Policy Study

February 1992

Private Tollways: How States Can Leverage Federal Highway Funds

by Robert W. Poole, Jr.

EXECUTIVE SUMMARY

Congress has dramatically changed the rules on highway finance in enacting the Intermodal Surface Transportation Act of 1991 (ISTEA). Reversing 70 years of federal opposition to toll roads, the new law encourages state governments to make use of private capital and direct user payments to increase total investment in our highway system.

This change in policy is critically important, given the degree of underinvestment in highway infrastructure of the past two decades. The Federal Highway Administration estimates that, as a nation, we need to invest $13 billion per year more than at present just to prevent further deterioration of the highway system, and as much as $42 billion/year in order to restore highway and bridge conditions to their quality level of two decades ago.

ISTEA will permit states to leverage their federal highway allocations to draw in substantial private investment capital--if states choose to take advantage of these provisions. Overall, this could lead to additional private investment of $19 billion per year. This would effectively double the amount available from the federal highway trust fund.

Under the terms of ISTEA, federal highway funds may now be used for the following types of toll road projects:

1) Construction of new toll highways, bridges, and tunnels (except on the Interstate system);
2) Rebuilding of existing toll highways, bridges, and tunnels (including those already on the Interstate system);
3) Rebuilding existing free highways as tollways (except those on the Interstate system);
4) Rebuilding existing free bridges and tunnels as toll facilities (including those on the Interstate system);
5) Demonstrating congestion pricing in large urban areas (including up to three projects on urban Interstates).

For highway projects, the federal share may be up to 50%; for bridges and tunnels, up to 80%. Any of these projects may be privately owned, as long as there is an ongoing contractual agreement with the private firm. The federal funds may be made available as grants or loans, which permits the creation of state revolving loan funds for toll projects.

This report outlines the possibilities for private toll projects in the United States, in the context of these expansive new federal provisions. In order to make use of these provisions, state enabling legislation will usually be necessary.

I. TODAY'S U.S. HIGHWAY SYSTEM

A. The Problems of "Free" Public Highways

The U.S. highway system today suffers from two principal problems: urban traffic congestion and deteriorating physical conditions. Some 70% of all urban Interstates are congested during rush hours, and the problem worsens year by year. Deferred maintenance has left a huge backlog of highway repair and rehabilitation; some 39% of all U.S. bridges are classed as "deficient" by the Federal Highway Administration.(1)

Federal Highway Administration (FHwA) data show that although local facilities constitute the majority of all highway mileage, in 1989, Interstates and major state highways accounted for 42% of rural vehicle-miles travelled (VMT) and 57% of urban VMT. These are the facilities most critical to the nation's commerce and productivity.

Urban freeways, in particular, are plagued by traffic congestion. FHwA's computer model of traffic congestion projects 11,008 million vehicle-hours of delay by the year 2005. Conditions today already impose huge costs on urban drivers. The most comprehensive assessment of urban traffic congestion has come from the Texas Transportation Institute, which is halfway through a six-year study measuring mobility and congestion. Their current estimate is that the annual congestion cost in 39 metro areas was $34 billion as of 1988, as measured by the cost of travel delay, fuel wasted, and insurance.(2)

TTI assessed daily VMT for 39 major metro areas, finding that the problem was most acute in the western region of the United States. Individual cities with especially high levels include Washington, D.C. (65% of daily VMT is congested), Chicago (55%), Miami (60%), Atlanta (45%), Houston (70%), Dallas (55%), Austin (55%), Phoenix (60%), Los Angeles (75%), San Francisco/Oakland (80%), and Seattle (70%).

A second major problem is deteriorating pavement conditions, a consequence of deferred maintenance. FHwA data indicate that 25% of the Interstate system's miles are in only fair or poor condition. For bridges, the situation is even worse, with 28.6% of the Interstate system's bridges either structurally deficient or functionally obsolete. Overall, some 39% of the nation's bridges fall into one of these deficient categories.(3)

FHwA has devoted considerable effort to estimating the cost of refurbishing the nation's highway and bridge system. The agency uses two scenarios: (a) Maintain Current (1989) Overall Conditions and Performance, and (b) Improve Overall Conditions and Performance. The total annual cost of these two scenarios over

the next two decades is $46 billion/year and $75 billion/year, respectively.(4) This compares with actual capital investment of only $33 billion in 1989, the most recent year for which FHwA data are available. Thus, current investment falls short by $13 billion per year of the level necessary even to maintain today's poor conditions, let alone the $42 billion/year that would be necessary to improve its capacity and performance.

B. Traditional U.S. Toll Roads

Much of America's earliest road system was developed by private, for-profit toll road companies. The first such toll road was chartered in 1792, to connect Philadelphia and Lancaster, PA. By 1800, 72 turnpike companies had been chartered in nine northeastern states, with Connecticut and New York leading the way.

