

Roads without the State

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The first roads were probably not even made by humans but by animals. Herds of buffalo deer, and other grass foragers pushed aside the shrubs and trampled down the grass to make tracks for their mass migrations — tracks which humans exploited. Many of the first manmade improvements to these tracks were made by the military because the deployment of armies depended heavily on reliable supplies. There's a saying among logisticians that soldiers fight on their stomachs, so in order to keep those filled, armies needed wheeled carts to bring in the supplies of grain, meat and other provisions to sustain the bodily energy, and the morale, of the soldiers. Military engineers were among the first road and bridge builders. Because the state depended on the military for its survival, it has always been interested in roads. At the same time, roads have always been a vital part of peaceful trade and commerce, and served the movement of people in search of new opportunities, so a tension has always existed over the role of the state in assuring good roads. They have always served state and private purposes.

Roads have varied from apparently haphazard and irrational in their organization to almost mindlessly regular.

"Road building is not a government monopoly any more. Those days are over."

Federico Pena
U.S. Secretary of Transportation
(Transportation Research Board address)
Washington DC, January 8, 1996

George Washington complained in his diary that New England's roads were "amazingly crooked" but noted quickly that this was designed "to suit the convenience of everyman's fields." Local people built local roads to suit their own purposes, but this made things difficult for distant travelers. Washington, a great traveler in his first profession as a surveyor, then as an officer in the war against the French, wrote acerbically that the circuitousness of local roads made finding your way difficult also because "the directions you receive from people are blind and ignorant." Some frustration! (Lay p11) In Washington's time it was regarded as an act of enlightenment to have the military engineers lay out a new town according to a rectangular grid — so the layout of central Philadelphia, old town Alexandria, Washington DC (with diagonals added), or Manhattan north of the Dutch Wall Street area. Among the quite mindless applications of the grid consider the street grid of hilly San Francisco!

Such 'grid' road networks were laid down by rulers going back to ancient Egypt

and Assyria, though the design is normally attributed to Hippodamus, the Greek follower of mathematician Pythagoras for its application in the rebuilding of the town of Miletus following its sacking by the Persians in 440BC. The grid he laid down in the rebuilt Miletus was extolled (Lay's paraphrase p13) as a triumph of "reason" over the "wanton riot of nature," and 'Milesian' road plans became widely applied in the classical world, especially by the Romans in their new towns, but also as far away as China.

Washington was not the only one of the founding fathers to take an enormous personal interest in roads. At Thomas Jefferson's initiative, in the territories beyond the original 13 states, the 1785 Land Ordinance Act specified that land was to be divided into 'parishes' of 6 miles square with each square divided into 36 square-mile units each one being 'quartered' into farms of 160 acres. Farmers were required to deed 33 foot strips on either side of all the boundaries to provide 66 foot rights of way for roads, this being the estimated width needed for a horse and wagon team to execute what we now call a U-turn. This road geometry, which was reinforced in the Homestead Act of 1862, was an instrument of social and economic engineering in that it set a pattern for farm size and land subdivision over vast tracts of the west. It can be seen better today than ever — looking down on states like Iowa and Kansas from an airplane window.

"There's a simple solution to this traffic problem. We'll have business build the roads. And government build the cars."

Will Rogers

Roads as well as serving the ruler's military needs were seen as property lines and as serving safety and sanitation — safety through providing sufficient width to hopefully confine fire to a single city block and sanitation through providing gutters for drainage of waste water. Gutters were perhaps the beginning of streets housing a variety of different utilities — water supply, then later gas, electricity, now telecommunications. The state was involved to adjudicate rights and responsibilities with respect to vehicular safety, trash disposal and common rights of passage. Many roads were indeed commons in the sense that they were wide enough for livestock to graze and feed a bit while resting on a journey.

It was another kind of utility, the Postal service, that enshrined in the Constitution the interest of the U.S. Government in roads. Article I Section 8 Clause 7 gives the U.S. the power "To establish Post Offices and post Roads." Post roads were not defined, but in support of the U.S. Postal Service the founding fathers apparently gave the federal government broad powers in the roads over which the posts might need to be carried — almost any roads in theory. But it is one thing to be granted power, another to raise the funds to exercise it.

