

4.0 Context for Considering Expansion of Tolling in Kansas



■ *History of Tolls in Kansas*

The Kansas Turnpike is the only current toll operation in the state of Kansas. Over the years, a number of additional toll proposals have been made or feasibility studies undertaken, but none have proven to be financially viable. Although two projects remain authorized by the Kansas Legislature, no new toll road project has been considered seriously in over 20 years.¹ (See Exhibit 4-1).

Exhibit 4-1: Previous Toll Road Studies in Kansas

Date of Study	Toll Road Study
1956	Wichita to Hays
1966	Kansas City to Galena Wichita to Baxter Springs (Pittsburg) Wichita to Hays
1967	Kansas City to Galena*
1970	Ozarks Toll Expressway (Kansas City to Louisiana State Line with portions in Kansas)
1973	Southeast Kansas (Winfield to Galena/Baxter Springs)*
1973	Northwest Passage (Hutchinson, Wichita, Tulsa)
1973	Southeast Kansas (several routes analyzed including Winfield to Galena/Baxter Springs)
1974	US 69 US 59 US 50-154 Corridor (Colorado line to Mullinville)
1979	Leon to Fredonia (K-96)
1986	US 50, 154, 54 Corridor (Colorado line to Wichita) Southeast Kansas Western Kansas (Wichita to Hays)

**Still authorized by the Kansas Legislature.*

■ *National Context for Considering Tolls*

Toll facilities are a smaller share of the overall road network in the United States than in many other countries, but the role of tolls is growing as states seek to meet their growing transportation needs in an era of funding shortages. As previously noted, the convergence of more supportive Federal policies and improvements in technology has made tolling, and road pricing more broadly, an increasingly attractive option for states to consider.

Tolls continue to be relevant as a funding source for new facilities in congested corridors or where extensive new development or population growth will strain existing capacity in the future. However, it is important to recognize that tolling has evolved beyond the traditional role it played as a financing mechanism for new capacity, such as the Kansas Turnpike back when it was constructed in the mid-1950s. Today, tolls can be used for expansion or enhancement of existing capacity, often through their application as a pricing mechanism to manage travel demand or ration supply, thus optimizing the performance of the transportation system.

Within this national context, this section provides a framework for Kansas to consider tolls as **one tool** for meeting the state's transportation needs. Instead of a single rigid formula/prescription, this section provides several different perspectives to consider:

- Key questions
- Traditional toll feasibility assessment methodology
- Relevant experience and analytical approaches from other states
- General issues and challenges for toll projects

The first three perspectives are more focused on *identification or screening of toll opportunities*; the last perspective relates to *implementation challenges*.

■ *Key Questions*

At a very basic level, the key questions Kansas should address are why, where, by whom, what, and how should tolling be applied in the state, beyond the current operations of the Kansas Turnpike Authority. The issue of “when” may vary based on a number of factors. Generally, toll-financed projects can

be realized sooner than non-toll financed facilities, since toll-backed revenue bonds can be used to accelerate the availability of funding up front to cover the capital costs of planning, engineering, land acquisition and clearance, preparation, construction and environmental mitigation.

Why Should Tolling be Considered?

An important starting point for Kansas in considering expanded use of tolling is to identify the state's objective(s), which could theoretically include (but not be limited to):

- Building new corridors
- Creating new capacity in existing corridors
- Enhancing existing capacity by using tolls to manage demand
- Expanding or otherwise improving existing roads
- Generating revenue to support transportation improvements
- Using tolls as a supplement to other sources of funding

For a state like Kansas with mostly low population density, demand management applications such as HOT/Express lanes would appear to have less relevance than in some other, more densely populated states. As a recent study by the state of Washington notes, "Express toll lanes, whether HOV are allowed in for free or not, depend on congestion to be successful. It is congestion that creates the value offered by a lane managed through pricing. If there is no congestion, there is no need for such a facility."ⁱⁱ

With the limited exception of the area around Kansas City, it does not appear that HOT/Express Lane projects would be feasible, or even necessary in Kansas. To the extent that demand management is a primary "driver" for using tolls, transportation officials should refer to the FHWA's Guide for HOT Lane Development.ⁱⁱⁱ

Where Are Tolls Practical and Viable?

There are a number of aspects to the question of "where." Most obviously, there needs to be a sufficient level of traffic to support the revenue needs of a toll-financed facility. The tolled alternative needs to provide a higher level of service than on available toll-free routes in order to appeal to drivers and

make it worth their paying a toll to use the facility. Among other things, this typically means a limited-access facility, so that travel time is faster. Having limited access may not be practical in much of the state of Kansas, particularly in its rural areas.

Another geographic consideration for locating a toll facility is whether there are connections to existing roads; the earliest days of the Kansas Turnpike, when there was no major connecting road into Oklahoma, attest to the importance of this factor. As shown in Exhibit 4-2, a toll facility needs to be interconnected with other existing roadways in order to be a viable travel choice.

Exhibit 4-2: Early Days of the Kansas Turnpike



When First Open, Roadway Ended Abruptly at an Oklahoma Field Which Reduced Turnpike Revenue by Not Connecting Immediately

Source: Kansas Turnpike Authority, Driven by Vision, page 17.

Finally, the issue of whether to restrict tolls to only new or enhanced capacity, versus consider allowing them on existing roadways, should be addressed.

Who Should Own, Operate, and Oversee a Toll Facility?

Authority to Toll

Currently, the state of Kansas permits tolls to be imposed ONLY by the Kansas Turnpike Authority.^{iv} Any other tolling project would have to obtain separate legislative authority.

The authority to establish toll roads can be granted to a state, county, municipalities and/or other political subdivision. Different models are in

place within the United States. Some states, including California, Colorado, Texas, New York and Florida, allow multiple governmental entities to construct and operate toll roads. In New Jersey, Oklahoma, Illinois and Pennsylvania, statewide tolling authorities have been established that are a separate public entity from the DOT. A third model involves creating a tollway authority that is under the direct auspices of the DOT such as the Utah, Washington and Minnesota DOTs. Under a fourth model, states (Texas, Virginia, and Utah, for example) have allowed private entities to own and/or operate a toll road. Enabling/authorizing legislation should specify the governing structure and the extent to which the agency may make day-to-day and long-term decisions, the level of accountability to the public or other agencies or executives, terms and obligations of board members, contracting authority, and bonding authority.

Oversight Requirements

For any organizational structure adopted, the public authority or legislature should address the question of oversight. Who should be on its governing board and how should those members be determined? Most of the governing body members of a public toll agency are appointed by an elected official, such as the governor or mayor, or an elected body, such as the city council or a county commission. In the case of a regional toll agency, appointments are made in consideration of those local entities within the toll agency's defined jurisdiction. For example, the E-470 Public Highway Authority in Colorado has representation from several municipalities that contributed to its development; the Harris County Toll Road Authority in Texas is governed by the County Commission; the Texas regional authorities have one or more representatives from each of the member counties. Some board members on the independent statewide toll authorities, such as Oklahoma, Ohio, Florida, and Kansas, are appointed by the governor, with possible confirmation from the senate and other ex-officio members. The appointment of board members can be perceived as insulating this body from the politics of making difficult decisions such as toll increases and the location of a facility.

Single or Multiple Toll Authorities

Having more than one tolling agency within a state with possible overlapping jurisdictions can create conflict regarding which agency should operate and/or own a toll facility, as has occurred in Texas and Florida. Florida's Turnpike Enterprise was exempted from legislation that would privatize roads and has

sought to position itself as the authority to administer PPP projects with a tolling component.^v Meanwhile in Texas, the DOT, a statewide toll agency, and the North Texas Tollway Authority (NTTA), a regional toll authority, fought for control over what had been projected to be one of the state's most lucrative toll facilities. While the DOT owned the proposed toll road and had announced the award of a contract to a private entity to operate the facility, the NTTA was able to gain enough political support to unravel the private deal and give the contract to the NTTA.^{vi}

Private Sector Involvement in Tolling

Many proponents of public-private partnerships as a means of infusing new capital into transportation, including the Federal government, have been critical of what occurred in Texas.^{vii} In order to seal the deal, the NTTA had to leverage its current assets to pay TxDOT a higher amount than bid by the private sector for the right to operate the road; and as a result, the NTTA did experience a slight downgrade in its bond ratings.^{viii} With the enrollment of SB 792 in October, 2007, the Texas legislature amended its laws so that public toll agencies would have the first right-of-refusal to operate a toll road within their jurisdiction.