From the beginning, the turnpikes were significantly regulated, generally via their state-granted charters. Economist Daniel Klein notes that the typical charter granted the company eminent domain powers and sometimes protection against parallel, competing routes. But in exchange, it tightly regulated toll rates, specified the location of toll gates (generally too far apart, facilitating toll evasion), and granted many exemptions from tolls to categories of local travelers. These conditions led most turnpikes to be unprofitable.(5)

By contrast, early private toll bridges were generally a commercial success. The first, Boston's Charles-River Bridge, opened in 1786 and gave its investors a 10.5% return in each of its first six years. By 1798, some 59 bridge companies had been chartered in the northeastern states. Though a number failed, many were profitable. In sharp contrast to the turnpikes, the toll bridges did not face a large toll-evasion problem, nor were exemptions from paying tolls generally a part of their charters. And in contrast to the turnpikes, they were able to obtain rate increases when their revenues fell below expectations.

Private turnpike companies continued to be organized throughout the first half of the 1800s, despite the evidence that most would be unprofitable. Klein and others have concluded that most of the investors were local people who would receive other economic benefits (land-value increases, for example) from the improved transportation provided by the road. There were also social pressures to invest in the turnpike companies. Klein and Majewski also note that, like most other contemporary corporations, the turnpike companies were funded entirely with equity, in contrast to the debt-financed turnpike "trusts" in England during the same period.(6)

By the middle of the 19th century, most of the turnpike companies had gone bankrupt. Starting in 1825, state-chartered (and often subsidized) canals provided

a serious competitive alternative. Between 1825 and 1845 turnpike mileage dropped considerably, with additional competition coming from the emerging (state-subsidized) railroad industry. Legislatures seldom granted toll rate increases or permitted changes in operating conditions to curtail "shunpiking" (toll evasion). Most turnpikes eventually reverted to the public through abandonment. The stock by that time had become worthless, and the owners were generally eager to be relieved of the burden of maintaining the road.

The 20th century in this country has been characterized primarily by indirect financing, principally via gasoline taxes, and public-sector provision of highways. The first federal-aid highway legislation, in 1916, required that roads constructed with federal aid must be toll-free. When the Interstate highway program was being debated in the 1950s, some economists, notably Milton Friedman, proposed a national tollway network, but automobile and trucking associations prevailed. The program continued the federal opposition to tolls, as well as providing for a 90% federal share of capital costs.

States, however, were free to make use of toll financing on their own. During the 1940s, the second wave of U.S. toll roads began, with the creation of the Pennsylvania Turnpike. Others, including the New York Thruway, the Maine Turnpike, and Florida's Sunshine State Parkway, followed. In some cases, by the time the Interstate program was ready to begin, the preferred route was already occupied by a state-built toll road. In most such cases, federal policy permitted the tollway to be incorporated into the Interstate system. There were 2,687 miles of toll roads as part of that system, as of 1989.(7)

II. THE REBIRTH OF PRIVATE TOLL ROADS

A. Lessons from Abroad

Since World War II, toll roads have become far more common overseas than they are in the United States. The International Bridge, Tunnel & Turnpike Association (IBTTA) reports 9,006 miles of toll roads in Europe as of 1990, compared with 4,657 in the United States. Most of the major intercity highways in France, Italy, and Spain are tollways, and most have been developed under a form of public-private partnership called Build-Operate-Transfer (BOT).

The basic BOT concept is that government awards a long-term franchise (called a "concession" in Europe) to a private consortium that finances, designs, builds, and operates the toll facility. At the end of the franchise period, the road reverts to the government. Nine-tenths of Italy's motorway system has been built by this method, as has much of France's. In 1990 French law was amended to allow private firms to provide urban (as well as inter-city) tollways, and in 1991 the

government announced a major new intercity motorway program, much of which would be developed via BOT.

The world's largest BOT project to date is the $14 billion Channel Tunnel linking Britain and France. This ambitious project, scheduled to open in 1993, is funded entirely by private capital, a combination of debt and equity. There are no government loans or guarantees, only a long-term franchise agreement.

Britain in the late 1980s decided to enlist the private sector for a major share of new road and bridge infrastructure. Under way are new bridges, Dartford and Severn, and the Birmingham Northern Relief Road, with another 10 projects in the pipeline. Britain will regulate toll rates only on monopoly projects (such as river crossings without competition); toll highways with competition from free roads will be unregulated.(8)

Other European countries beginning to make use of private tollways via BOT include Ireland, The Netherlands, Sweden, Turkey, Germany, Hungary, Czechoslovakia, and Poland.