From the earliest days of the Republic there have been arguments about what was the fairest and best method to finance roads, and before the introduction of

the spark ignition engine, early this century, there was no feasible way of collecting a fuel tax. A fuel tax is feasible when the fuel used is manufactured at a rather small number of major refineries or must be distributed via major tank farm delivery points. The taxmen can track the fuel when it is handled at a few major facilities. But before petroleum, road vehicles depended on horse and ox power, and their 'fuel' consisted of hay, oats and other feed which was so highly dispersed no tax system could possibly track it to tax it. The most common early method of getting roads built was the 'corvee' — a decree of the local court ordering all able-bodied men in an area report with pick and shovel for a couple of days of local roadwork. The well-healed were able to pay for substitutes to fill in for them. But in the new republic as trade further west developed, local people didn't see why they should engage in forced road labor on behalf of distant interests. It is one thing to band together with immediate friends and neighbors for mutual benefit. A bunch of a dozen or so local people can always work together on a purely local basis. But it is quite another matter to labor for the benefit of through traffic — commercial carriers or travellers from far afield. Whenever the corvee was stretched to road improvements that benefited outsiders, it broke down.

Three alternatives were available to corvee-maintained roads, alternatives that remain today:

1. State funded roads;
2. Nationally planned and funded roads;
3. Turnpikes or essentially investor-financed corporations to build and maintain a road based on user tolls (the turnpike being literally the light pike or spear-like barrier that was turned by the toll collector after the toll had been collected to let traffic pass)

At the center of American transportation politics has been debate and disagreement over how far each of these three models should be used. There have always been those favoring national planning and finance of roads. In 1808 at the request of the U.S. Senate the Secretary of the Treasury Albert Gallatin produced a national plan for highways and canals. He proposed federal construction of roads from the Atlantic coast cities to Detroit, St Louis and New Orleans. In one garbled passage of the report he asserted that public subsidies for transportation of this kind would increase national income by the full amount of any expenditure. A road like any other investment can only be assessed on the specifics of its likely revenues and costs, not on its general nature, but then public officials and bureaucrats, risking the money of others, have always been cavalier in such pronouncements. Gallatin's economic nonsense is repeated by enthusiasts for transportation subsidies to this day.

But if his rationale was faulty, there was a case for improved roads, and Gallatin's plans caught the imagination of congressmen. The U.S. Congress passed a bill to charter a special bank to raise \$13 million over 20 years for Gallatin's national roads. The bill was vetoed in 1817 by President Madison who

argued it infringed state rights. In so doing he averted national planning of highways a while. A federally subsidized National Road between Cumberland Maryland and Wheeling West Virginia (now US-40) had been built in the 1810s but the U.S. did not have money for its maintenance. Again there was contention, the Congress in 1822 passing a bill to impose tolls for maintenance of this Cumberland-Wheeling road. Again a president intervened, this time President Monroe, vetoing the bill again as unconstitutional. The issue of responsibility for roads was such a big issue it became one of the earliest tests of the whole structure of the U.S. Constitution, being among the first exercises of a presidential veto power.

In a pattern that survives to this day the Cumberland-Wheeling "National Road" so-called was maintained by the states with amounts of federal support that varied from Congress to Congress depending on the vagaries of political machinations in Washington DC. In general government funding for roads was so poor in the age of horsepower that turnpike corporations were the major mechanism for improving and maintaining roads. Some of these were what would be called today 'public-private partnerships' with government charters and some subsidization or capital contributions. There was plenty of 'innovative financing' in which landowners subscribed to stock on condition that the road service their property. Straight investor money was garnered too..In the early days of the republic such turnpikes provided the main basis of intercity transportation. And they were a considerable business. By some estimates half the total number of corporations formed in the first half of last century were tollway companies. At least 10,000 miles of private toll roads were built in the first sixty years of the republic (Gomez-Ibanez & Meyer p2). The toll road was often the subject of controversy, political pressure and changing rules. But it was a central economic institution and a major public utility in late 18th and early 19th century America. Local merchants, landowners and farmers financed several thousand turnpikes or toll roads in the northeast, and smaller numbers elsewhere in America — evidence of which remains in the name Pike on many now free-of-charge roads. The investors knew that political interventions to cap toll rates, exempt classes of people from tolls by law, or improve competitive free roads could ruin the turnpike as a self-contained business. So subscription to the stock of the turnpike was often not made on strictly investment grounds. Some did it because they saw it as a civic duty and were subject to peer pressure. Some stock buyers wanted to influence the route of the turnpike to their own benefit. For example the records of the Brandonville Turnpike Company in Virginia show that on June 6, 1847 one E. Brooke pledged \$75 for stock "if it (the proposed turnpike) goes within ten yards in front of my house." (Flemming Hunter p33).