The potential involvement of the private sector in tolling is an important institutional issue to be addressed. (*See "Current State of the Toll Industry" for discussion of PPPs.*) The primary advantage of granting a private entity the ability to operate a toll facility is that it would delegate the responsibility for the day-to-day operations and allocate some financial risks of operating a toll facility to the private sector. Giving a private entity the contractual ability to increase toll rates over time also increases the potential for improved financial performance of the facility to the extent that the private entity increases tolls by more than a public operator would.

The main disadvantage of giving the private sector too much autonomy over toll setting is loss of control and the fear that rates would be set "unreasonably" high. This could result in the following: (i) negative impact on the financial performance of the facility if the high rates cause traffic declines; (ii) increased congestion along parallel and connecting facilities; and (iii) negative political ramifications if tolls are raised too high and/or too fast. Toronto 407 Express Toll Route (ETR) is an example of a toll facility where the private developer has had relatively unrestricted ability to raise tolls. The level of toll increases drew negative public reaction, which caused

the local government to legally contest the developer's ability to raise tolls. In the end, a court affirmed the private developer's authority which had been granted by the contract documents.

Balancing Statewide Coordination with Local/Regional Needs

Balancing the need for statewide coordination with the value of enabling regional and local initiatives is an important objective in addressing the institutional aspects of expanded tolling in Kansas. In Texas, the regional planning council of governments (COG) has been influential in toll rate setting. The state DOT and the North Texas Tollway Authority both agreed to allow the North Texas Regional COG to weigh in on and accept its recommendation on the initial toll rate for certain projects. In Colorado, the Transportation Commission is legally mandated to review the toll rate schedule of public or private companies every five years, especially if eminent domain was used to obtain the right-of-way for a project. This review is limited to determining whether a reduction in toll rates would encourage HOV-lane or mass transit usage along that facility. In Virginia, there are limitations on toll setting authority by the Dulles Greenway; toll rates on the Dulles Greenway are controlled by the state, and public comments are required.

Granting local entities the ability to set tolls could assist in the mobilization of local financial resources and increase local political support for the project. However, local entities involved in toll projects may seek to dictate that the reinvestment of any net excess revenues be directed exclusively toward local transportation activities. This may not be consistent with statewide mobility needs and objectives.

What Toll System/Structure/Policies Should be Used?

A toll facility may operate as a ticket (closed) system like the Kansas Turnpike, wherein a vehicle pays a toll based on a fixed number of entry and exit points (or distance travelled), or a barrier (open) system, wherein tolls are collected at certain intervals at a tolling location (or locations) along the facility. Facilities may operate with one-way toll collection, an innovation dating back to 1969, when Caltrans converted five of its nine toll bridges from two-way to one-way toll collection.^{ix}

Items to be considered when determining a toll system, toll structure, and toll policies include:

- availability and proximity of alternative routings,
- connectivity of the toll facility into the regional roadway network,
- general goals and objectives of the toll facility (e.g. for congestion relief vs. new capacity vs. new access vs. revenue enhancement),
- public acceptability of the facility and of tolls in general,
- violation enforcement,
- existing legislative policies,
- potential customer make-up,
- potential vehicle class breakdown, and
- toll rate structures that are acceptable to both the financing of the project and to the potential customer base.

With respect to toll structure, a survey published by Transportation Research Board in 1998 indicated that most toll agencies use number of axles and/or vehicle type as a basis for toll rates. Commercial (three or more axles) vehicle rates are consistently higher than passenger car tolls, reflecting the greater wear and tear these vehicles have on the roadway.^x Another toll structure issue is whether there will be any difference in rates based on time of day or day of week travelled. Time of day tolling is common on managed lane facilities and has recently become an area of consideration for multiple lane toll road facilities.

How Should Tolls be Set and Collected?

Another issue is to determine how toll rates will be set and adjusted. This issue relates closely to the institutional structure adopted and any specific procedures to be followed for toll increases (e.g. public hearing requirements). Another important consideration in this context is to avoid raising tolls in excess of what is needed to defray costs, due to the potential for such increases to be contested on the basis that they constitute taxes, in effect.^{xi}

Historically, toll agencies have raised tolls on an “as needed” basis, with a wide range of actual frequency and magnitude.^{xiii} Today, some agencies are moving toward a program of scheduled/regular toll increases, usually on an annual basis and typically tied to inflation rates.

Finally, with the evolution of toll technology, a key question for any new toll operation is whether toll collection will be totally electronic or whether drivers will continue to have the option to pay cash. (*See “Technology Has Transformed the Toll Industry.”*)

■ ***Traditional Toll Feasibility Assessment***

Development of General Project Screening Criteria: Project screening criteria are usually developed based on a review of existing best practices for the development of toll projects as well as a high-level review of the underlying economic and financial characteristics that would support the implementation of toll projects in a particular region. Potential screening criteria include the following:

- Project development status (environmental clearances, right-of-way acquisition, planning and design)
- Demographics such as population, employment, and income
- Physical condition and length of potentially viable road corridors
- Interconnections with other roadway corridors, rail lines, intermodal facilities, major industrial and commercial areas, inland ports, or airports
- Potential traffic and revenues
- Costs of the facility
- Economic and environmental impacts on affected areas

During this initial step, key issues and corridor challenges are also identified, and, where applicable, innovative solutions or options to mitigate these challenges are proposed.

Development of Detailed Project Screening Criteria: There are numerous primary types of work that are commonly associated with toll facility forecasting/estimating. The following typically occurs:

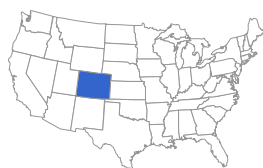
- ***Planning Level Studies*** - Very often an entity will request a planning level study of a facility's potential for traffic and revenue (T&R). Work is usually developed around a question like: "What if we put a toll on this section of the highway?" The activity is usually performed at a very high level and is only used as guidance by those that requested it as to whether or not to consider a further, more-detailed study.
- ***Phase I Study*** - A Phase I Study generally entails a "back-of-the-envelope" analysis of a proposed toll project. These studies are often requested by a private developer or toll authority that is considering a new project and is looking to make a decision on its viability before expending

significant time and money further developing the overall project design and financing.

- ***Phase II Study*** – A Phase II Study usually follows a Phase I study that found the project to be *potentially* viable. Efforts for a Phase II Study generally include some type of traffic modeling and a more extensive collection of basic data sets. The final output of a study of this nature is a report detailing the findings and including a series of sensitivity analyses that in essence puts a range on the projections of traffic and revenue based on changes in the key assumptions. In some cases, Phase II reports are used for financing and projects that these reports have been financed with have received investment-grade ratings.
- ***Phase III Study*** – A Phase III Study is often referred to as an “investment-grade study.” However, the tendency now in the field is nomenclature away from the designation of it as an “investment-grade study” and to a “comprehensive study”. This type of study is generally for a greenfield project (new facility construction, typically in a non-urban outlying area), and requires extensive work in developing a forecasting model, large amounts of data collection, and extensive analysis of various economic factors not typically considered in some of the other phases of studies. Potential toll revenues are only one of several factors the bond rating agencies use to assess their bond rating for any debt issued.