In 1990 Latin America began embracing BOT for highway projects. Mexico embarked on an ambitious 5,000 km. tollway development program, most of which is being carried out by private consortia under BOT franchises. Argentina is turning over existing (badly maintained) federal highways to private firms, whose franchises permit them to charge tolls in order to finance major rehabilitation and expansion. Venezuela and Columbia announced plans for similar programs in 1991.

Private bridge, tunnel, and highway projects are also proliferating around the Pacific Rim. Australia's New South Wales has three BOT toll highways under development, as well as the $750 million Sydney Harbor Tunnel. Hong Kong is embarking on its third BOT tunnel, and is considering privatizing its four government-run tunnels. Malaysia has a major North-South BOT expressway under construction, and is considering two more private tollways. Thailand is considering BOT for a major ring road at Bangkok. Even China has its first BOT tollway under construction, a 180-mile route from Hong Kong to Canton and Macao, being built by a Hong Kong firm under a 30-year franchise.

In short, private toll facilities are experiencing a worldwide surge in popularity. Governments have found that user-funded tollways have their own built-in source of funding to guarantee proper maintenance and repair. Private consortia are able to use a franchise agreement to raise private capital for projects with good prospects of generating enough traffic to be profitable. Having to meet this kind of a "market test" helps to sort out cost-effective projects from less viable projects. Private firms typically can make use of fast-track "design-build" techniques to

complete the project in significantly less time than traditional government procurement methods. And in congested urban areas, tolls can be used as a form of demand management, to keep traffic flowing smoothly, rather than simply as a means of paying for the project's cost.

B. State Private Tollway Legislation to Date

Five states have thus far enacted legislation to authorize private toll projects: Arizona, California, Florida, Texas, and Virginia; Puerto Rico has also enacted enabling legislation. In addition, legislation has been proposed and discussed in Illinois, Missouri, and Minnesota, and projects have also been proposed in Colorado, Mississippi, and Nevada.

The principal provisions of the five existing state legislative measures are as follows:

Arizona's Highway Privatization Act, enacted in 1991, authorizes two pilot projects on a Build-Transfer-Operate (BTO) basis and two on a Build-Operate-Transfer (BOT) or Build-Own-Operate (BOO) basis. Like the California and Virginia laws, after which it was modeled, it calls for projects to be proposed by the private sector, with the winners to be selected by the Arizona Department of Transportation (ADOT). No state funds can be used, and no state guarantees are to be offered, but the state will make available its power of eminent domain, if required for right-of-way acquisition. Uniquely among the private tollway laws thus far, Arizona's is the first to offer tollway users the opportunity to receive a refund of gasoline taxes paid for miles driven on the tollways. No regulation of toll rates is provided for, only a ceiling on the rate of return which a private firm may earn on such a project (with any excess revenues to go into a state highway fund).

California's AB 680, enacted in 1989, authorizes four pilot toll projects, of which at least one must be in Northern California. The projects are to be developed on a BTO basis. No state funds may be used, but the legislation is silent on local financial assistance; that omission has led to controversial proposed legislation in 1991 to forbid any financial or right-of-way assistance to AB 680 projects. The California Department of Transportation (Caltrans) may exercise its power of eminent domain on behalf of a tollway project if private efforts to acquire right of way are not sufficient. Toll rates are to be unregulated, but each franchise agreement will include a ceiling on rate of return, with any excess revenues to be paid into the state highway fund.

Florida's CS/HB 175 was enacted in May of 1991. It grants the Florida Department of Transportation (DOT) the right to enter into agreements with private firms for "the construction and operation of privately owned and financed

transportation facilities." The brief legislation includes no provision for reversion of ownership to the state, making Florida's the first full-fledged Build-Own-Operate program. However, it requires separate legislative approval of each such project and also provides that the "amount and use of toll or fare revenues may be regulated by the department to avoid unreasonable costs to users of the facility." In addition, it requires each project to comply with all DOT "rules, policies, procedures, and standards," which might be taken to mean DOT's procurement regulations. It does provide for DOT use of eminent domain on behalf of an approved project, and permits the use of some state funds in cases of "overriding state interest." The private sector will be able to submit unsolicited proposals, but the process cannot begin until DOT has developed its implementation rules, expected early in 1992.

Texas's HB 749 was enacted in June 1991. It makes the Texas Turnpike Authority (TTA) the lead agency for private tollways, but requires coordination with the new State Transportation Department for any such tollways that would become part of the state highway system. The new law authorizes the TTA to enter into agreements with toll road corporations for private or joint (TTA-private) tollway projects. Private projects could apparently be carried out on either a BOT or BTO basis, with the state maintaining ownership at all times. No state or TTA funds or guarantees are to be offered, except for joint-venture projects. HB 749 requires TTA to negotiate provisions in the franchise agreements regarding toll rates, but does not require rate regulation, per se. Allowable projects could include tollways affecting other U.S. or Mexican states. Surplus revenues from one private or TTA turnpike project may be transferred to other TTA turnpike projects, consistent with applicable bond covenants.

