



State-of-the-Practice in Toll Financing: Implications for Texas: Executive Summary

Passenger travel and freight shipping have increased significantly over the last decade, especially after the passage of the North American Free Trade Agreement in 1994. The cost of providing transportation services continues to rise. However, traditional funding resources for building and improving transportation facilities are falling short, as gasoline tax per vehicle mile of travel, the centerpiece of traditional funding resources, declines due to the increasing use of fuel efficient and alternative-fuel vehicles. As a result, there is a renewed interest in toll financing.

Many states in the nation and countries throughout the world have applied toll

financing as an option to finance transportation infrastructure. This project examines toll financing in other states of the United States and foreign countries in the world and identifies successful policies, practices, and actions that can be used to increase the use of toll financing in Texas. While toll financing involves a number of functional areas, this project focuses mainly on financing instruments and related project planning and management strategies.

What We Did ...

The project objectives were accomplished through an extensive literature review and a survey of state Departments of Transportation (DOTs) and toll operators in the United States and case studies. Our literature search focused on theoretical discussions of toll and market conditions for toll financing. We also synthesized empirical studies of toll financing in the United States and other selected countries.

Based on findings of the literature review, we developed survey questionnaires for state DOTs,

as well as for toll authorities and operators in the United States. The survey concentrated on financial tools being used for toll road development and on strategies for project planning, project selection, and project management.

We also collected data from USDOT and other sources such as the United States and other international associations of toll operators. Data generated from these sources and the survey were analyzed. A number of state-of-the-practices were selected for case studies because they are active in toll financing, and their toll financing practices provide insights into the use of toll financing in Texas in one or more of the following ways:

- Ability to leverage existing financial resources
- Capacity to advance toll road development
- Potential to accelerate project completion
- Project efficiency
- Possibility of taking advantage of existing Texas legislation

An in-depth analysis of these cases was performed. Financing tools, strategies, and actions applicable to Texas



were identified, and their implications for toll financing practice in Texas were discussed.

What We Found ...

Our study found that Texas is one of the states leading in toll financing. As seen from the following figure, Texas ranks sixth nationwide in terms of total center-line miles of toll roads. Since 1990, Texas has developed the most center-line miles of toll roads and is second only to Florida in terms of number of toll project implementations. In addition, Texas is widely viewed as a leader in applying innovative financing methods to toll road development. The President George Bush Turnpike and the Central Texas Turnpike are well-known examples of innovative toll financing practice.

Many financing methods have been employed in financing and advancing toll projects. These methods range from traditional techniques to

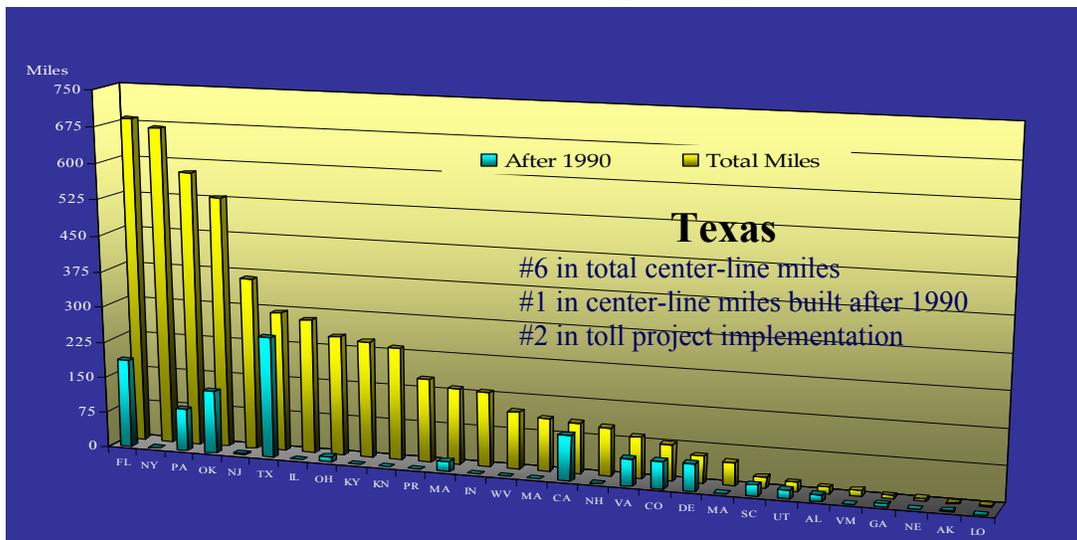
more ambitious approaches such as innovative techniques to leverage the federal and state funds and partnership with private sectors to raise non-public resources for toll road developments. Our examination of the state-of-the-practice in toll financing also indicates that no single approach is clearly preferable. Oftentimes, multiple strategies have been used to generate sufficient capital for financing toll projects. Success in toll financing largely depends upon the ability to creatively use multiple financing strategies.

The study also shows that existing financial resources for toll road development can be augmented through resourceful management of various funding and credit assistance programs. Extra financial revenues may be generated through the careful design of lending or grant policies of a program. Significant assistance from state authorities, in the form of either cash awards, loans,

standby of credits, or covenants, can enhance the ability of a toll operator to generate more capital through debt finance at lower costs.

The national and international experiences in public-private partnership/initiative (PPP/I) reveal that private participation in toll financing is promising. The PPP/I approach can generate additional financial resources for toll road development and advance toll road construction that would have been delayed or not been possible without private participation. By involving the private sector in toll road financing and operation, the public sector can shift part or all of the financial and operational risks to the private sector. Moreover, the PPP/I approach can increase project efficiency since private developers, in many cases, can complete projects more quickly and/or at lower costs.

