

TOLL FACILITIES
IN THE UNITED STATES

Bridges - Roads - Tunnels - Ferries

June 2001
Publication No: FHWA-PL-01-020
Internet: <http://www.fhwa.dot.gov/ohim>

LIST OF ABBREVIATIONS AND ACRONYMS

Auth	Authority	Jct	Junction
Ave	Avenue	Mi	Mile
AVI	Automatic Vehicle	Mtn	Mountain
Brdg	Bridge	NHS	National Highway System
BC	British Columbia, Canada	NS	Nova Scotia, Canada
Cnty	County	ON	Ontario, Canada
Co	Company	Pkwy	Parkway
Com	Commission	Rd	Road
Const	Construction	Rdway	Roadway
Corp	Corporation	Sec	Section
Dept	Department	Serv	Service
Dev	Development	SH	State Highway
Dist	District	St	Street
Dr	Drive	Sys	System
Env	Environmental	TIRIS	Texas Instruments Identification System
ETC	Electronic Toll Collection	Traf	Traffic
Expway	Expressway	Trans	Transportation
Ext	Extension	Trnpke	Turnpike
FHWA	Federal Highway	US	United States
Hazmat	Hazardous Materials	Veh	Vehicle
Hwy	Highway	Vet	Veteran
Id	Identification	4R	Resurfacing, Restoring, Rehabilitation,
Internatl	International		
IS	Interstate System		
ISTEA	Intermodal Surface Transportation Efficiency		

Toll Roads in the United States: History and Current Policy

History

The early settlers who came to America found a land of dense wilderness, interlaced with creeks, rivers, and streams. Within this wilderness was an extensive network of trails, many of which were created by the migration of the buffalo and used by the Native American Indians as hunting and trading routes. These primitive trails were at first crooked and narrow. Over time, the trails were widened, straightened and improved by settlers for use by horse and wagons. These became some of the first roads in the new land.

After the American Revolution, the National Government began to realize the importance of westward expansion and trade in the development of the new Nation. As a result, an era of road building began. This period was marked by the development of turnpike companies, our earliest toll roads in the United States. In 1792, the first turnpike was chartered and became known as the Philadelphia and Lancaster Turnpike in Pennsylvania. It was the first road in America covered with a layer of crushed stone. The boom in turnpike construction began, resulting in the incorporation of more than 50 turnpike companies in Connecticut, 67 in New York, and others in Massachusetts and around the country. A notable turnpike, the Boston-Newburyport Turnpike, was 32 miles long and cost approximately \$12,500 per mile to construct.

As the Nation grew, so did the need for improved roads. In 1806, the Federal Government passed legislation to fund the National Road, known as the Cumberland Road. This road would stretch from Maryland through Pennsylvania, over the Cumberland Mountains, to the Ohio River. For a period of time, these roads served the new Nation well. However, with the use of heavier wagons and the large movements of entire families across the country, a strain on the infrastructure was evident. The roads in this country were still dirt and gravel-paved, rutted, and impassable in bad weather.

Toward the 1880s, America began to see the increased use of bicycles as a form of transportation, which led to the "Good Roads Movement," mainly through bicyclist clubs across the country. In addition, with the advent of the automobile, new and better roads were required. The Federal Government responded by creating the Office of Road Inquiry in 1893. This agency was responsible for collecting data, answering questions, and assisting in road improvements. Later, this infant agency grew to help finance road construction (Post Office Appropriation Act of 1912)--the beginning of the Federal-aid roads. Soon, connecting highways emerged from contributions of State and local governments as well as Federal financing. People were traveling further and more frequently.

World War I saw greater dependence on these vital roadways, especially manufacturing centers. Following the war, the Federal Highway Act of 1921 provided financial assistance to the States to build roads and bridges. The need for a nationwide interconnecting system of highways became clearer. By the end of the 1920s, more than half of all American families owned automobiles. Engineers were kept busy building highways, bridges, and tunnels, especially in the larger cities such as New York, Boston, Los Angeles, and San Francisco. Tolls were used on many roads, bridges, and tunnels to help pay for this building boom. The Holland Tunnel in New York was completed in the mid-1920s and opened up routes into the heart of New York City. It was referred to as the "Eighth Wonder of the World." The Golden Gate Bridge in San Francisco, built in the 1930s, provided access into San Francisco from across the bay.

