TOLL FINANCING: A TIME-TESTED APPROACH TO NEW CHALLENGES

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Toll financing has a long history in American transportation. Many of the conditions that made tolling attractive and useful in the early years of the nation are just as relevant today. These include scarcity of resources, diverse governmental jurisdictions and responsibilities, growing communities, and a lack of transportation alternatives for the movement of both goods and people.

The statistics highlighting the explosive and persistent growth of transportation demand have been well documented. Even as public demand for transportation options is increasing and the discontent over traffic congestion is growing, it is clear that funding for roads is inadequate to maintain current needs, let alone make improvements for future needs.

The elections of November 2002 saw more than 40 public referenda on various transportation funding measures, including funds for transit and road development. Only 24 of the measures were enacted, highlighting a contradiction between the public’s desire for improved transportation access and services and its willingness to fund them through higher fuel or other taxes. As we approach reauthorization of the Transportation Efficiency Act for the 21st Century (TEA-21), the multi-year legislation supporting the federal-aid highway program, it is clear no significant new financial resources have been identified. Even if proposed, tax hikes or other revenue sources will be politically difficult to achieve.

Toll financing is not a “silver bullet” that can magically address all these shortfalls, but it does represent a proven tool that can, in certain circumstances, augment existing revenue sources and bring new transportation facilities into service much more quickly than relying on traditional tax resources.

The First American Toll Roads

America borrowed the concept of tolling from Great Britain. The first recorded toll bridge was established in 1656 in Newbury, Mass., while the first turnpike was Virginia’s Little River Turnpike, established in 1785. It ran more than 62 miles from Alexandria to the Blue Ridge Mountains.

By 1800, most states adopted toll financing for major roadways. Connecticut chartered 50 turnpike companies, operating 770 miles of roads. New York had 67 such companies chartered to construct 3,110 miles. At the same time, the federal government was providing for the construction of roads in newly developing areas, but paid for by a tax on the sale of federal lands.

In order to provide a regular and dependable funding source for road maintenance, Congress passed an act in 1822 authorizing the collection of tolls from road users. President James Monroe vetoed the act as an unwarranted extension of congressional power to make appropriations. Collection of tolls, the president said, implied a power of jurisdiction or sovereignty, which was not granted to the federal government by the Constitution and could not be unilaterally conveyed to any state without a constitutional amendment. It was one thing to make appropriations for public improvement, but an entirely different matter to assume jurisdiction and sovereignty over the land whereon

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1 See, for example, William D. Fay, “Toward Reality Based Highway Policy, 70 J. Transp. L. Logist. & Pol'y” (fall 2002), pp. 18-33.

2 Act for the Preservation and Repair of the Cumberland Road, H.R. 192, 17th Congress, 2d Sess. (1822).

3 President Monroe argued that the road’s completion should be undertaken by the states through which it passed—Illinois, Indiana, Ohio, Pennsylvania, and Virginia. See, also, www.americanpresident.org/KoTrain/Courses/JMO/JMO_Domestic_Affairs.htm.
those improvements were made. Monroe’s veto established the federal position on highway grants to the states, which has since endured.\(^4\)

Thus the imposition of tolls is a prerogative of state and local governments. The single exception is the mileage on the Interstate Highway System -- and even this mileage could be tolled under current law once the federal government’s initial investment in constructing the roadway is reimbursed.

The turnpike movement eventually spread into all states and by 1850 there were hundreds of companies operating thousands of miles of roads. They were integral to the nation’s development, for they opened new lands to settlement, reduced the cost of shipping from farm to market and stimulated the development of industries. Indeed, the construction of these privately financed public works was a major industry in the early 1800s.\(^5\)

Then, as now, turnpike administration varied widely from company to company, depending upon the caliber of management, the amount of traffic and how well the roads were originally laid out and operated. Many companies were under-financed and failures and reorganizations were frequent. Maintenance was often inadequate, especially for those roads generating small returns to the bondholders.