■ ***Relevant Experience and Analytical Approaches From Other States***

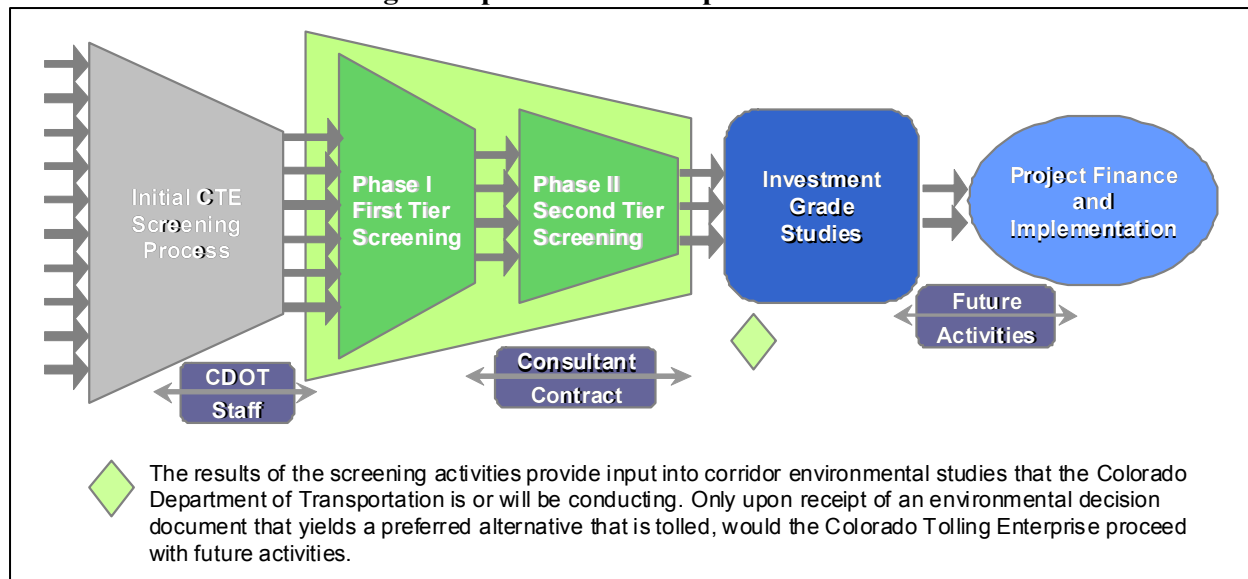
The evolution of tolling means that traditional toll feasibility assessments, most typically used for a stand-alone facility, are not necessarily relevant for all toll applications. However, Kansas can also look to the experience of other states to consider examples of structured approaches/methodologies for evaluating toll opportunities. The process used by each state has varied depending on the motivations and objectives for considering tolling.



Colorado

The state of Colorado’s approach to considering toll opportunities and advancing toll projects is illustrated in Exhibit 4-3.

Exhibit 4-3: Colorado Tolling Enterprise Toll Development Process



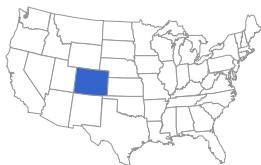
Source: Colorado Tolling Enterprise Transportation Legislative Review Committee Presentation, June 17, 2005



Facing an increasing need to find new sources of transportation funding, the state's General Assembly created the Colorado Tolling Enterprise (CTE) in 2002 and gave the new entity the responsibility for designating a statewide system of toll highways. Although given the authority for financing, constructing, operating and maintaining toll facilities, toll projects were limited explicitly to new roads or additional capacity and mandated to be interoperable with the state's two other operating toll roads (E-470 and the Northwest Parkway, both in the Denver metropolitan area). Colorado DOT staff completed an initial screening process around January 2004 which resulted in selecting 39 candidate toll projects out of over 90 potential projects. The process used a number of broad base screening criteria, including:

Colorado's initial screening process identified 39 tolling candidates out of over 90 potential projects.

- Sufficient traffic volume, defined as over 30,000 average annual daily traffic (AADT)
- Congestion, as measured by a volume/capacity ratio over .7^{xiii}
- Truck traffic greater than 1500 per day
- Already in the state's long term transportation plan for capacity improvements identified in the state's strategic investment plan process, or under study
- Roadway classification as a freeway or expressway
- High population growth



Colorado's "first tier" process yielded a total of 12 candidate toll facilities for a "second tier" evaluation.

The 39 projects proceeding to the next phase of evaluation represented a variety of toll applications, including managed lanes, new toll roads, managed facilities^{xiv}, truck toll lanes, toll tunnels, and conversion of HOV lanes to HOT lanes. A "first tier" evaluation was performed by consultants using twelve screening criteria (not listed in order of importance), as shown in Exhibit 4-4.

Exhibit 4-4: Colorado Tolling Enterprise First Tier Screening Criteria

Screening Criteria
Potential Safety Impacts
Viability Assessment of Toll Operations
Economic Growth Considerations
Consistency with Statewide and Regional Plan Goals
Community Impact Assessment
Congestion Relief Potential
Network Continuity Considerations
Order-of-Magnitude Construction Cost Estimates
General Constructability Assessment
20 th Year Traffic and Revenue Potential
Relative Financial Feasibility Index
Other Considerations (Including Public Comments)

Source: Wilbur Smith Associates, Executive Summary - CTE Preliminary Traffic & Revenue Study, January 2005, pages ES-4 and ES-5.

The "first tier" process yielded a total of 12 candidate toll facilities for a "second tier" evaluation. The twelve candidates (some of which had multiple project alternatives to be considered) included six managed lane projects, four new toll roads, one HOT lane, and one truck-only facility.

The "second tier" evaluation was more detailed, based on three major factors:

- Preliminary estimates for traffic and revenue;
- Preliminary estimates for capital, operating, and maintenance costs; and
- Financial feasibility.



*General
Conclusions by
Colorado Tolling
Enterprise:*

- *Adopt a system approach*
- *Feasibility is more than financial*
- *Detailed financing and funding plans are required*
- *Address organizational structure and need for legislative changes*

This process identified a number of potentially viable corridors for tolling, some of which appeared to be feasible with only toll revenue and others which would require some Federal funding. Based on this second phase, CTE proceeded with more detailed project development and institutional arrangements that would be required to advance specific toll projects. Later activities have included establishing an Ad Hoc Committee^{xv} to ensure that possible toll projects are incorporated into statewide and regional planning processes. To date, CTE has fully implemented only one project – the I-25 Express Lanes debuted in June 2006 – but its most recent annual report indicates that work continues “on a number of environmental studies that include toll lanes or toll roads as alternatives to be considered.”^{xvi}

CTE also drew a few general conclusions from its phased consideration of tolling, as follows:

- Connectivity and revenue sharing among separate projects are critical elements; adopting a system approach for implementing and financing toll facilities appears to be more viable than planning on the basis of any individual corridor.
- Financial feasibility does not assure feasibility on the basis of other criteria, most notably environmental feasibility which can only be established through the NEPA process.
- More sophisticated financial analysis (known as an Investment Grade Study) is required, along with a detailed financing/funding plan for any alternative identified in a screening process as being potentially viable as a toll project.
- Organizational structure should be addressed in parallel with the engineering, environmental, and financial aspects of a toll project, including definition of roles and responsibilities for entities involved in implementation, operation and maintenance and the possible need for legislative changes to accommodate new toll operations and assure statewide interoperability.



North Carolina

The General Assembly of North Carolina established the North Carolina Turnpike Authority (NCTA) in 2002. Administratively located within the state’s DOT, it effectively operates as an independent agency, governed by a



North Carolina's approach to tolling has focused on creating local support early on.

Board which consists of the Secretary of DOT and eight other members appointed from throughout the state by a combination of the state's Senate, House of Representatives, and Governor.

NCTA is authorized to implement up to nine turnpike projects throughout the state. Exhibit 4-5 shows the criteria projects must meet to be selected for consideration as a toll road.

Exhibit 4-5- North Carolina Turnpike Authority Criteria

NCTA Criteria	Description
Roadway Type	The road must have full control of access.
Project Location	The road must have a "free" alternate route.
Project Feasibility	The road must have a high probability of being able to start construction within a reasonable time frame.
Local Support	The road should have demonstrated local support or a reasonable expectation of support for development as a toll facility.
Financial Feasibility	The road should be deemed to be financially feasible using available data and commercially reasonable assumptions.
Statewide or Regional Significance	Special consideration should be given to those projects that would play a significant role in the statewide or regional highway system or serve major economic generators.

Source: <http://www.ncturnpike.org/projects/> as accessed on September 13, 2008.

Communication with NCTA officials indicates that the importance of creating local support early in the process cannot be overstated. As noted previously, NCTA has recently decided to operate at least one of its new turnpikes as a cashless facility, based on the savings in capital and operating costs from avoiding the need for traditional toll booths.^{xvii}



Texas

In 2003, the Texas Legislature enacted HB 3588, which represented a major commitment to tolls as a source of transportation revenue for the state's next wave of highway construction. The bill provided many new tools to assist in the delivery and completion of transportation projects, including:

- Authorization of public-private partnerships



Texas has heavily promoted tolls as a source of transportation revenue for new highway construction.