World War II created even greater reliance on our vital highway systems. The roads, bridges, and tunnels served

as defense routes for the war effort. After the war, the growth of the suburbs increased the use of the automobile. The use of the automobile grew to include not only trips to work but to social activities and recreational outlets as well. In the immediate post-World War II era, several States recognized that modern, high quality highway systems were needed to meet this demand. The Pennsylvania Turnpike was the first of these roads, and was an immediate success. From around 1945 to 1955, many States, mainly located in the North and East, began to build State turnpikes on their primary long-distance travel corridors.

Beginning around the time of World War I, the Federal Government, for primarily military reasons, began to study the possibility of building high-quality roads across the Nation. One option for the financing of these roads was to collect tolls. However, the Federal-Aid Highway Act, enacted in 1956--which provided for a coast-to-coast highway system, connecting important cities and industrial centers to one another--was legislated as a tax-supported system, not a toll system. With the implementation of Federal-aid to States to build the Interstate System, proposals for additional toll roads languished. By 1963, the last of the toll roads planned before the Federal-aid system was legislated opened, and few additional proposals were seriously considered.

By 1980, the Nation's highway transportation infrastructure began to show signs of age through heavy use. There was general public concern that the U.S. was falling behind in its commitment to building and maintaining highway infrastructure. Several trends contributed to this perception. There had been phenomenal growth in the purchase and use of highway vehicles. There was an acknowledgment that governments at all levels were short of funds, and that in some cases, rather than continuing to raise taxes, it would be easier to defer maintenance and reconstruction of infrastructure of all kinds. Furthermore, there was a timing problem in that roads built in the peak years of new Interstate construction (roughly 1960-1980) were approaching the end of their design life and were wearing out. These concerns were one reason the toll road concept began to re-emerge.

Another reason toll facilities are being reconsidered is the increasing ability of electrical equipment to identify vehicles and record and store large amounts of data: a technology that is transforming our way of thinking about toll collection. Electronic toll collection (ETC) leads to significant declines in the operating costs of toll facilities. Furthermore, ETC, by not stopping the vehicle, reduces lines at toll booths, reduces vehicle operating costs, and therefore directly benefits the traveling public. Public acceptance and familiarity with the ease, accuracy, privacy, and fairness of ETC, are likely to make these toll-charging methods much more pervasive on toll roads in the near future. Technology does come at a cost. For example, more work must be done to increase compatibility among competing electronic toll collection technologies, but the shortcomings can and will be overcome.

But toll financing concepts are changing in other ways. In some circles, the proposition is put forward that goods and services currently provided by the public sector could also be provided by the private sector, perhaps with gains in efficiency. Highway facilities are identified as one of the areas where the private sector might be willing to invest if there were a high probability of recouping the investment through the collection of tolls. With the possibility of privately financed toll roads, some large engineering and construction management firms believe that a highway market might exist that had not been explored by their firms. Under typical public provision of U.S. highways, the State does (or contracts out) the design work and then awards distinct contracts to carry out parts of the completed plans. If the project meets certain criteria, it is eligible for Federal-aid reimbursement (Federal-aid pays the State back a portion of its costs of construction). Some private firms, however, have proposed to do the whole process themselves and take advantage of efficiencies such as simultaneous design and construction. Furthermore, there was the feeling by these firms that the time might be right to put some of their own equity into these projects, and finance, build, and operate the entire facility themselves.

These forces appear to suggest that both public and private toll roads may be additional means of financing and constructing U.S. highway facilities in the near future. Public-private partnerships, defined as an agreement between the public (government) and the private sector to develop, finance, construct, operate, own, and maintain highway facilities, will be one of the alternatives. To what extent they could become a major force in highway

finance will depend on the abilities of the individual public-private ventures to overcome existing institutional barriers.