A small minority of the turnpikes gave their investors a good return on their capital. Governments were fickle, accommodating pressures to exempt various classes of travelers from tolls, or to give them special rates (the mails for example). Cheaters got around tollgates by taking tracks around them. Other pikes were badly managed or simply ill-conceived and failed. And competing

technology -- the steam railroad -- came along to supplant the gravel and dirt pikes at least for long haul transportation from about 1850 onward. The animal-power turnpikes grand era was 1780 to 1840. Some lasted to late in the century, others went into decline or were taken over by local authorities. In most cases they inherited from the turnpikes much improved roadway, and bridges which would never have been built otherwise.

"No tax can operate so fair and so easy, as that of paying a turnpike (toll), since every person is 'taxed' in proportion to the benefit he derives from a good road, and all strangers and travelers are made equally tributary to its support. What can be more just?"

Elkanah Watson

"Commonplace Book" 1795

The Auto Era

In the early years of the automobile, the gasoline tax was seen as a sensible user fee for roads. The federal Department of Agriculture gained support for "lifting farmers out of the mud" with a program of tax financed rural roads. In the 1920s a Federal Bureau of Public Roads was established. It successfully pushed the notion that a nationally planned network of roads was needed and that only government funding would ensure that this could be developed. The modern motorway or freeway form, especially suited to tolling because of its limited access and egress points, was not implemented until the 1930s. That coincided with the great Depression's discrediting of capitalism and its celebration of the state, as seen in the New Deal and its environment of government activism. In Germany, Adolf Hitler presided over the use of state funds to build a superb national network of motorways ('autobahns'), which had a major military function, playing a major role in the 'blitzkrieg' or rapid deployment of the Wehrmacht against its adversaries in World War Two.

In the U.S. too the government dominated highway building. In New York City, Robert Moses the great city government activist pressed government money into a system of expressways to supplement the early parkways (essentially low-speed, limited dimension freeways of a high esthetic standard in a parklike setting). The parkways drew on the inspired park designs of Frederick Law Olmstead. New York's Central Park is interesting for incorporating some of the grade separation features of a motorway in the design of horse-drawn carriageways and walking paths built in the 1870s. Lake Shore Drive in downtown Chicago which opened to traffic in 1933 is described as the first "superhighway" that discarded the pastoral setting of the parkway for the unapologetic utilitarianism of a mass automobile movement system. 1937 had seen the first proposal for a metropolitan-wide network of freeways in Los Angeles, an idea promoted by a city engineer and the Automobile Club of Southern California (though described then with the British term "motorway").

The first freeways actually built in Los Angeles were built 1938-1940 -- the Arroyo Seco (later renamed the Pasadena Freeway) and a one mile piece of the Hollywood freeway. Their funding was a patchwork of government moneys including the federal Works Progress Administration, city funds and the first gas taxes which were imposed by local governments. The next L.A. freeways got funded by the feds under the National Strategic System of Roads umbrella, also ensuring priority in allocations of administered supplies of steel and cement.³⁴ During and after World War Two the political climate through the country was favorable to government initiative in roads.

"When the carriages which pass over a highway or bridge...pay toll in proportion to their weight or tonnage, they pay for the maintenance of those public works exactly in proportion to the wear and tear which they occasion of them. It seems scarcely possible to determine a more equitable way of maintaining such works."