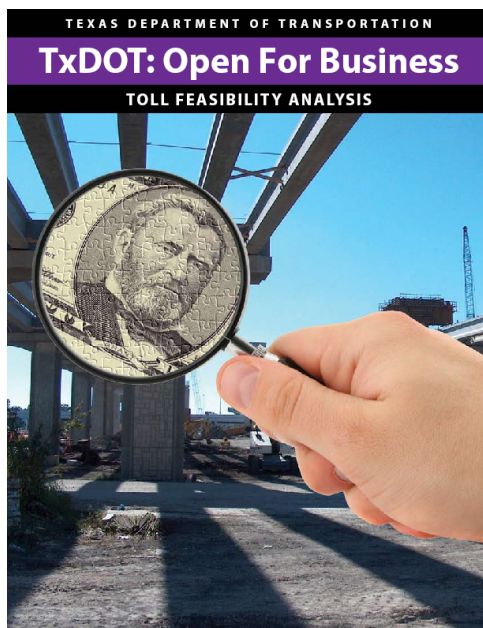
- Authorization of the formation of regional mobility authorities (RMAs) to give an individual county or several counties the institutional capability to adopt a regional approach to meeting their transportation needs. Subject to the approval of the Texas Transportation Commission (TTC), RMAs would have the power to issue bonds or collect tolls and convert existing segments of the state’s highway system to toll roads and have authority to purchase rights-of-way and lease portions of the land for non-transportation-related purposes.
- Expanded tolling authority of the state
- Authorization of comprehensive development agreements (CDAs)
- Flexibility in funding the Trans Texas Corridor, a proposed multi-use statewide network of transportation routes incorporating existing and new highways, railways and utility rights-of-way
- Ability to commingle toll revenue with state highway funds to build public and private toll roads
- Ability to have pass-through toll agreements, also known as “shadow” tolls, under which a local or private entity makes highway improvements using its own funds, and then is reimbursed by the state based on the number of vehicles that use the highway
- Ability to use the design-build approach to highway construction through CDAs^{xviii}

Following the passage of HB 3588, the Texas DOT developed a five-step toll feasibility analysis process to promote and coordinate development of turnpike projects throughout the state. The five steps included:

1. A screening analysis, which included all added capacity and new location projects in the Unified Transportation Plan (UTP), the state’s 10 year planning document and identified those projects where toll revenue could pay for estimated operations costs
2. A conceptual analysis, which assessed the potential for supporting bonds using a “fatal flaw” analysis, based on ability of toll revenue to pay for estimated operations over 40 years (including estimated operations and maintenance costs), and exhibiting bonding capacity potential



3. A project-specific evaluation, using refined project cost estimates and conceptual traffic & revenue (T&R) estimates from a certified T&R consultant
4. A more detailed assessment, with further refinements in project cost and a refined tolling plan, along with an intermediate grade T&R evaluation
5. An investment grade analysis with extensive and detailed T&R study to determine a toll road project's value in anticipation of proceeding to the bond market



Using this process, literally hundreds of roadway expansion projects (including new roadway facilities) throughout Texas have been screened and, based upon TxDOT's internal criteria of 'rate of return on investment,' a dozen or so of those projects (all of which were in urban areas) were deemed 'preliminarily feasible' and warranted further analyses. Of those dozen or so projects that were further studied, several are currently being subjected to additional analysis, including detailed environmental processes.

In the five years since HB 3588, Texas has been among the most active states in advancing new toll roads. In mid-2007, in response to political and public concerns, SB 792 was enrolled. The bill included a number of provisions related to PPP toll projects, including limiting the term of agreements to no more than 50 years, imposing a two year moratorium on new PPP toll projects (with a few explicit exceptions), and establishing a legislative committee to examine the public policy implications of selling an existing and operating toll project to a private entity and submit a written report to the legislature no later than December 1, 2008.^{xix}

Public policy implications of PPP toll projects are being re-examined in Texas.

In the meantime, in May 2008, the Texas Transportation Commission (a five-member board appointed by the Governor to oversee the Texas Department of Transportation) adopted guiding principles and policies that will govern the



The Texas Transportation Commission has articulated key principles for future projects to protect the state's financial interest.

development, construction and operation of toll road projects on the state highway system and the Trans-Texas Corridor. The Commission sees these principles as reaffirming policies and the requirements of state law regarding toll projects, particularly involving the use of comprehensive development agreements (CDA). As stated in a news release, the Commission reaffirmed its commitment to meet or exceed the requirements of state law on five key issues:

- All state highway facilities, including the Trans-Texas Corridor, will be completely owned by the State of Texas at all times.
- All Comprehensive Development Agreements will include provisions that allow TxDOT to purchase or "buy back" the interest of a private developer in a CDA at any time if buying back the project would be in the best financial interest of the state.
- The Texas Transportation Commission shall approve, in a public meeting, the initial toll rates charged for the use of a toll project on the state highway system and the methodology for increasing the amount of tolls. All rate-setting actions will come after consultation with appropriate local metropolitan planning organizations.
- Only new lanes added to an existing highway will be tolled, and there will be no reduction in the number of non-tolled lanes that exist today.
- Comprehensive development agreements will not include "non-compete" clauses that would prohibit improvements to existing roadways. The Department and any governmental entity can construct, reconstruct, expand, rehabilitate or maintain any roadway that is near or intersects with any roadway under the CDA.^{xx}

The Texas experience is a very good illustration of the tools and policies that a state can utilize to maximize use of tolls for funding transportation improvements. However, it is also a cautionary tale of the potential for public and political criticism of the vigorous promotion of tolls.



Connecticut

Although Connecticut has not had a toll project since 1985, it appears that the state is considering the re-introduction of tolls, based on its having recently launched a statewide review and analysis of potential applications of electronic tolls and congestion pricing. Although the review is ongoing, the



Connecticut is considering re-introduction of tolling and congestion pricing in an era of electronic tolls.

scope of the study^{xxi} may provide a useful framework for Kansas to consider in its own assessment of tolling opportunities.

The Connecticut study includes the general issue of whether to limit tolling applications to new capacity or consider implementation on an existing facility. In addition, the state is seeking to identify types and locations of specific applications for tolls or congestion pricing. For each alternative, the following issues will be addressed:

- Federal requirements or approvals, legislative changes
- Pricing strategies
- Potential operating costs and revenues
- Impact on traffic congestion and patterns of travel
- Regional equity considerations, e.g. based on geography and income
- Environmental impacts
- Economic impacts
- Safety
- Types of appropriate public-private partnerships or private sector role
- Implementation strategies, costs, and timelines



Implementing toll financing in Missouri would represent a significant change in how Missouri DOT currently conducts business.

Missouri

The Missouri Department of Transportation (MoDOT) has conducted two phases of toll feasibility studies as part of a comprehensive statewide planning process, the Long-Range Transportation Direction (LRTD). In the LRTD, MoDOT has documented the funding gap between what Missourians want and what MoDOT can provide them with current funding. The decision to implement toll financing would require extensive public debate and represents a significant change in how MoDOT currently conducts business. The General Assembly would have to grant authority to MoDOT before a state-sponsored toll project could move forward. Thus, the purpose of toll feasibility studies was to estimate the potential revenue that could be generated from several candidate toll projects within the state. Potential toll revenue may then be considered in combination with other possible funding mechanisms as MoDOT and Missouri's residents continue to plan the future of the state's transportation system.



Missouri has completed two phases of toll feasibility study.

Phase I, completed in 2002, was a preliminary, planning-level feasibility assessment, which used readily available data to evaluate 23 candidate toll projects (including 16 roadway corridors and 7 bridges) based on six screening criteria:

- Financial potential
- Priority
- Agreement on multi-state projects
- Connectivity
- Independent vs. system analysis
- Federal requirements (as applicable to Interstate and U.S. highway candidates)

This screening process identified projects that could potentially be feasible as stand-alone projects (i.e., the estimated toll-based funding capacity of the project exceeded the project's capital cost). Five candidates were subjected to a more detailed level of analysis in Phase II using newly collected data, both as stand-alone toll projects and in various combinations, including:

- Two existing Interstate Highways: I-44 and I-70
- One existing U.S. Highway: US 71
- One existing major Missouri River Bridge: I-29 in Kansas City
- One new major Mississippi River Bridge: I-70 in St. Louis

Exhibit 4-6 shows the implementation issues for toll facilities in Missouri, as concluded in the Phase II toll feasibility studies completed in June 2005.