Another provision of HB 749 repealed Texas's old (1913), never-used private toll road statute, Article 15281, which has been controversial because it granted the power of eminent domain to toll road corporations. But the repeal provides that toll road companies formed prior to June 1, 1991 continue to exist with the rights and powers provided in the repealed statute. Nine such firms incorporated prior to that deadline, announcing plans for specific routes, both urban and inter-city.

Virginia's Highway Corporation Act was passed in 1988. It permits private developers incorporated as public service corporations to develop, own, and operate tollways on a BOT basis. Projects must be approved by the Virginia Department of Transportation (VDOT), and the toll rates and rate of return are regulated by the State Corporations Commission (SCC). Title to the project must return to the state 10 years after the project debt has been repaid. The law makes no provision for use of eminent domain powers on behalf of a private tollway, but under existing state law counties may exercise such powers for firms pursuing public-service projects regulated by the SCC.

III. TYPES OF PRIVATE TOLL PROJECTS

There are three basic market segments in which highway privatization projects are being pursued. These are:

(1) New urban tollways, primarily for the purpose of congestion-relief. Prime examples are the two private projects being developed under AB 680 in California's Orange County.

(2) New inter-city tollways, passing through largely undeveloped land, generally to connect important population or business centers. Prime examples are the proposed Chicago-Kansas City Tollway and the proposed Camino Falcon project (between Laredo and Corpus Christi) in Texas.

(3) Rehabilitation and/or expansion of existing highways, bridges and tunnels, especially those suffering from severe "deferred maintenance."

Each type of project is driven by different demands; hence, each will be discussed in a separate subsection below.

A. Urban Congestion Relief

In 1987 the Eno Foundation for Transportation released a landmark study on the changing commuting patterns of the 1980s. This was the first major report that documented the shift of job locations to the suburbs, with the result that the primary form of commuting has become suburb-to-suburb (rather than the traditional pattern of suburb to central business district). Other key factors in this change include a major shift away from other modes (transit, walking, work-at-home) to auto commuting, especially single-occupant vehicles.(9)

Pisarski's report carries a number of implications for transportation facilities. The road system in metropolitan areas has tended (like the transit systems) to be radially oriented and thus poorly matched to the suburb-to-suburb pattern of today's commuting. In the absence of adequate local commuting highways, the area's Interstate facilities tend to be used for commuting--and therefore to be overloaded. Pisarski also notes that the new patterns of jobs and housing "will serve to reduce the importance of the 'peak hour' and 'peak direction' as the driving forces in system design and integration." Indeed, USC transportation planner Peter Gordon has found that the shift of jobs to the suburbs and the resulting change in commuting patterns has thus far helped to offset the growth in vehicles and trips, by making many commuting trips shorter in distance.

The greatest increase in rush-hour traffic has come not from commuters but from non-commuters–primarily trips for school, social, and recreational purposes.

Overall, in 1983 (the latest year for which these particular data are available) 55% of the trips in the A.M. peak in major metro areas were non-work trips. And an even more startling 72% of trips in the P.M. peak were non-work trips.(10) These figures imply that direct pricing during rush hours--"congestion pricing"--may be effective in shifting discretionary trips out of the peak period, as well as encouraging more drivers to ride-share.

B. Inter-City Toll Highways

A second type of project is the more-traditional toll road connecting point A to point B, in order to facilitate travel by autos and trucks between those two points. From a commercial (privatization) standpoint, the market for inter-city roads is driven primarily by truck traffic. For example, although commercial vehicles constitute only 21% of the traffic on the Indiana Toll Road and 25% of the traffic on the Ohio Turnpike, they account for 63% and 65%, respectively, of the revenues of those two representative toll roads. This is due to the typical toll road pricing structure, which charges for both weight and distance. The recent feasibility study of the proposed Chicago-Kansas City Tollway recognized that attracting truck traffic was the key factor in this facility's commercial viability.(11)

Since World War II, intercity trucking has grown from carrying only one-fourth of all intercity freight tonnage to some 40% by 1986. There has been a substantial modal shift to trucking from railroads, fueled in no small part by the development of the Interstate highway system. Indeed, Apogee Research has noted that the trucking industry has become increasingly dependent on roads of Interstate quality.(12) Five-axle combination trucks (18-wheelers) in 1986 accounted for 20% of vehicles traveling on rural Interstates, up from only 9% in 1970. Between 1980 and 1984, combination truck traffic grew by 40%, more than twice as fast as all other traffic, according to Apogee's analysis.

Despite the completion of the Interstate system, there are still niche markets where new highways can offer significant time savings and upgraded service levels. Recently proposed projects of this sort include the Front Range Toll Road in Colorado, the Chicago-Kansas City Tollway, and the Camino Falcon in Texas.