Rank of Toll Road Development by State



While the PPP/I may involve more transaction costs, the economic benefits of providing adequate transportation services sooner may outweigh the costs. The study of the national and international practices in PPP/I also points to some common factors for the success or failure of the PPP/I and actions required to facilitate private participation in toll financing.

Furthermore, the study found that feasibility studies and capacity demand forecasting models are often used in project selection and prioritization. Current traffic volume, financial constraints, the need to integrate with the state highway system, and public opinion are factors frequently considered for project selection and prioritization, although the importance of these factors may vary between DOTs and toll operators.

Survey results indicate that a number of strategies have been applied to risk sharing and control, marketing, and promotion of toll financing. Specifically, most DOTs and toll operators tend to use a designated project manager as a common strategy for risk sharing and control. However, there is no response on project profit/lost sharing or warranty among DOTs participating in the survey. The most commonly used marketing approach is Electronic Toll Collection (ETC) discount, which is believed among those who use it to be a highly effective approach. A variety of devices have been used to promote toll financing. These devices range from traditional print media to the Internet as

well as other educational programs and showcases. Some states have studied options of tolling on new-capacity and congestion-relief roads. Few states have considered options of tolling on an entire state highway system or on the rehabilitation, resurfacing, reconstruction, and restoration (4R) facilities only.

The Researchers Recommend ...

While Texas is leading the nation in toll financing, it can consolidate its superiority in the following areas:

Project Financing: A number of actions can be taken to enhance Texas' financial capacity. One such action is to take advantage of opportunities provided by the Texas legislature. Texas should consider borrowing some of the lessons learned from other states in funding capitalization, program design, and management for the implementation of the Texas Mobility Fund (TMF) and Toll Equity (TE). Texas should also consider further exploring new financing tools to increase its financial capacity for toll road development. One possible option is Grant Anticipation Revenue Vehicles (GARVEEs), which could provide Texas with another degree-of-freedom in financing its current highway project backlog despite the uncertainty of future Federal-aid obligations. As more toll roads are built, innovative use of additional federal fund management methods such as

toll credits may be desirable. Further research should study the financial, social, and economic impacts of these options and their adoptability.

Private Involvement in Toll Financing: Texas should consider extending the scope of private participation in toll road development. Toll road development authorities world-wide have utilized a wide variety of development models. TxDOT should seek to employ a larger number of these contract models to the extent allowable by Texas law. To facilitate private participation in toll financing, Texas may consider providing some financial and operational incentives through legislative actions, as well as TMF, TE, and other newly developed programs. Further research is required to study suitable models for adoption, the extent to which and conditions under which the government may provide financial incentives, the appropriate risk sharing and responsibilities between the public and private sectors, and the future direction of partnership programs.

Role of TTA: As Texas is moving toward a greater degree of application of toll financing and privatization for the state's transportation infrastructure, a sought-after increase in private participation in the development of toll facilities will require that significantly greater time and effort be spent in monitoring and coordinating those projects and in ensuring that they integrate with the State Highway System not only



locally, but also statewide. One way to achieve this necessary perspective is to expand the authority of TTA to allow greater flexibilities in financing, operation, and management in order for TTA to continue its current function and meet new challenges. Alternatively, Texas may wish to consider the transformation of TTA from a development authority into a *program management office* for all toll road development projects in the state.

Technology: As the number and interconnectedness of toll roads increase in the state, opportunities exist to employ ETC technologies to streamline toll facility operations, increase traffic flow and safety, implement more complex and fair pricing schemes for various users, and make the payment process almost transparent to users. In order to implement ETC technologies, Texas may consider taking two obvious steps:

- Select ETC and toll collection enforcement technology standards and legislation that will motivate their adoption by all state toll authorities.
- Specify and implement a statewide toll account management system.

Communication: TxDOT should strive to make more transparent the process by which toll facilities are planned, financed, and developed, together with the benefits in project duration that derive from the use of innovative financing tools. This can be achieved through TxDOT's communication with the public by various mediums, including improvement of the TTA's toll project-related web site through site design and the creation of flowchart-based navigational tools, and development of multimedia collateral to educate the public on the issues surrounding toll facility development and the

differences between free and tolled highway facilities.

Legislation: Depending on TxDOT's decisions regarding the above areas of improvement, some legislative action may be required to facilitate implementation. Some possible actions are:

- Authorizing the Texas Transportation Commission and TxDOT to apply necessary capitalization techniques to increase financial capacity for toll road developments.
- Authorizing the establishment of specific programs aiding toll financing.
- Defining *specific* ways in which TxDOT will encourage private participation in toll road development.
- Providing dedicated funding to encourage PPP/I.
- Establishing toll collection technological standards and policies motivating the adoption of these standards.

For More Details ...

The research is documented in Report 0-4433-1, *Increasing Use of Toll Financing in Texas*.

Research Supervisor: Dr. Jianling Li, AICP, UTA, (817) 272-3367, jjli@uta.edu

Researchers: Dr. Rod Hissong and Dr. Richard Cole

TxDOT Project Director: Mr. John G. Bendele, Transportation Planner, (512) 486-5039
jbendel@dot.state.tx.us

To obtain copies of the report, contact Ms. Linda Slaughter, The School of Urban & Public Affairs, The University of Texas at Arlington, (817) 272-3071, or e-mail supapubs@uta.edu.

TxDOT Implementation Status

The researchers were very thorough in their research through an extensive literature review, a survey of state Department of Transportation (DOTs) and toll operators in the United States and selected case studies. The research produced a Guidebook that provides financing, planning, and management options for developing toll road facilities in Texas. The guidebook will be useful to regional mobility authorities, regional tollway authorities, and TxDOT.

For more information, contact Mr. Andrew Griffith, P.E., RTI Research Engineer, at (512) 465-7403 or email at agriffi@dot.state.tx.us.

YOUR INVOLVEMENT IS WELCOME