Adam Smith

"The Wealth of Nations" 1776

The State Turnpikes

The first auto-era roads to be tolled -- by the state highway department -- were Connecticut's Merritt and Wilbur Cross Parkways in 1937. Various state turnpike authorities were being formed in the war years, following the example of the Pennsylvania Turnpike which opened its first toll motorway stretch in 1940, using the right of way and works of "Vanderbilt's Folly" — an uncompleted set of tunnels and embankments from the abandoned New York Central's south Pennsylvania railroad. The idea for the Pennsylvania Turnpike, the first of the big cross-state turnpikes, was credited to a lobbyist William Sutherland of the Pennsylvania Motor Truck Association and Victor Lequoc an employee of the State Planning Agency, whose role was to garner the maximum federal anti-depression money by coming up with projects that would impress the federal government. (Copper p7) These government owned business corporations pioneered the earliest sections of the interstate highway system and financed some 2,100 miles of tolled freeways between 1940 and 1956 when the Federal-Aid Highway act introduced a federal gasoline tax to finance a highway trust fund out of which the U.S. would fund 90 percent of the cost of new interstate freeways. That act grandfathered the existing tollroads into the interstate system, meaning that they got convenient connections with the new untolled freeways plus nice federal interstate shield signs. However the 1956 federal highway aid act banned any new tolls on interstates. In one of the most spectacular misuses of economic modeling the U.S. Bureau of Public Roads had purported earlier to analyze the feasibility of toll-financing and estimated that only 172 miles out of an initial 14,336 mile interstate system could be supported by tolls! Defense and economic arguments were advanced for the gas-tax financed system which built about 36,000 miles of free freeway in the next 20 years. 2500 miles of new tollroads were built by state turnpike authorities during this period, either

extensions of pre-existing tollroads or in Florida, Oklahoma, and Kentucky freeways which local politicians could not get put on the Interstate map and funded by the feds. The tolled mileage peaked in 1975 at 4,400 miles.

From the late 1960s de-tolling became common. Toll plazas were nuisancesome, the site of stops and queuing that seemed an anomaly on an otherwise high speed highway, so it was generally popular for politicians to promise to get rid of the tolls. Moreover the states could get federal grants for reconstruction and improvement of the grandfathered toll roads only be de-tolling them. By 1990 there were 42,000 miles of non-tolled interstate freeways, 9,500 miles of state financed non-tolled freeways, and 4,100 miles of turnpike. (Gomez-Ibanez & Meyer p7) This decade we have seen very little new interstate freeway, about 300 miles more of state and local government built turnpike, including the first major toll roads in California. And since 1995 two investor-financed highway projects have been built, totaling 24 miles — the Dulles Greenway in Loudoun County Virginia and 91-Express in Orange County California.

Present Dilemmas

Given our history of state dominance of highways this century, we have huge vested interests in its continuance — state highway bureaucracies, an industry of contractors and consultants with a network of work connections into those bureaucracies, and legislators who deal in highway projects as part of the currency of their re-election (highway 'pork' projects!). Two arguments are deployed that buttress the statist status-quo for tax-financed highways — that taxes are the most practical way to pay for roads and the fairest. Both are widely believed, but arguable. Invoking 'fairness' it is said that it is more burdensome for the tradesman earning \$30k or the welfare Mom on \$15k to pay a \$2 toll than it is for a lawyer or other fatcat making \$100k+. The burdensome part of the argument is true of course. It is more burdensome for the fatcats to pay a price for meat, rent for housing, or a parking fine, or electricity, whisky, or anything. It is less burdensome to be rich than to be poor, which is a major reason that people work. The inexorable logic of the tolls-are-unfair argument is that prices for goods and services generally are unfair, which leads to a case for socializing everything and distributing it via the state according to some Godly judgment of 'need.' In the real world where capitalism and markets have been found a rather practical way of getting people to work on behalf of one another via exchanges of goods and services, prices are central. Indeed the lack of pricing and markets for highway services is at the root of many of our highway problems. There is a constant moan from people about the "lack of money" for roads, a complaint you never hear in respect of building new electric generating plants, or new telephone line, or computer factories, car plants, or pig farms. Because those products sell for a price, their producers are able to raise capital by going out into the capital markets with estimates of the profits they may be able to generate through their proposed investment. So if highways are priced with tolls, the highway service providers can raise capital for good toll highway projects based on the

prospective stream of future toll revenues. Moreover such bottom-line oriented managers are likely to manage their highways much better than civil servants working in state agencies. The civil servant whose funding comes from the legislature will be helped by the poor condition of the roads to draw attention to the supposedly dire needs of their agency for more funds in the next budget, so the worse the pavement, and the more aggravating the backups the more likely they are to gain political support for generous funding. No reason to schedule repaving at night, or move quickly to move the overturned tractor trailer, or do life-cycle cost analysis of more robust initial construction versus maintenance or rebuild. No one ever calculates returns on capital at a state highway administration, or sees the adverse results on their income of causing backups.