Current Policy: State Legislative Provisions

It should not be surprising to find that States which pass toll road legislation do not follow a fixed pattern as each State confronts unique circumstances. But the following provisions in State toll road legislation are common:

- C creation of an authority or commission,
- C scope, purpose, and function of the entity,
- C definition of terms
- C delineation of the district within the entity operates,
- C details about the entity's governing board,
- C the legal powers of the entity,
- C the authority to issue bonds and use tolls,
- C authority to set and revise tolls,
- C ability to invest bond proceeds,
- C administrative requirements (audits, annual reports, etc.),
- C constraints on the use of the funds,
- C rights and remedies of bondholders,
- C tax-exempt status of the entity's property and bonds,
- C venue and jurisdiction for legal actions,
- C police powers,
- C operating, maintenance and repair obligations, and
- C relationships with other entities.

A successful toll road project can be built with virtually any mix of public and private financial sponsorship. Several prototypical models have developed, incorporating increasing amounts of private involvement along with non-governmental funds. As the private sector contributes more equity financing and assumes more risks, the partnership develops more characteristics of full privatization. The structures described here fit along a continuum from traditional public to mostly private:

- C *Traditional New Public Highway:* State government ownership and funding with investment commonly justified by general system-wide public needs.
- C *Traditional New Public Toll-Road Delivery:* Public authority ownership and operation, using toll revenues to finance non-recourse and State-backed tax-exempt debt to construct the facility and provide interim operating funds.

Although the traditional public toll authority does not incorporate private sector participation in the ways that the models described in the following sub-bullets do, it nonetheless provides an alternative structure for tollways. The following illustrates a number of variations of the traditional public toll authority.

- C *City or County Government:* Local toll road and bridge financial and ownership aspects which are completely controlled by a local government. Local taxes and bond revenue may be set aside for specific toll projects as the need arises, and the toll revenues are disbursed as the local government sees fit.
- C *Local Commissions or Authorities:* Toll entities which are created by State statute and act like independent

State commissions. They are completely financially independent of the local government, although they may be directed by a board of commissioners appointed by the government or actually be a division of the local government. These authorities have ultimate financial responsibility for all commitments entered into and completely fund their own projects.

- C *Dependent State Authorities:* In essence, this type of authority acts as a financial extension of the State Department of Transportation. The authority is responsible for all debt issued, but transfers the bond revenues and the operation of the toll system to the State under a lease agreement. The lease payments received from the State are then applied to service the debt.
- C *Independent State Authorities or Commissions:* State commissions and authorities which are autonomous in financial responsibilities such as fixing toll rates and charges as well as repayment of debt, but subject to some degree of political control as the governor appoints members of the board and the authority's debt issuance may or may not be subject to review by a State finance board. No funding is received from the State, and ultimate payment of debt is the sole obligation of the authority.
- C *Innovative Financing for New Public Facilities:* Public ownership and operation with full or partial reliance on revenue sources such as development impact fees as well as tolls.
- C *Blended Public-Private Financing for New Public Toll Road Delivery:* Control and direction under governmental oversight, usually by a local authority; financing delivers a complete, stand-alone project without recourse to government funding if toll revenues are not sufficient.
- C *Public-Private Partnerships to Deliver New Road Capacity:* Substantial private equity participation and a strong private role in finance, construction, and operation; public role tends more toward framing the overall agreement, contributing pre-development costs, or assembling rights of way.
- C *Privately Supplied New Highway:* Finance provided and risk borne almost entirely by private developers and their financial supporters; significant private equity combined with the issuance of taxable debt.