Exhibit 4-6: Toll Roads in Missouri – Implementation Issues

Implementation Issues
MoDOT does not currently have the legal authority to finance, construct or operate a toll road or bridge.
Although less restrictive since 1992, current Federal law still limits a state’s ability to impose tolls on existing Federally-assisted highways and bridges.
Numerous options are available for the governance of a statewide toll system and its relationship with the Missouri Highways and Transportation Commission (MHTC).
The study assumed that operating and maintenance costs are funded from toll revenue. Therefore, MoDOT could realize a reduction in annual operation and maintenance costs for those existing highways or bridges that are converted to toll roads since they would no longer be maintained using moneys from the State Road Fund.
If a project connects with a bordering state, Missouri will need to reach an agreement with the adjoining state before the Missouri highway corridor or bridge could be considered for tolling.
Projects on which toll revenues are forecast to cover less than 100% of their capital costs through tolling could potentially be combined with other funding mechanisms, such as the State Road Fund, to cover the remaining construction or operations and maintenance costs. This assumes the General Assembly enacts a constitutional change authorizing MHTC to build, operate and maintain toll roads.
Further study of the I-29 and I-70 major river bridges needs to consider their relationships and impacts on other metropolitan river bridges in Kansas City and St. Louis, respectively.
A wide variety of toll rates were assessed within the study; however, subsequent studies, such as an Investment Grade Study, would need to select the best toll rate to apply. The toll rate is often a policy issue to decide what is the most appropriate toll rate given the type of toll facility, the characteristics of the area, the toll rates of surrounding toll facilities and how traffic would redistribute depending on the toll rate.

Source: Adapted from HNTB in association with Wilbur Smith Associates and Citigroup, Missouri Toll Feasibility Study – Phase II, June 2005



Washington

The state of Washington conducted a multi-phase comprehensive tolling study over several years beginning in 2005 with the explicit purpose of “help[ing] the State make policy-level decisions on if, where, when, and how to toll by providing a step-by-step tolling strategy for Washington State.”^{xxii} The study was undertaken by the Washington State Transportation Commission as two toll facilities- the Tacoma Narrows Bridge and the SR 167 HOT Lanes Pilot Project- were already authorized and under construction.

Phase 1 Toll Study

With numerous toll proposals at various stages throughout the state, the goal of Phase 1 of the study was to recommend policies to guide statewide development of toll facilities over the short term (within 10 years); medium



term (within 20 years); and long term (beyond 20 years). To develop proposed policies, the study addressed seven questions of statewide relevance, as shown in Exhibit 4-7:^{xxiii}

Exhibit 4-7: Washington State Phase 1 Toll Study Questions

Question	
1	What role can tolling play in developing and managing Washington’s transportation system?
2	How should Washington determine which parts of the system to toll or price?
3	What rules should govern use of toll revenue?
4	What rules should govern setting toll rates?
5	What is the most appropriate governance and organizational structure? Key issues included 1) managing the customer’s experience; 2) determining who decides when, where and how to toll; and 3) developing the most effective way to operate multiple facilities.
6	How do technology and toll operations influence statewide toll policy?
7	How do equity, fairness, and uniformity issues influence toll policy?

Proposed Washington State Policies

The proposed policies, as stated in the final report, are as follows:

Policy 1: Overall Direction

Washington should use tolling to encourage effective use of the transportation system and provide a supplementary source of transportation funding. That policy should evolve over time. (See Exhibit 4-8 for the different phases.)

Policy 2: When to Use Tolling

Tolling should be used when it can be demonstrated to:

- Contribute to a significant portion of the cost of a project that cannot be funded solely with existing sources; and/or
- Optimize system performance, such as with an HOV/Tolled Express lane.

Such tolling should in all cases:

- Be fairly and equitably applied in the context of the statewide transportation system; and



- Not have significant adverse impacts through diversion of traffic to other routes.

Policy 3: Use of Toll Revenue

Toll revenue should be used only to improve, preserve, or operate the transportation system.

Policy 4: Setting Toll Rates

Toll rates, which may include variable pricing, should be set to optimize system performance, recognizing necessary tradeoffs to generate revenue.

Policy 5: Duration of Toll Collection

Since transportation infrastructure projects have costs and benefits that extend well beyond those paid for by initial construction funding, tolls should remain in place to fund additional capacity, capital rehabilitation, maintenance, operations, and to optimize performance of the system.

Policy 6: State Toll Authority to Set Toll Policy

Following broad statutory direction, the Washington State Transportation Commission, as the currently designated State Tolling Authority, should develop policies and criteria for selecting the parts of the transportation system to be tolled; propose the study of potential toll facilities; recommend toll deployments to the Governor and Legislature; and set toll rates. The Authority should engage in robust and continuous coordination with state-authorized regional or multistate entities that may propose toll facilities to the Authority.

Policy 7: WSDOT to Implement Policy

The Washington State Department of Transportation should be responsible for planning, development, operations and administration of toll projects and toll operations within the State.

Policy 8: Toll Collection Systems

Toll collection systems in the State of Washington should be simple, unified, and interoperable, and avoid attended tollbooths, wherever possible.



Exhibit 4-8: Washington State Overall Direction - Phase 1 Toll Study

Short Term (within 10 years)	<ul style="list-style-type: none"> ▪ Accelerate implementation of high-cost/high-need projects, examples being SR 520, Columbia River Crossing at Vancouver, and Snoqualmie Pass. ▪ Use price differentials as appropriate to make most effective use of the system. ▪ Convert high-occupancy vehicle (HOV) lanes to HOV/tolled express lanes to optimize performance and maintain free-flowing service for transit, vanpools, and carpools.
Medium Term (within 20 years)	Consider potential for building additional capacity as tolled express lanes through more extensive study of long-term costs and benefits. Consider broader use of tolling to optimize system performance.
Long Term (beyond 20 years)	Consider more extensive use of tolls as the ability to build more capacity is constrained, traditional revenue sources decline, and technology advances.
<i>Source: Washington State Comprehensive Tolling Study Final Report, Volume 1</i>	

Additional Activities and Observations

Using these policies, several potential tolling applications were evaluated. In addition, Washington conducted public and stakeholder outreach on general attitudes about tolling. These findings contributed to further policy-level discussions with the Washington State Transportation Commission. Some of the general conclusions about tolling opportunities and constraints are worth noting:

The State of Washington concluded that tolling is facilitated by having existing assets, intense traffic congestion, political champions, and ETC, but expectations should be realistic.

- **Leveraging existing toll facilities can help fund new projects:** Although debated within the transportation industry and by policymakers, Washington State concluded that regions that have existing toll assets have an advantage over those just starting out, because they have the ability to leverage the revenue stream from the current facilities. The ability to provide system financing (i.e., apply excess revenues from other parts of the toll enterprise) or to provide loans or seed money, provides new projects in such communities a “head start” over other areas. Areas



with existing toll facilities also have a head start on the public relations and political battles regarding the use of tolls in the first place.

- **Places with intense traffic congestion have a greater incentive to move to tolling than those that do not.** Especially in areas with rapid growth, traditional public funding is often inadequate to keep up with traffic needs. Often, tolling is a way to advance a project that cannot be afforded for 10 or 20 years. Where congestion is not as pressing an issue, communities may make the choice to wait the extra time for the desired highway projects.
- **Political champions are needed.** It usually takes an elected official to champion a particular toll project. Without the benefit of an elected champion, projects are less likely to advance.
- **Electronic toll collection removes one big objection.** Many people still equate toll roads with congestion at toll booths. With electronic toll collection, most new toll projects are able to offer highway-speed toll collection facilities, which eliminate this objection.
- **Expectations should be realistic.** It is rare for a start-up toll project to be able to be fully self supporting without some kind of credit enhancement or financial contribution. The difficulty of start-up toll projects has been demonstrated repeatedly around the country. The realities of traffic uncertainty in the ramp-up period may need to be addressed by states being willing to contribute in the construction and start-up phases of a toll project.^{xxiv}

Phase 2 Toll Study

The 2007 Legislature directed the Commission to do a second phase of the tolling study aimed at providing more detail on possible tolling project candidates statewide. This phase used the first two policies as a basis for screening a larger number of specific projects, conducting planning grade studies to evaluate consistency with the articulated policies as well as to assess how “ready” each project was.

*Phase 2 Toll Study
identified 28
potential tolling
projects for
Washington State
over the next 20
years.*

The Part 2 Tolling Study final report,^{xxv} adopted at the February 2008 Commission meeting, identified 28 potential tolling projects statewide that could be carried out over the next 20 years. Further, the Commission reinforced the earlier eight policy recommendations contained in the Part 1



Washington's Phase 2 Toll Study reinforced emphasis on system impacts and need for lifetime toll collection. The study added pre-construction tolling, seeking Federal waiver for Interstate tolling, and effective engagement of the general public and the private sector.