Certain key factors can be critical in attracting truck traffic--especially heavy weight combination trucks. The Chicago-Kansas City Tollway study explored this question in some detail. It noted that in contrast with the present federal limit of 80,000 lbs. on most Interstates, only 11 relatively low-population Western states permit gross weights greater than 105,500 lbs. The only roads which permit such heavy vehicles in the East are toll roads: the Massachusetts Turnpike, the New York Thruway, the Ohio Turnpike, the Indiana Toll Road, the Kansas Turnpike, and Florida's Turnpike. Hence, the market opportunity for private tollways is to offer more routes for such heavy-weight vehicles.

To configure an intercity toll road for heavy combination trucks, the following features are required:

- Added pavement thickness, typically between 1.0 and 1.5 in.
- Stronger bridge design, such as AASHTO equivalent HS-31.
- Wider pavement and/or flatter turning radii for interchange ramps, weigh stations, and rest areas.
- Truck climbing lanes and/or minimum truck speed limits.
- Maximum 3% grades.
- Longer merging and weaving lanes at high-volume interchanges.

Additional design features that would help to attract truck traffic would be non-stop toll collection via ETC (electronic toll collection) and weigh-in-motion systems. Both types of capability are now commercially available.

C. Rebuilding Existing Highways, Bridges, and Tunnels

Large fractions of Interstate and major state highway mileage are rated as deficient by FHwA. Certain states–notably Alaska, Tennessee, Mississippi, Missouri, Oregon, Rhode Island, and Wisconsin--have significantly higher pavement deficiencies than others. Apogee points out that roads in poor condition increase the operating costs for a large combination truck by 5.4 cents/mi. over the costs of operating on a road in good condition; the difference between very good condition and very poor condition works out to 9.5 cents/mi. Since these numbers are in 1982 dollars, the real costs in today's dollars will be considerably higher.

FHwA maintains a state-by-state inventory of deficient bridges. The latest figures reveal that some 28% of bridges on the federal aid system nationwide are "deficient." Approximately half of these are considered structurally deficient and the other half functionally obsolete (e.g., having only two lanes where four are needed). The picture is far worse on non-federally aided bridges, with 53% of all these bridges rated as deficient, a majority of which are structurally deficient.

This huge inventory of bridges needing repair, rehabilitation, and replacement represents a significant potential market. A number of transportation experts have proposed some form of temporary privatization as a feasible way of rapidly increasing the capital investment in bridges. Former UMTA Administrator (and now head of the Toll Road Corporation of Virginia) Ralph Stanley has set forth one such plan, known as the Bridge Corps.(13) The basic idea would be for a private firm or consortium to receive a franchise to take over, rebuild, and operate the bridge as a toll facility for a sufficient period of years to recover the capital costs plus a return on investment, after which the franchise would terminate and the tolls would be removed.

IV. LEVERAGING FEDERAL FUNDS

The Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) contains the most sweeping privatization provisions ever enacted by Congress. It reverses the historic opposition to tolls and encourages all types of highway facilities (except existing non-tolled Interstates) to be operated with tolls and by the private sector under some form of ongoing franchise.

Specifically, states may henceforth use federal highway funds for the following types of toll projects:

1) To construct new toll highways, bridges, and tunnels (except on the Interstate system);

2) To rebuild existing toll highways, bridges, and tunnels (including those already on the Interstate system);

3) To rebuild existing free highways as tollways (except those on the Interstate system);

4) To rebuild existing free bridges and tunnels as toll facilities (including those on the Interstate system);

5) To demonstrate congestion pricing (i.e., tolls that vary by time of day and level of traffic) in up to five urban areas, including up to three projects in which such pricing could be used on urban Interstates.

ISTEA permits the creation of State Transportation Revolving-Loan Funds. Loans of up to 30 years may be made from a STRF, and such loans may be subordinated to any private debt financing on a project. Although a STRF loan could only be extended after a project had received environmental approval, federal grant funds could be used under ISTEA to assist private firms in doing the (high-risk) environmental work. States may collect interest on STRF balances, and may charge loan origination fees, as long as these funds are invested in transportation infrastructure.

A very important provision waives the normal requirement that previous federal funds would have to be repaid in the event that a highway, bridge, or tunnel is privatized. Also, tolls on these projects may be retained after the project debt is retired, and surplus toll revenues (above amounts needed for a reasonable return on investment) may be used for other transportation projects. In addition, ISTEA provides that federal rights of way and other federal land be made available for tolled expansion of free highways.

How can states best take advantage of these provisions? The key concept here is that of leverage. With proper use of the principle of leverage, these new provisions can significantly increase the total amount of investment in highways, bridges, and tunnels, thereby helping to close the gap between what should be spent and what has been available from traditional sources.

