERVATION AND TRANSPORTATION DEMANDS

Why must we conserve? Well, in spite of those dire predictions on energy, that same national transportation study commission report projects unprecedented demands on our transportation system during the final two decades of this century. Total national, domestic, person miles of travel are forecast to increase from 2.6 trillion in 1975 to 4.6 trillion in 2000 and may reach as high as 5.0 trillion. This represents increases of 81 percent and 96 percent respectively. Total national, domestic, freight ton miles are forecast to increase from 2.4 trillion in 1975 to 6.3 trillion in 2000 and may reach as high as 7.7 trillion, representing increases of 165% and 226% respectively.

Based on these activity forecasts, the country will most likely need 4.2 trillion dollars in capital investment in constant 1975 dollars through the year 2000 and may need as much as 4.6 trillion dollars. Of the total capital needs, it is projected that various levels of government will be required to spend 1¼ trillion dollars and may need to spend as much as 1½ trillion dollars. That averages to about 62 billion dollars per year as compared to the 37 billion dollars all levels of government actually spent on all forms of transportation in 1975.

We are concerned mostly with highway transportation needs. Highway capital needs a total of 900 billion in 1975 dollars through the year 2000 while revenues of 753 billion would be generated by all levels of government under existing policies. If spending is in fact constrained to the national transportation policy study commission's projected level of highway revenues from all sources under the status quo policy, little, if any, funds for new construction or resurfacing would be available in the late 1990s. Almost all available funds would be required for routine operations such as maintenance, debt service, and administration. In other words, it appears there will be little system expansion and eventually we will be faced with the tremendous task of just trying to keep up with the maintenance of what we have.

Yet when we look at the travel projections, the only conclusion we can reach is that the private auto with its new efficiency and use will continue to dominate in the transportation of people. Traffic congestion will continue and worsen, all pointing to the need for total, not minor, reconstruction of streets. Congestion eventually will lessen if street and highway reconstruction is funded.

It is estimated that in this year, 1980, 90 percent of the eligible U.S. population will be licensed to drive. With this number of drivers and the anticipated increase in person miles of travel, we can expect that the price in human lives for this mobility will increase. Projections show that although the vehicle miles traveled in the year 2000 will increase, improved safety features will result in a lower fatality rate. But because of increased travel, the total number of fatalities is expected to rise to 66,900 annually by the year 2000, but may go as high as 75,600.

These figures are staggering and defy comprehension but there are a number of challenges to us involved in transportation. Inflation will continue to erode the effectiveness of revenues and increased fuel efficient automobiles and conservation efforts, essential as they are, will decrease revenues. With little money available for expansion, our task will be to meet increased travel demands by better use of what we already have. And what about that forecast of almost 67,000 deaths from highway accidents by the year 2000? In spite of its being based on a lower fatality rate, the figure is clearly unacceptable and it will take extraordinary efforts to keep this statistic down.

It appears then that the challenges of transportation will be to do more with less.

In my opinion, there is within the transportation industry not only the expertise and technical skills to make more efficient use of what we have, but also the knowledge and ability to influence and direct government policy into those activities which will most effectively use what we have and expand the facilities that need expanding.

The development of America was due to the ingenuity, energy, and character of its people. I believe our future lies in those same qualities found in people like yourselves.