The second argument against tolls is that they are costly and cumbersome to collect. But compared to what? Taxes are also costly to collect and the tax collecting agencies employ vast staffs and impose large costs on taxpayers. The various "highway user" taxes imposed on fuels used in highway vehicles are a huge subject of evasion. Gasoline used on farms or boats for example is tax exempt, and diesel fuel used in construction or shipping or as heating fuel, so people from organized crime down to small struggling gas stations and tanker drivers heavily exploit the profit to be had in classifying fuels as tax exempt then quietly selling it into transportation usage as tax-paid.

Moreover, the politicians have so long diverted so-called highway 'trust funds' into transit and into non-transport purposes that most citizens understandably resist proposals for higher gas taxes. They don't think they get highway value for the gas tax cent. So tolls are often the politically practical only way to get needed new highways financed and built.

Toll collection via the traditional toll plaza is of course usually cumbersome and costly too, but advances in radio and imaging allow new toll roads to levy tolls on the fly. Most existing toll roads are being retrofitted so that by acquiring a toll transponder (a battery powered radio device the size of a wallet or cigarette pack) a motorist can drive through the toll plazas without stopping and pay their toll by mail or credit card. The first toll roads are now operating without any plaza at all — the investor-built 91 Express in California and a major toll road in Toronto called 407 Express Toll Route. Motorists using 407-ETR either acquire a toll transponder in which case the toll system identifies their toll account on entry and again on exit, computes their mileage, applies the appropriate time-of-day toll, and debits their toll account. If they don't have a transponder, their license plate is photographed by an over-the-road gantry-mounted digital camera and optical character recognition algorithms and links to motor registry databases used to generate a toll bill which will arrive each month in the mail at the vehicle owner's address. With these technologies, costs of toll collection per transaction can be cheaper than gas tax collection, and the hassle of paying on the toll road ended. Some raise 'big brother' concerns which can equally be applied to requirements for social security numbers, vehicle license plates and drivers

licenses, but can be mitigated by anonymous toll transponder accounts, independently verified routine purging of toll data, and the argument that "If you really are concerned about information about your movements being in a toll computer, then just don't use the toll road."

The new automated toll roads are bringing the market into highway service, charging higher toll rates in peak hours than out-of-peak. They do that because they make more revenue that way. The time savings of using a free flowing toll road are much greater in rush hours than out-of-rush, so motorists are prepared to pay more in rush hours. It makes business sense too in that the costs of catering to extra motorists are very low when the toll road has spare capacity whereas they are high when the road is nearly full, and extra vehicles will delay others, degrade the service, and alienate customers. Highways can operate much more efficiently if they can persuade some non-time sensitive motorists to defer their trips to times when there is spare capacity, or to use transit or carpool, so variable toll rates are a powerful tool for raising highway throughput and increasing transport productivity. They can be used to prevent backups and all the resultant frustration, pollution, energy and time waste and accidents that accompany unpriced or fixed roads.

Asked recently to devise a method to manage smooth efficient traffic flows on high-occupancy vehicle lanes under construction on State Route 91 in the western portion of Orange County, consultants said "variable tolls." It is the way commodity markets work, the way we get our food, our housing, most things. The idea is old and tried and proven. New technology allows it to be implemented on highways and the heavy hand of statism lifted from motorists at last.

A variety of methods are possible to reduce the role of the state:

(1) The various state and local government owned turnpikes, toll bridges and tunnels can simply be sold off to the highest bidders. There are about 100 of these and they collect about \$5 billion annually in tolls and are probably worth \$20b to \$30b. The advantage is that as commercial entities they would be free of political pressure to build uneconomic toll roads and under pressure from capital markets to improve their return on capital and their efficiency. Also much talent is locked up in organizations such as the Pennsylvania Turnpike and the New York State Thruway Authority, which as state agencies are not permitted to operate outside their states, let alone abroad. French, Italian and Spanish toll companies that have been privatized are doing major business abroad (including in the U.S.) because as companies they suffer no such territorial restrictions. So far only one government owned toll facility in the US, the Detroit-Windsor Tunnel, has been privatized. Now owned by a New York investor this 1930s structure is being extensively rehabilitated.