Tolling Study report and added several new features to the state's toll development efforts:

- **Consider System Impacts.** The Legislature should consider the impacts of tolling on the entire transportation system and not just focus on the specific segment of highway they want to toll. The decisions of today should not create stumbling blocks for future decisions.
- **Pre-Construction Tolling.** Putting tolls on complex mega-projects before the improvements are completed could have benefits to the public and should be seriously considered. Among the benefits are reduction of the project costs by avoiding interest charges during construction period, along with smooth traffic flow and increased operational efficiency of existing facilities. In fact, pre-construction tolling will be implemented in January 2010 on SR 520 four years before the opening of the new parallel bridge now under construction.
- **Federal Waiver for Interstate Tolling.** The State should seek a Federal waiver for potential tolling applications on Interstate tolling.
- **Duration of Toll Collection.** Tolls on projects should stay on over the life of the facility to ensure adequate funding is available to cover the maintenance and rehabilitation needs of the facility, and to continue serving as a traffic management tool to optimize traffic flows.
- **Public Awareness and Acceptance.** The public does not have a good understanding of the nuances of the tolling policies that are currently under consideration. Public outreach and education needs to be an ongoing effort throughout the State to enable these important financing and traffic management tools to be used effectively.
- **Effectively Engage the Private Sector.** Private sector involvement may create the right incentives for cost-effective delivery of major projects. The State should consider PPP approaches but also should be cautious that the public's interest is adequately protected and advanced.



Tennessee

In the 2006-2007 timeframe, the state of Tennessee evaluated the conceptual feasibility of tolling for three specific projects identified as needed but unable to be funded by the state without support from tolls. Because it has no current toll operations, the state also surveyed five peer agencies in other states to



Tennessee finds the keys to introducing tolling include responsiveness to customers, a system approach, an open and transparent planning process, and education.

investigate institutional aspects of tolling. A peer review study published in December 2006 reported five major findings:

- **Customer Service:** All five agencies felt that responsiveness to customers was critical to their mission and ultimate acceptability. Failure of a toll agency to be perceived as "adding value" makes it more difficult for the agency to develop and manage an efficient toll road network.
- **Toll System:** All five agencies felt that it was important to develop a system or network of toll facilities, instead of creating separate stand-alone toll roads.
- **Planning Process:** In order to successfully develop toll roads, all five agencies emphasized the need for an *open* and transparent process that is inclusive of all stakeholders.
- **Education:** The five agencies felt it was very important to educate customers, legislators, other elected officials, and stakeholders about the role of, and need for, toll roads in a state's transportation plan. A specific message needing emphasis is a lack of Federal funding to add new capacity, and how tolls help to fill this funding gap. They also agreed that it is important to emphasize that tolls can fill only a portion of this gap and that they should not be considered a panacea for all transportation needs.
- **Organizational Structure:** Four out of five agencies recommended a separate agency over being part of a DOT on the basis that a separate agency would have a single focus, making it more responsive to customer needs; have better adaptability to manage changes in construction, technology, and financial requirements; and have more flexible personnel practices that allow for the recruitment and retention of key personnel.^{xxvi}

The Tennessee Tollway Act, enacted on June 11, 2007, has the following provisions:

- Option to fund new highway and bridge projects
- No current facilities can be tolled
- TDOT Commissioner authorized to set and revise tolls, which will be used to operate and maintain toll facilities and pay off bond debt
- Bill allows two (2) pilot projects (1 bridge, 1 highway)



- Tennessee Legislature will approve all toll projects
- Toll facilities will be publicly owned (no private or foreign ownership)
- Projects must be in the state's Long Range Transportation Plan and adhere to environmental processes^{xxvii}

As of early 2008, four bridges and two road projects (including two of the projects previously subject to conceptual feasibility studies) were being evaluated as potential pilot toll projects.



Nevada

In 2005, the Governor commissioned a Blue Ribbon Task Force to Evaluate Nevada Transportation Long-Range Projects. The panel concluded that there was a \$3.8 billion gap (not accounting for inflation) between the funds available and the required expenditures to address Nevada's highway system needs through 2015. In response to this gap, the Nevada Department of Transportation (NDOT) created the Pioneer Program to explore and develop innovative ways, including the use of public-private partnerships, to finance and deliver transportation projects. A Steering Committee (comprised of representatives from NDOT, the State Attorney General's Office, the Treasurer's Office, and the State Controller's Office) was formed to consider and recommend policies for the Pioneer Program, and to develop project selection criteria and procurement guidelines. Through a series of Steering Committee meetings, NDOT reviewed and discussed industry practices and lessons learned from other transportation agencies with regard to the development and implementation of public-private partnerships and innovative financing programs.

Lacking the authority to toll, Nevada plans to seek legislative authority to develop a demonstration managed lane project.

Although NDOT has authority to enter into public-private partnerships through transportation facilities agreements, it does not have the authority to toll roads or bridges. While an agency can have a PPP without tolling, tolling is necessary to attract investors, who are seeking a long-term revenue stream from a project. Without the legislative authority to toll, NDOT plans to seek legislative authority to develop a demonstration managed lane toll project. In the meantime, Pioneer Program policies and procedures for determining toll and non-toll projects that are viable candidates for public-private partnerships are being finalized.



West Virginia has encountered financial infeasibility or lack of community support for new toll projects.

West Virginia

The West Virginia Turnpike was constructed in the pre-Interstate era and later upgraded to Interstate standards. Currently the only toll road in the state, it now carries both I-77 and I-64 designations. In the 1980s, the state of West Virginia conducted preliminary traffic and revenue, financial, and environmental studies to evaluate the conceptual feasibility of tolling for numerous other roadway projects identified as needed throughout the state. The analyses looked at roadway projects throughout the state both on an individual basis and as a whole system. The resulting preliminary analyses were presented to the state, but no distinct actions were taken at that time, as the potential revenue streams of the projects, both individually and as a whole, were deemed insufficient for the financial funding.

More recently, the West Virginia Division of Highways has proposed other toll projects. One such proposal, to turn the 19-mile long US Route 522 into a toll road, was withdrawn in August 2008, in the face of negative press, public comments, and a county commission resolution against the project. In taking the proposal “off the table,” state officials indicated that they would not “proceed without community support.”^{xxviii}



Maine DOT and Maine Turnpike will be considering tolling in two corridors.

Maine

Like Kansas, Maine built its turnpike before the Interstate system and it is the only current toll operation in the state. In recent years, the possibility of introducing tolls on other roads has been discussed. In 2007, the concept of tolling other Interstate roadways, specifically I-295 between Portland and Augusta as well as all or part of I-95 north of Augusta, was raised with the state legislature's Transportation Committee, but the current Governor is firmly opposed to such a change. However, two other corridors that need better connections are being considered for tolling (if a new road were to be built) between Portland and Gorham and connecting Wells, Biddeford, and Sanford. The state legislature has requested that Maine Turnpike and Maine DOT jointly conduct a detailed needs assessment and alternatives analysis on these two corridors. A preliminary traffic and revenue study conducted on the Portland-Gorham corridor about five years ago indicated there would be enough traffic to support tolls. Recognizing that the next stage of analysis would necessarily address both transportation and land use issues, Maine Turnpike and Maine DOT have been discussing the need for further evaluation of the corridor needs with affected communities and municipalities before formally launching a toll feasibility study.^{xxix}



One other toll initiative has been explored in Maine, an East-West Highway in Northern Maine. In September 1999, the Maine Department of Transportation and Maine State Planning Office completed studies required by a law enacted by the 118th Maine Legislature of the costs and economic benefits of an east-west highway in northern Maine which would link the Canadian Maritime Provinces to the east and the larger markets of Quebec, Ontario, and the Midwestern United States to the west. Five alternative corridors (three upgrade alternatives, and two four-lane limited access alternatives on a new alignment) were selected for economic research and engineering and environmental assessments. A preliminary assessment of toll feasibility was conducted for four of the five alternatives (a fifth was projected to generate far lower traffic levels), in which net toll revenues were compared to estimated debt service requirements for each corridor assuming both General Obligation Bond and Revenue Bond financing. Only one of the four alternatives (a two-lane toll highway) proved to be financially feasible beginning in 2015, but only when General Obligation Bond financing and high end toll rates were assumed.