**Competition from Railroads**

The advent of rail transportation eventually halted the expansion of toll roads and triggered a widespread failure of freight wagon and stagecoach companies. Stables and inns that depended upon the road traffic were also forced to close. As toll road revenue declined, maintenance declined and roads became so rough that users refused to pay the tolls. Ultimately, the majority of these toll roads reverted to local authorities for maintenance. As the older and larger turnpikes fell into disrepair, new charters were issued for shorter roads on new alignments connecting to the railroads. These connector roads enjoyed some success until they were condemned or bought out by state and local governments in the early 20\(^{th}\) century.

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

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\(^5\) Id.

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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 Appropriations Act of 1912) -- the beginning of the federal-aid roads. Soon, connecting highways emerged from the contributions of state and local governments as well as federal financing.\(^6\)

**The First Superhighways**

The first American superhighway was the Pennsylvania Turnpike, whose original 160-mile stretch from Harrisburg to Pittsburgh was opened in 1940. A prototype for the concept of combining tax and toll revenue, it was built with a mixture of $29.25 million in federal grants and $40.8 million in federal purchases of bonds (in effect a loan guarantee) that were later sold to the public. Because of the quality of service and savings in time, fuel and worry, the public response was overwhelmingly positive. Nearly twice the projected traffic volume used this highway in its first year, but World War II intervened to prevent the idea from spreading to other states. When peace returned, the success of this model inspired many state governments to create toll road authorities. In 1947, Maine built the first turnpike financed strictly with bond revenues. New Jersey, Ohio, Connecticut, Florida and others joined the trend shortly thereafter.

The movement grew in the 1950s as state governments found motorists and commercial users willing to pay a premium for superior service -- congestion-free driving for car owners, time and fuel savings for truckers. With state highway departments unable to pay for the construction and operation of new superhighways while maintaining existing roads, turnpikes came into their own. The formula became a proven one: the sale of revenue bonds raised money for construction, and once the roads were opened, revenue from tolls and concessions paid the interest and retirement of bonds while also covering the cost of continuing maintenance.

**The Interstate System and Beyond**

Rapid expansion of toll roads stopped with the passage of the 1956 federal legislation authorizing the tax-supported Interstate Highway system. While toll roads had until then been mostly intercity routes, after the Interstate Highway construction program began, toll facility construction was confined mostly to short urban stretches and special critical links such as bridges and tunnels, which often cost far more than

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\(^6\) Federal Highway Administration, Toll Facilities in the United States, June 2001, p.3.
Traffic Management: A more recent application of toll financing is described as “value” or “congestion” pricing. These applications can take several forms.

The price of an established toll is increased during peak traffic periods to provide an incentive for drivers to shift their trip into another time period. Access to normally restricted high occupancy vehicle (HOV) lanes is granted to single occupant vehicles willing to pay a fee to take advantage of the reduced traffic in under-used HOV lanes.

Both the Intermodal Surface Transportation Efficiency Act (ISTEA) and the Transportation Equity Act for the 21st Century (TEA-21) contained programs to foster the introduction of value pricing and there have been successful applications on the I-15 and SR-91 in California. These value pricing programs go hand in glove with electronic toll collection (ETC) applications.

ETC presents us with a tremendous opportunity to increase the capacity of our existing road network by facilitating the swift and efficient payment of tolls without the need to stop and wait. With ETC, toll operators are able to establish and charge different rates for different hours of the day, and ration roadway capacity more efficiently. By encouraging drivers to use the roadway at other times, often called the “shoulder hours” just before and just after the traditional rush hours, all customers receive better service, particularly customers who value service during the most congested times of the day.

California’s SR 91 is a solid example of this concept. The 10-mile SR-91 express lanes opened in 1995 as a privately constructed and operated facility running in the center of Southern California’s SR-91 Riverside Freeway in Los Angeles, which are so-called “free” lanes. Tolls vary between $1 and $4.75, and change according to the level of congestion delay avoided in the adjacent non-tolled freeway lanes. Though some have criticized the project by referring to the tolled lanes as “Lexus lanes,” studies show that people from all socioeconomic groups support the variability priced lanes on SR-91.

The bottom line is that this transportation corridor had no room to add capacity. So they built new lanes in the median of the existing right-of-way. But, had they built “free” lanes, the congestion would have been just as bad on the new “free” lanes. With ETC, and with variable pricing, the corridor extended the useful life of the right-of-way, saved money and contributed positively to the environment of southern California.