(2) The maintenance of highways is increasingly being privatized just as construction of highways has always been based on competitive contract, but

they can get right out of the business by reducing gas taxes and calling for proposals from business for funding roads. Many states (VA, MN, CA, AZ, SC, TX, UT, WA) already have mechanisms in place for investor financed companies to build new roads as toll projects and a number of projects are under way. The advantages of this are that investors rather than taxpayers take the risk on a highway that does not work out. Investors are not subject to the huge costs of Davis Bacon and other laws governing pay of employees, and of conforming to Byzantine state and federal regulations of various kinds. They can innovate in doing simultaneous design and build. Their toll setting hopefully will be less a political issue than a commercial decision. If management does not generate a good return on capital it will be subject to the competitive pressures of capital markets — it will risk a takeover.

(3) Existing highways can be either sold off by the states or franchises awarded to business to improve and maintain them in return for rights to levy tolls, sell off utility right-of-way and run service and refreshment concessions. Users of the toll roads should be exempted from gas taxes and other state charges that would otherwise have gone to the upkeep of the roads. In commercial ownership and management, highway service will be more responsive to motorist needs than state 'pork' roads. Tolls will vary according to competitive pressures of revenues and costs. Roads that are unprofitable will see writedowns in their capital and varying degrees of closure. Roads that get away with charging very high tolls and which make above-average profits will have the wherewithal and the incentive to expand capacity or they will attract competitive new capacity — which is how the market works in other goods and services. Investors will have to negotiate undertakings from governments on the extent of untolled competition. Toll roads can thrive in competition with 'free' stop & go traffic on congested roads, but they cannot collect tolls where there is a free-flowing freeway that has been built and is maintained with tax revenues.

It seems most likely that existing highways will be privatized where they are dilapidated and undersized — needing expensive reconstruction and enlargement work. Politicians can then say: "Either we increase gas taxes, or enlist the private sector, or you suffer the collapsing, overcrowded road." This is the situation with many major inner city expressways such as the Gowanus and Brooklyn-Queens Expressways in New York and the Schuylkill and I-95 in Philadelphia but is also true of some major rural interstates. An example is I-81 which in 325 miles through Virginia needs widening from 4-lanes to 6 and 8 lanes at a cost of over \$2 billion. About a third of the traffic and 90% of the pavement damage is from heavy trucks moving between New York and the south, a strong argument for Virginia taxpayers to support tolls. In Germany and other European countries tolls are being imposed on heavy trucks first, with the whole of the autobahn system due to start tolls on trucks in 2000. It is the heavy weights which break up pavement and require reconstruction. Bridges have to be built to carry the heaviest vehicles so heavy trucks determine most of their costs.

However under state control truck charges are mainly the product of lobbying and political favor-trading, not commercial considerations of what it costs to cater to trucks. Economists have long argued that highways should charge heavy trucks according to a pavement damage formula based on axle loads. The Pennsylvania and Ohio turnpikes have done this for over 40 years having automatic weigh-in-motion scales at all entrances, so they are equipped to set charges that will at least cover pavement damage. But apart from Oregon no state highway system has even attempted to develop a rational truck highway use charge. Indeed most states class vehicles and levy charges according to the number of axles rather than the load per axle. Their charges perversely encourage loads to be spread over a minimum number of axles, accentuating pavement damage.

In return for rational road-stress related tolls, that would arise out of highway privatization, truckers should stop being charged vehicle-mile fees, fuel and tire taxes and large state licensing charges.

Highways are a perfect case of what theorists have described as imperfect competition. One highway is rarely perfectly competitive with another because it is not right alongside it, so it serves some places better than other roads. At the same time no highway is ever a complete monopoly because there are other ways of getting there. Highway profits will always be constrained by competition. It is possible to bring some of the benefits of the marketplace by introducing tolls while maintaining state ownership. That is what the Germans plan for their autobahn system and it seems to be the major British approach. The Korean, Taiwanese and Japanese motorway systems are entirely tolled. So is the emerging Chinese motorway system. This is commercialization. In France and Italy the motorways are tolled and some of the largest companies are investor owned, but they have state-controlled franchises for particular regions or routes. Full privatization would transfer ownership to investors and allow the assets to be traded, introducing the additional market discipline of competition in both consumer and capital markets. By allowing takeovers, consolidations and spin-offs of highway assets the markets would ensure that highways are managed for the best return on capital — the dynamic that gives us our food, our fuels, our housing, our electric power and all the rest of our standard of living.

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