The studies projected that any of the alternative East West corridor investments would provide only modest economic benefits to Maine's economy, so the project was not progressed further at the time. More detailed conclusions are shown in Exhibit 4-9.

Exhibit 4-9: Maine East-West Highway Study - Selected Conclusions, 1999

Maine East-West Highway Study - Selected Conclusions, 1999
The much higher costs of new four-lane highways do not appear justified by their somewhat higher economic impacts.
The overall economic impacts of an E-W highway are not confined to Northern Maine and benefit the entire State.
Non-transportation influences on US/Canada trade introduce additional "risk" to the impact forecasts. Risks that impacts will be lower than projected exceed the risks that forecast results are underestimated.
I-89 and I-91 may have helped Maine's neighboring states of New Hampshire and Vermont over the past three decades, but neither highway has dramatically altered the underlying economic structure of the corridor communities.
The limited ability of those corridors to stimulate Canadian investment from Montreal suggests that the Maine E-W highway would face similar challenges in the future.
An east-west corridor improvement should aid regional efforts to recruit business investment and diversify the economies of Central and Northern Maine, but will not necessarily guarantee success. The experience of the I-89 and I-91 corridors indicate that incremental gains following the construction of an E-W highway would be modest.

Source: <http://maine.gov/mdot/major-planning-studies/east-west-hwy/execsum.php>

As noted in “Current State of the Toll Industry,” the East-West Highway is currently a private initiative, with through truck traffic to Canada seen by the private developers as the principal market for the proposed new facility.

Other States

Observations about other states’ recent experiences with tolling are available from a survey of state transportation officials conducted by the Government Accountability Office:

States may define their own standards for financial feasibility; some have addressed concerns related to intra-state equity and traffic diversion.

- In Arkansas, tolling is considered if revenues fund at least 20 percent of initial construction costs, but a toll project can only be advanced if it can be shown that toll revenues would cover all operations and maintenance costs.
- In Florida, toll proposals must pass a financial feasibility test and prove that the proposed projects will be self-sustaining before the projects are further considered for advancement. According to officials at Florida’s Turnpike Enterprise, the standard for feasibility is that by the twelfth year of operation, projected revenues must cover at least 50 percent of operating costs and debt service and by the twenty-second year of operation, projected revenues must cover all costs and debt service.
- Also in Florida, there have been concerns about the distribution and use of funds collected for projects in one region (southern Florida) being distributed to and used for projects in another region of the state (northern Florida). In the 1990s, three southern counties—Palm Beach, Broward, and Dade—secured legislation that would require the Florida Turnpike Enterprise to calculate the dollar amount collected in those counties and determine how much of that amount was returned to the counties to be used on their facilities. As a result, Florida’s Turnpike Enterprise created a formula to implement that law, reflecting the need to balance collections in those counties with what is being spent on facilities in those counties.
- Local communities may have significant concerns about tolls resulting in traffic diversion to non-tolled alternatives as vehicles (particularly trucks) seek to avoid tolls, potentially creating congestion, increasing accident and fatality rates, and increasing the municipalities’ costs of maintaining these roads. These concerns are most common for new tolling proposals. One example is a proposal to toll trucks on Interstate 81 in Virginia which was estimated to result in diversion of one in four trucks to nearby parallel routes if a high toll rate was applied to commercial vehicles. But

such concerns may also apply to a long-existing toll facility. For example, in the 1990s, traffic studies showed that commercial vehicles were increasingly diverting from the Ohio Turnpike onto parallel non-tolled roads, creating safety and other concerns among local communities. In response, the governor released the Northern Ohio Freight Strategy in October 2004, which included a policy to reduce tolls on commercial vehicles, a policy which appears to have succeeded in redirecting traffic back to the Ohio Turnpike.

Summary of State Approaches to Tolling Studies

Although the states highlighted in this section faced different circumstances and utilized varied approaches, Exhibit 4-10 identifies several common categories of criteria they used in evaluating tolling opportunities.

The experience of other states also suggests that there are several policy issues that may need to be addressed up front as part of developing a statewide tolling strategy. Examples are:

Tolling only new capacity: Colorado, Tennessee, and Texas have explicit policies to toll only new capacity. Other states, including Washington and Missouri appear not to have made this a predetermined policy; Connecticut is in the process of considering the issue.

Adopting a system approach over stand-alone model: Several states, notably Colorado and Washington, emphasize system performance or statewide system objectives in their tolling-related efforts. Other states, such as Texas, have incorporated more of a decentralized toll planning and implementation process by allowing local and regional authorities to progress toll initiatives, though with some statewide oversight.

Setting policies for toll revenue: Somewhat related to the question of adopting a system approach versus stand-alone facility model, states need to develop policies for where toll revenues can be used. In a system approach, toll revenues from one toll facility or corridor may be used to help support other roadway or bridge facilities elsewhere in the state. Beyond being applied to other or connecting road corridors, states may choose to allow tolls (e.g., from HOT lane projects) to be used to support transit improvements in the same corridor. Finally, states may be wise to consider a departure from the past practice of promising to remove tolls when the initial bonds are paid

off. Instead, the expectation can be established that tolls will continue as a source of funding well beyond the initial financing of a facility. Although bond covenants and concession lease agreements typically have a finite term, maintenance and operating costs do not go away, and tolls can be an important tool for funding these ongoing costs.

Private sector involvement: States vary in the extent to which they promote private sector involvement in tolling operations; while PPP arrangements can be structured to protect the public interest, Tennessee is an example of a state that has explicitly banned private (and foreign) ownership of toll facilities.

Exhibit 4-10: Typical Screening Criteria

SCREENING CRITERIA (IN NO PARTICULAR ORDER)	SELECTED EXAMPLES OF STATES USING THIS CRITERION
FINANCIAL ASSESSMENT, e.g.	
Order-of-Magnitude Construction Cost Estimates	Colorado
Traffic and Revenue Potential	All states at some stage
Relative Financial Feasibility Index	Colorado
Explicit Thresholds for Cost Recovery	Texas, Arkansas, Florida
ENGINEERING/OPERATIONS, e.g.	
Potential Safety Impacts	Colorado, Connecticut
Viability Assessment of Toll Operations	Colorado
Congestion Relief Potential	Colorado, Connecticut, Washington
Network Continuity Considerations	Colorado, Missouri (connectivity)
General Constructability Assessment	Colorado
Optimizing System Performance	Missouri (independent vs. system analysis); Washington
Full Control of Access	North Carolina
Explicit Traffic Volume or Congestion Thresholds	Colorado (broad-based initial screening)
Roadway Classification Requirement	Colorado
OTHER FACTORS, e.g.	
Economic Growth/Impact Considerations	Colorado, Connecticut, North Carolina
Consistency with Statewide and Regional Plan Goals	Colorado, Missouri (priority)
Environmental and Community Impact Assessments	Colorado, Connecticut
Diversion Impacts	Washington
Statewide or Regional Significance	North Carolina
“Readiness” of Project Start-up in a Reasonable Timeframe	North Carolina
Local Support	Colorado (public comments); North Carolina
Availability of Toll-Free Alternate Route	North Carolina
Multi-State Agreement (If Applicable)	Missouri
Federal Requirements (If Applicable)	Missouri, Connecticut
Fairness/Equity Considerations	Connecticut, Washington, Florida

■ ***To Toll or Not to Toll - That may not be the Question (or Answer)***

In the past, roads were either toll roads or non-tolled roads. With the evolution of tolling and changes in Federal policy, the blending of toll and non-toll funding sources is increasingly possible and attractive. In addition, a hybrid type of facility referred to as "toll-supported" is worth noting. As an example, in 1984, the Delaware River Joint Toll Bridge Commission, a bi-state agency, assumed full financial responsibility for 13 non-toll bridges within its jurisdiction whose operating and maintenance costs had previously been financed by appropriations from the Commonwealth of Pennsylvania and the State of New Jersey through state-levied taxes. Since toll revenues currently provide the sole source of support, the Commission now refers to these bridges as toll-supported bridges,^{xxx} even though the bridges themselves are not tolled. Where there is a clearly interconnected network of roads, this approach can help leverage existing toll revenue streams to reduce the burden of transportation funding needs on states.