If states fail to make use of these new provisions, i.e., by simply using federal funds in the traditional way to match state funds for "free" highways, there will be little increase in highway investment (since the total amount appropriated for ISTEA does not represent a major increase in highway funding). The two key leverage principles that will expand total investment are (1) wherever possible, using the federal funds as loans rather than grants, and (2) using as small a share as possible to attract the maximum amount of private funds--i.e., not using the maximum permitted shares of 50% (highway) and 80% (bridge, tunnel).

A brief example will illustrate the kind of leverage involved. Referring to Table 1, let us consider a hypothetical state that is eligible for $100 million of federal highway funds and has another $100 million of its own to invest. Let us also assume that there is a total of $500 million worth of approved projects in the state's highway plan, representing 12 projects labeled A through L.

Under the conventional "business as usual" scenario, the state uses its funds to match the federal funds on a 20% state/80% federal basis. This scenario permits 6 of the 12 projects to be built, investing the combined $200 million from federal and state sources.

The alternative approach is to seek to take maximum advantage of the new public/private partnership provisions of ISTEA. Rather than using the 50% or 80% ceilings, assume that the state decides to use the federal funds wherever possible as a 25% share for privately developed BOT projects. The private sector must provide the other 75% for those projects. Assuming that many of the projects on the list are suitable for tolling, this scenario results in developing all 12 projects (8 as private tollways, 4 as free state highways), generating $300 million of new private investment in addition to the $100 million of federal and $100 million of state funds. Total investment has soared to $500 million, compared with $200 million in the business-as-usual case--a 150% increase.

Obviously, the specific circumstances in each state will be more complex than in this highly simplified example. Not all projects will be feasible either for conversion to tolls (in the case of existing facilities needing rebuilding) or for building as tollways to begin with. Some toll projects may need more than 25% federal support in order to be financially feasible, especially bridge and tunnel projects. Some projects may need little or no federal funds, and will be viable as totally private endeavors. But it seems highly plausible that the overall impact

could be up to one-third that of our simplified example–i.e., that states could use leverage to bring about a 50% increase in total highway investment.

FHwA figures indicate that states have been investing some $19 billion per year in highways. ISTEA will make available approximately another $19 billion/year in federal highway funds to the states over its six-year life; that's a total investment of $38 billion/year. A 50% increase in this total amount would mean the addition of $19 billion/year in new private investment. That would more than fill the $13 billion/year gap identified by FHwA between what is now being spent and what should be spent to prevent further deterioration of highway conditions. It would also begin the long-overdue process of improving the conditions of our highways and bridges.

Table 1
State Highway Funding Example

Project	Cost	Conventional		Public/Private Partnership		
	($millions)	Federal	State	Federal	State	Private
A	100	-	-	25.0	-	75.0
B	70	-	-	17.5	-	52.5
C	60	-	-	15.0	-	45.0
D	50	40	10	12.5	-	37.5
E	40	-	-	10.0	-	30.0
F	40	32	8	10.0	-	30.0
G	40	-	40	-	40	-
H	30	-	30	-	30	-
I	20	16	4	5.0	-	15.0
J	20	12	8	5.0	-	15.0
K	20	-	-	-	20	-
L	10	-	-	-	10	-
TOTAL	$500	$100	$100	$100	$100	$300
PROJECTS BUILT:		6				12
TOTAL INVESTED:		$200 million		$500 million		

V. IMPLEMENTING HIGHWAY PRIVATIZATION

To take advantage of the privatization provisions of ISTEA, most states will have to enact enabling legislation. Such legislation would be similar to the state private tollway laws summarized in Section II, authorizing private firms to enter into long-term franchise agreements with state government to finance, design, build, and operate highways, bridges, and tunnels. The measures would need to specifically

provide for using federal funds on these projects, in accordance with ISTEA's provisions. Hence, even the existing state enabling acts will need to be amended for this purpose.

Those states which already have public toll roads may also choose to make use of ISTEA's expansive toll provisions. A toll road authority is usually a separate public agency, with the power to issue bonds, to construct the project, and to operate it. Examples include the Illinois State Toll Highway Authority, the Pennsylvania Turnpike Commission, and the Texas Turnpike Authority. Toll agencies may sometimes be bi-state (e.g., the Port Authority of New York and New Jersey) or county-level (e.g., Orlando-Orange County Expressway Authority). In some cases, a state transportation department will itself embark on tollway projects; recent examples include the state DOTs of Delaware and Florida.

In each of these cases, the toll agency conducts or contracts for engineering and traffic studies to determine a potential project's estimated revenues and costs. If it appears feasible, after further refinement of the analyses, bonds for construction are issued. The (tax-exempt) bonds may be purely revenue bonds (backed only by project revenues), limited obligation bonds (backed by a combination of toll revenues and some tax sources), or general obligation bonds (backed by the full faith and credit of the government in question). Construction is competitively bid, following normal government procurement processes. Upon completion, the project is opened and operated by the toll authority or transportation department.