The Federal Highway Administration has been very supportive of value pricing projects and has great hope for the potential of road pricing in helping to manage current and future congestion. According to Federal Highway Administrator Mary Peters, “In the past, transportation professionals and organizations like mine have been more focused on the supply side of the business — building more, adding transit, etc. Where I think we really need to be is on the demand side of the business ... [We] have to find ways to spread that demand out over a period of time ... [to] make better use of the system. And using that transponder in a vehicle as something that can both send and receive information to help us manage that system better ... can be tremendously effective.”

Open and Closed Toll Systems

Toll systems have traditionally been characterized as either “open” or “closed” systems, reflecting where in a trip the driver pays the toll. In an “open” system, a toll is assessed at each plaza and the driver is free to enter or exit the system between plazas. Some facilities employ ramp plazas on the entry/exit ramps themselves to capture the toll for the intervening distance from the last mainline plaza.

“Closed” or “ticket” systems issue the driver a paper ticket upon entering the system that notes the entry point and typically includes a table noting the toll due for travel to further points in the system. Upon reaching the exit point, the driver presents the entry ticket to the toll collector and pays the accrued toll. These systems typically have toll plazas only at system entrances and exits.

Free-Flow ETC Systems

Increasing numbers of toll facilities are operating Electronic Toll Collection (ETC) systems, which use a system of electronic “readers” to communicate with transponders, or “tags” that are issued to the users of the system and are carried in the vehicle. The transponder provides identification to the system that allows for payment to be made via a credit card or cash-backed account without having to stop. These systems can accommodate a vehicle moving at high speeds, especially on highways built with this capacity in mind from the design phase. More traditional highways, which have retrofitted these technologies into barrier systems, typically require drivers to slow down, though not necessarily stop, at a toll plaza, more for the safety of toll collectors than due to any limitations in the technology. ETC allows the creation of toll roads without a single tollbooth, removing the traditional hallmark of a toll road, that being the need to “stop and pay a toll.”

The Oklahoma Turnpike was one of the leaders of open-road tolling in the United States. Its new facilities were constructed to allow drivers using ETC to stay on the main line of the roadway at highway speeds while those paying with cash are directed off the mainline. Highway 407, serving the Toronto metropolitan area, has installed a completely “open” free-flow system with no tollbooths anywhere in the system. Users with transponders have their payments handled electronically. Users without transponders pay through a system by which their license plate is photographed and a bill for the toll is sent by mail to the vehicle owner. Typically, non-ETC users pay a higher toll than those using the ETC system. The operators of this system characterize it as having no “violators” (those who fail to pay the toll), only drivers who choose one mode of payment over another.

May Federal Funds Be Used?

There are perennial questions about whether federal funds may be used on a toll facility. The simple answer is “yes,” with certain exceptions in the case of Interstate Highways. The simple fact is that of the more than 2.5 million miles of paved roadway in the United States, the only mileage that cannot be easily tolled is the roughly 40,000 miles of existing Interstate Highway that is not already operated by a toll facility.

Since the inception of the Interstate Highway System for Defense and Mobility in 1956, the primary view of toll roads in the national context has been to include the mileage of major toll facilities within the Interstate Highway system, but to limit or prohibit the use of federal funds in the construction, operation or maintenance of such facilities. According to the Federal Highway Administration, the current inventory of Interstate Highways contains 2,817 miles of toll road, roughly six percent of the total Interstate Highway system mileage. In total, there are 4,788 miles of U.S. toll roadway, 95 percent of which is included in the National Highway System.9

The Federal-Aid Highway Program

When created in 1916, the federal-aid highway program prohibited the use of federal funds on toll facilities, though this was modified in 1927 when Congress enacted legislation permitting the use of federal funds for the construction of toll bridges and their approaches. Subsequent legislation provided more flexibility in using federal highway funds for improvements to toll facilities, with the last significant changes being made in 1991 with passage of the Intermodal Surface Transportation Efficiency Act. While the Interstate Highway system is generally toll-free, Congress, as explained, decided in 1956 to include some toll mileage in the system. The inclusion of this

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