Current Policy: Federal Legislative Provisions

The Federal-Aid Highway Program has operated under the assumption that tax-supported roads were preferable to toll roads. With the implementation of the 1956 Highway Act legislation, a method for dealing with State toll roads that were to be incorporated into the Interstate System routes was developed. These toll roads were signed as Interstate routes, but continued to collect tolls under agreements which specified that when the toll road bonds were paid off, the toll facilities would revert to toll-free status. Since 1987, Federal legislative actions have revealed a changing attitude about toll roads. The Surface Transportation and Uniform Relocation Assistance Act of 1987 provided a toll road pilot program in which nine States were given the authority to pursue development and construction of toll roads with up to 35 percent Federal-aid funds. Ultimately, three projects were constructed, and sufficient progress was demonstrated that Congress expanded the toll provisions.

In 1991, the U.S. Congress passed landmark highway legislation, the Intermodal Surface Transportation Efficiency Act (ISTEA). Section 1012 of that Act, now incorporated in Section 129 of Title 23, was designed to provide State and local governments with more flexibility in generating new capital for needed highway investments. Section 1012 also included features intended to ensure that current and future facilities would be used more efficiently, especially during peak traffic periods. Subsection 1012(a) provided new directions for the

Federal-Aid Highway Program for toll facilities and for public-private cost-sharing, and Subsection 1012(b) provided for a congestion pricing pilot program.

State legislation for public-private toll road projects paved the way for such innovation in Federal law. Beginning with ISTEA, States have more flexibility to co-mingle Federal-aid funds with State and private funds to implement projects. For example, States may make Federal-aid reimbursable loans to a public or private entity which is constructing a toll project that is eligible for Federal-aid funding. Such loans are considered eligible, reimbursable costs under Federal-aid. In this sense, ISTEA provided cost-sharing incentives to get projects built. Cost-sharing can take many forms. The form most discussed has been public-private cost sharing, which is not tax exempt. Another type of cost-sharing is between two or more public entities, such as toll authorities and State Departments of Transportation, which could be tax-exempt. ISTEA allowed FHWA to provide Federal-aid to either of these kinds of projects, and there are now examples of Federal investment in public toll roads under construction. Several private toll roads are under development and may lead to State requests for Federal-aid participation to assist these projects.

These provisions, however, are not self-implementing. States had to develop and pass complementary legislation and had to continue to develop working relationships between all the entities involved in cost-sharing. ISTEA toll projects are now coming on-line. Since the ISTEA passed in 1991, fifteen States have passed complementary legislation to allow public-private partnerships, and at least three States have substantially revised their earlier public-private partnership legislation. In addition, some purely public toll roads using innovative features of ISTEA Federal-aid for toll roads have been implemented.

Also during the ISTEA period, FHWA used its regulatory and statutory flexibility, and general discretion to conduct financing research and development under Title 23, Section 307(a), to develop an innovative finance test and evaluation program. Projects selected for the test and evaluation had to comply with non-Federal highway statutory and regulatory requirements such as the Clean Air Act and the National Environmental Policy Act. The approach taken was to identify specific projects, develop a plan of finance, and offer those projects as examples of creative financing solutions. To stimulate and advance this effort, FHWA established the Test and Evaluation Project, TE-045, "Innovative Financing." Many of the techniques were incorporated into statute via the National Highway System Designation Act of 1995, and are now available to all States routinely.

The projects accepted for test and evaluation allow States and localities to use multiple strategies for financing, including:

- \$ allowing private resources, in cash or in kind, to fulfill State match to Federal-aid.
- \$ allowing Federal-aid to be loaned to private entities such as toll roads.
- \$ allowing interest and other costs of debt financing to be eligible for Federal-aid reimbursement.

FHWA expected that these projects would produce financing ideas and tools applicable to other highway facilities, as well as other modes of transportation. FHWA used the findings to examine the current Federal-aid operating framework and changed regulations or guidance where there was administrative discretion. These test and evaluation projects have developed innovative financing concepts which are increasing investment and speeding up project delivery. Continued positive results suggested that additional changes to the statutory framework would improve transportation investment, and FHWA pursued those changes in the congressional re-authorization cycle. The Transportation Equity Act for the 21st Century (TEA-21) provided several new provisions that influenced Federal toll road policies. The Transportation Infrastructure Finance and Innovation Act of 1998 (TIFIA) provided Federal credit assistance to major transportation investments of critical national importance. The TIFIA credit program was designed to fill market gaps and leverage substantial private co-investment by providing supplemental and subordinate capital. Qualified projects are evaluated by the Secretary of Transportation and selected based on the extent to which they generate economic benefits, leverage private capital, promote

innovative technologies, and meet other program objectives. Three distinct types of assistance which may be useful to toll road financiers are offered:

- C Secured loans are direct Federal loans to project sponsors offering flexible repayment terms and providing combined construction and permanent financing of capital costs.
- C Loan guarantees provide full-faith and credit guarantees by the Federal Government to institutional investors such as pension funds which make loans for projects.
- C Standby lines of credit representing secondary lines of funding in the form of contingent Federal loans that may be drawn upon to supplement project revenues, if needed during the first 10 years of project operations.

TEA-21 also created a pilot program under which a State may collect tolls on an Interstate highway for the purpose of reconstructing or rehabilitating the Interstate highway that could not be adequately maintained or functionally improved without the collection of tolls. A maximum of three projects may be included in the pilot program and they must be in different States. An agreement between the State and FHWA covering use of toll revenues must be executed for each Interstate toll pilot project.

In addition, TEA-21 established a new State Infrastructure Bank (SIB) pilot program under which four States-- California, Florida, Missouri, and Rhode Island--are authorized to enter into cooperative agreements with the Secretary to set up infrastructure revolving loan funds eligible to be capitalized with Federal transportation funds authorized for the FY 1998-2003 period. SIBs provide various forms of non-grant assistance to eligible projects (including toll roads). This assistance includes below market rate subordinate loans, interest rate buy-downs on third party loans, and guarantees and other forms of credit enhancement.

The Federal Value Pricing Pilot Program

Very closely related to the concept of charging a toll is the concept of pricing road space. According to economic theory, as resources change in scarcity, the price should change to reflect the current scarcity level. The pricing mechanism helps ensure economic efficiency and provides that demand for a good or service equals the supply provided.

The concept applies to surface transportation if one thinks of roads as providing traveling space to people or goods. As roads become congested, the price should rise to reflect the increased scarcity of road space. When the road is less used, the price should be low. The concept is called congestion (or value) pricing, and Congress, in Section 1012(b) of the ISTEA, authorized funding of up to five congestion pricing pilot projects. The concept is of great interest to toll road entities.

The ISTEA permitted FHWA to enter into cooperative agreements with up to five State and local governments and other public authorities to establish, maintain and monitor value pricing pilot projects. In addition, pre-project studies, including public outreach, project design and related activities can be supported with program funds. The TEA-21 legislation expanded the program by allowing pilot project agreements with up to fifteen public entities and provided additional funding.

On a broader level, this program is intended to advance the state of knowledge about what market pricing principles can do to help improve transportation efficiency and make better use of the system we have. There have been a number of congestion pricing studies or promotional activities sponsored by the FHWA, States, universities, public interest groups, and the private sector. Pilot projects implemented to date include variable pricing of toll facilities in New York, New Jersey and Florida as well as High-Occupancy/Toll (HOT) lanes in

Texas and California. Transportation planners and public officials are beginning to think seriously about congestion pricing as they develop plans for meeting future transportation and air quality goals. Toll facility entities may be willing to pursue variable toll pricing policies.

Tolls in the Twenty-First Century

Today, toll roads, bridges, and tunnels are, to a great extent, financed by tolls through turnpike commissions and authorities, city and county operating authorities, and State Departments of Transportation. These turnpike authorities are essential for financing, constructing, and maintaining the Nation's toll roads, bridges, and tunnels. In recognition of the deployment of new toll technologies, information on electronic toll collection was added to this report in 1995. The number of toll facilities reported with electronic technology has increased from 49 in 1995 to 130 in 2001.

The Nation's highways are vital corridors for our economic and social progress. The cooperation between Federal, State, and local governments, as well as private entities, makes toll facility financing and construction a viable resource alternative as we move into the 21st century.