The private tollway is still a relatively new concept in most states, as the preceding discussions have made clear. Hence, there is no generally accepted standard model for implementing the development process. But the general steps which must take place are relatively straightforward. One recent summary is contained in the new manual for public/private partnerships published by the American Road & Transportation Builders Association.(14) These general steps are as follows:

- Project Initiation
  Generally highway needs are identified by the state agency, either a highway/transportation department or a toll road authority. In some cases (e.g., California's AB 680 process), the lead agency instead invites the private sector to identify needed projects. In either case, some criteria must exist to determine whether or not the project might be a good candidate for privatization, rather than conventional development.

- Create Appropriate Environment
  Both the state agency and private sector proponents must then work to create the proper political environment to permit the project to go forward as a privatization effort. If there is not already suitable legislation on the

books, it must be drafted. The need for private-sector involvement in highway infrastructure must be explained via various levels of public-information efforts, in order to build a political consensus.

- Consideration of Alternative Structures
  The legislative provisions must be tailored to the specific situation existing in the state in question. A single agency should be given the principal role in managing the process of project development, but the choice of agency will depend on the specifics. Numerous suggested legislative provisions to facilitate privatization can be found in the Privatization Council's legislative initiatives handbook.

- Project Solicitation
  There will generally be a two-step process, beginning with a Request for Qualifications, followed at a later date by a Request for Proposals from the pre-qualified firms or teams. The RFP can be either for a specific project identified by the lead agency (as in Puerto Rico) or for project proposals that meet certain criteria (as in Arizona, California, and Florida). In either case, the state agency should make use of specific, objective criteria for evaluating the proposals.

- Team Creation
  A development team generally is formed prior to the time of the RFQ, and will usually include a developer/owner, a financier, an engineering firm, a legal firm, a construction contractor, a public relations firm, a toll-analysis firm, and a toll operating company. Several of these capabilities may, of course, exist within a single firm.

- Project/Team Selection and Negotiation
  The lead state agency will select project proposals that meet its selection criteria and negotiate the appropriate franchise or development agreements.

- Design and Analyze Project
  This often-lengthy step encompasses the initial project design and environmental review process. This stage can be costly and of high risk, since it is not certain that the project will go forward unless and until the environmental hurdles are cleared successfully.

- Final Design and Construction
  This stage involves the completion of design work, which may overlap the startup of construction if the design/build method is employed. It also involves going to the financial markets for the project's financing.

- Operation
  This stage occurs when the state agency signs off on the construction work and accepts the project as ready for operation. At this point, title would transfer in a BTO project. In many cases, the project would become part of the state highway system at this stage.

Besides designating a lead agency for this kind of process, the enabling legislation should include a number of other features. Most of the suggestions below are drawn from a legislative handbook produced by the Privatization Council.(15) Specifically:

1) Allow the private sector to propose projects for privatization. The state transportation agency may well designate certain new and existing projects it considers eligible for privatization, but it should take advantage of the private sector's creativity in spotting additional opportunities.

2) Include both the sale or lease of existing facilities needing upgrades and the finance/construction/operation of needed new facilities. For new facilities, Build-Own-Operate, Build-Operate-Transfer, and Built-Transfer-Operate modes should all be permitted.

3) Make available at little or no charge existing government-owned rights of way; obtaining right of way can be the most difficult part of many projects, especially in urban areas. Existing corridors (freeway medians, rail lines, utility corridors, flood-control channels, etc.) can sometimes be used for new tollways at lower cost than the purchase of entirely new right of way--and with far fewer legal wrangles.

4) Allow the private owner/operator to develop adjacent commercial lands and right-of-way uses (e.g. fiber optics) to provide additional revenue streams. These auxiliary revenues can be critical to project economics.

5) Do not require legislative approval of each project; this will greatly--perhaps fatally--increase the perceived risk to the developer of investing extensive time and money in design and environmental studies, only to have the project vetoed at the 11th hour. The lead agency (generally either the state DOT or tollway agency) should be the single decision-maker with whom the developer interacts.

6) If monopoly aspects imply the need for economic regulation, avoid traditional public utility commissions, and avoid direct control of pricing. Instead, limit the rate of return via the franchise agreement (as California has done) and permit pricing to be uncontrolled; this is especially

important for urban areas, where pricing can be used to control congestion.

7) Do not impose public-sector constraints on private developer/operators who are risking private capital on these projects. In particular, do not require (a) so-called prevailing wage laws, and (b) public-sector procurement processes (which generally preclude the cost-saving design/build process).

8) Provide some sort of guarantee that the public sector will not build future projects directly competitive with the privatized project; on the other hand, it may be appropriate to require that some type of parallel free route already exist.

9) Provide some or all funding for the costly environmental studies which must be carried out prior to a go/no-go decision on a state-sanctioned project. One of the greatest risks to the private developer is expending many millions of dollars on design and environmental studies, only to have the project disapproved on environmental grounds.

Transportation consultant Jeffrey Parker has made several additional policy proposals for implementing ISTEA.(16) He suggests that states may wish to adopt a policy that requires major new projects to be funded by tolls and developed as public/private partnerships. Requiring this kind of a market test for new development would weed out speculative growth-inducing projects, focusing new capacity into those locations where it is truly needed. This would reduce environmental opposition and would discourage "leapfrog" development.

Parker also notes that standardizing the financial terms of such public/private projects would reduce investor uncertainty and permit the "securitization" of private tollway financial instruments. This would reduce risk and permit the development of a secondary market. That, in turn, would make such investments more suitable for institutions, including pension funds.

To sum up, the Surface Transportation Act gives states the opportunity to dramatically increase total highway investment, by attracting private capital to match federal highway funds. State governments should adopt enabling legislation that creates a competitive climate for attracting such funds. If fully implemented nationwide, these provisions could increase total highway investment by some 50 percent.

* * *

NOTE

This report is based on a longer and more-detailed Reason Foundation study, "The Market for Private Toll Projects in the United States." This report is available for $100 from the Reason Foundation.

ABOUT THE AUTHOR

Robert Poole holds B.S. and M.S. degrees in engineering from MIT and did graduate work in management at New York University. He has been president of the Reason Foundation since its inception in 1978. His 1988 policy paper on private tollways inspired California's landmark AB 680 legislation. He served on the Caltrans Privatization Advisory Steering Committee and has advised the White House Office of Policy Development, the President's Commission on Privatization, the U.S. Department of Transportation, and the Federal Highway Administration.

NOTES AND REFERENCES

1. The highway statistics cited in Section I are drawn from two principal Federal Highway Administration reports:

   Selected Highway Statistics and Charts, 1989 Washington, D.C.: Federal Highway Administration, Publication No. FHwA-PL-91-001, 1991.

   The 1991 Status of the Nation's Highways and Bridges: Conditions, Performance, and Capital Investment Requirements, November 1991, Washington, D.C.: Federal Highway Administration (FHwA), U.S. Department of Transportation.

2. James W. Hanks, Jr. and Timothy J. Lomax, Roadway Congestion in Major Urban Areas, 1982 to 1988, College Station, TX: Texas Transportation Institute (Texas A&M University), January 1991.

3. The 1991 Status of the Nation's Highways and Bridges: Conditions, Performance, and Capital Investment Requirements, November 1991, Washington, D.C.: Federal Highway Administration (FHwA), U.S. Department of Transportation.

4. Ibid.

5. Daniel B. Klein, "The Voluntary Provision of Public Goods? The Turnpike Companies of Early America," Economic Inquiry, Vol. XXVIII, October 1990, p. 788.

6. Daniel B. Klein and John Majewski, "Economy, Community, and Law: The Turnpike Movement in New York, 1797-1845," University of California, Irvine; Irvine Economics Paper No. 90-91-22, June 1991.

7. Neil D. Schuster, Toll Financing: Policy, Practices, and Experience in Various Countries, Washington, D.C.: International Bridge, Tunnel & Turnpike Association, February 1988.

8. For an overview of private tollway experience worldwide, see "Infrastructure" chapter in Privatization 1992, Los Angeles: Reason Foundation, April 1992.

9. Alan E. Pisarsky, Commuting in America, Westport, CT: Eno Foundation for Transportation, 1987.

10. Peter Gordon, Harry W. Richardson, and Myung-Jin Jun, "The Commuting Paradox: Evidence from the Top Twenty," University of Southern California School of Urban & Regional Planning, October 1989.

11. Overview Report: Chicago/Kansas City Tollway Feasibility Study, Howard Needles Tammen & Bergendoff and Price Waterhouse, January 1990.

12. Richard Mudge, How Toll Roads Can Benefit the Trucking Industry: The Economic Case, Washington, D.C.: Apogee Research, July 1986.

13. Ralph Stanley, "The Bridge Corps Program," Leesburg, VA: Toll Road Corporation of Virginia, n.d.

14. Public/Private Partnerships in Transportation: The State of the Art, Washington, D.C.: American Road & Transportation Builders Association, 1991.

15. Legislative Initiatives for Public-Private Partnerships in Transportation, Washington, D.C.: Privatization Council, May 1991.

16. Jeffrey A. Parker, "How to Put Private Capital to Work Now on Public-Private Road, Bridge Ventures," Public Works Financing, December 1991, p. 1.