The new Leavenworth Interchange at Milepost 212 of the Kansas Turnpike is an example of blended funding.^{xxxii} Although the interchange itself is being built and funded by the Kansas Turnpike Authority, Leavenworth County sales tax revenue will be used to fund the improvements required on the county road connecting with the new interchange.

Another example of blended funding is Maryland's Intercounty Connector, a new 18 mile open-road tolling facility under construction and expected to open in 2010.^{xxxiii} The project is being funded by a combination of grant and revenue anticipation bonds, state and Federal cash contributions and Maryland Transportation Authority pay-as-you go funding, derived primarily from toll revenues on five other existing toll facilities in the Baltimore-Chesapeake Bay area.^{xxxiii}

There are a variety of funding sources that can be considered in combination with tolls for particular projects. The following strategies are being used with great success both alone and in combination throughout the U.S.

- ***TIFIA loans.*** The Transportation Infrastructure Finance and Innovation Act (TIFIA) of 1998 enabled the U.S. DOT to provide credit assistance through direct loans, loan guarantees and lines of credit. TIFIA helps advance expensive projects that otherwise might be delayed or deferred

because of size, complexity or uncertainty over the timing of revenues. TIFIA loans can have lengthy payback periods (up to 30 years), and the first principal and interest payments can be deferred for up to five years after a project's completion.

- **GARVEE bonds.** Grant Anticipation Revenue Vehicles (GARVEEs) bonds are bonds or notes with the debt to be repaid by the issuer's pledge of future highway funds. GARVEEs generate up-front capital at tax-exempt rates and enable states to construct projects earlier than with pay-as-you-go resources. With GARVEEs, inflation costs are avoided, projects are delivered sooner and actual costs are spread over the projects' lives. States find GARVEEs attractive to bridge funding gaps and accelerate construction of major projects.
- **Section 129 loans.** Section 129 loans allow states to lend apportioned Federal highway funds to transportation projects with dedicated repayment sources such as tolls. Section 129 loans often assist public-private partnerships by providing additional start-up money and reducing the amount of debt that must be issued on capital markets. Further, Section 129 loans can be made subordinate to debt service payments on revenue bonds, enabling these senior bonds to secure higher ratings and better investor acceptance.
- **SIBs.** State Infrastructure Banks (SIBs) provide flexible transportation funding in the form of loans, lines of credit, loan guarantees and other non-grant assistance. As loans are repaid, the SIB's capital is replenished and can support new projects. As of September 30, 2006, 32 states had authorized SIBs, entering into 520 loan agreements with a total value of over \$6.0 billion.^{xxxiv}
- **Shadow or Pass-through Tolls.** A re-payment approach rather than a financing mechanism, shadow or pass-through tolls are per-vehicle amounts paid to a facility operator or sponsoring government entity not by the users themselves but rather by another source, such as the state. Shadow tolls spread out the payment for a transportation project over a set period and place the initial financial responsibility on the developer/operator, often a public-private partnership.
- **Impact Fees.** Impact fees seek to charge those who benefit from transportation projects for their construction and maintenance. These approaches tax new development surrounding the project. The fee is designed to address the amount of new traffic a development will place

on the roadway. In some locations, impact fees may be assessed by municipalities for the construction of new roads.

■ ***General Issues/Challenges for Toll Projects***

Although there will be project-specific issues to be addressed, there are a number of general challenges to anticipate. A recent survey of state transportation officials by the U.S. Government Accountability Office (GAO) identified that they fall into two broad categories: challenges in obtaining support and implementation-related challenges.

Examples of challenges in obtaining support include:

- Public perception that tolls amount to another tax
- Projects are not self-sustaining
- Addressing concerns about tolls producing inequities (based on geography, income, users)

Implementation-related challenges include:

- Coordinating, e.g. between jurisdictions and states
- Securing legislative authority
- Addressing impact of diversion

Suggested questions to consider for each contemplated toll project are shown in Exhibit 4-11.

Exhibit 4-11: Questions that can be Considered When Planning and Designing Toll Projects

Question	Purpose
How will traffic be diverted and who will be affected?	Analyzing how tolls would affect personal, business, and commuting trips could help decision makers estimate the extent to which traffic would be diverted. From these estimates, transportation officials can develop strategies to address the impact of this diversion on affected groups.
To what extent will tolls meet the project's goals?	Determining the extent to which tolls will meet the project's financial and other goals could help project sponsors make decisions about setting the proper toll. If tolls are too low, they will not generate enough revenue to pay for the project or, in the case of congestion pricing, they will not divert sufficient traffic to relieve congestion.
Who loses and how do we compensate them?	Analyzing the effects that a toll project might have on specific groups enables transportation officials to address many questions about the equity consequences of the project. The data that could be collected include important household and lifestyle characteristics, including (but not limited to) income, residential location, commuting patterns, number of vehicles, number of workers, family size, annual travel, and employment type and location. Without these data, it would be difficult to estimate the consequences for the groups that could be most affected. Analysis would provide better estimates of the extent to which a tolling approach would shift drivers to carpools and transit and would provide more insight into how transit operators might be able to expand service and how transit service might benefit lower-income users.
How will the project affect business activity and commercial transportation?	Given the importance of transportation to the economy of metropolitan areas and the widespread perception that congestion increases business costs, transportation officials could consider examining the impact of tolling on business activity and commercial transportation when considering the use of a tolling approach. However, this can be difficult for transportation officials because little is known about the magnitude of congestion costs. Factors affecting this include the logistics patterns of firms; the frequency, origin, and destination of trips; and the ability of firms to adapt to congestion without affecting costs. Research on how a tolling approach would affect commercial carriers operating on those facilities could also provide some insights.

Source: Government Accountability Office, *Highway Finance: States' Expanding Use of Tolling Illustrates Diverse Challenges and Strategies*, June 2006, pages 48-49.

■ ***What's a State to Do?***

A review of states' recent experience in trying to advance tolling suggests that the following factors are critical.^{.xxxv}

- Developing an institutional framework that facilitates tolling
- Providing leadership to build support for projects that have addressed tolling challenges
- Selecting a tolling approach that provides tangible benefits to users

ⁱ In the past, several Kansas bridges have been tolled, including the Fairfax and Platte Purchase bridges in the Kansas City area.

ⁱⁱ Washington State Comprehensive Tolling Study, Final Report- Volume 2, September 20, 2006, page 1-11.
http://www.wstc.wa.gov/AgendasMinutes/agendas/2008/Feb19/Feb19_BP8a_TollingStudyPhase2.pdf

ⁱⁱⁱ Available at http://www.itsdocs.fhwa.dot.gov/JPODOCS/REPTS_TE/13668.html

^{iv} Based on KTA enabling legislation (KSA 68-2001), Kansas DOT may continue collecting tolls if it were to assume the operational responsibility for the Kansas Turnpike, which would occur by law after “retirement of all Turnpike bonds” and only “if the roadway is then in good condition.”

^v Section 334.30 Public-Private Transportation Facilities of the Florida Transportation Code.

^{vi} *Local Leaders Want Best Deal for SH 121*, Danny Gallagher, The Colony Courier-Leader. June 13, 2007

^{vii} *NTTA's 121 Toll Road Win Hits Snag with Federal Funding, Agency Weighs Requiring Return of Spent Money After Extended Bidding*, Michael A. Lindenberger, The Dallas Morning News, Tuesday, August 7, 2007

^{viii} *A Tale of Two Texas Toll Roads: What's Really at Stake in the Battle Over SH 121* By Robert Poole, Reason Foundation, May 11, 2007, REASON.ORG

^{ix} Tolling Practices for Highway Facilities, NCHRP Synthesis 262, (National Academy Press, Washington, DC, 1998) page 20.

^x Tolling Practices for Highway Facilities, NCHRP Synthesis 262, (National Academy Press, Washington, DC, 1998) page 16.

^{xi} According to the Tax Foundation's Center for Legal Reform, any assessment that raises money in excess of what is needed to defray costs is a tax. Among other matters, the foundation focuses on the reasonableness and basis for taxes and fees. The foundation contends that many states, in an effort to evade the additional safeguards regarding tax increases, are increasing fees beyond their needed amount.

^{xii} Tolling Practices for Highway Facilities, NCHRP Synthesis 262, (National Academy Press, Washington, DC, 1998) page 17.

^{xiii} According to the Highway Capacity Manual, a .7 volume/capacity ratio is typically representative of low congestion, but cannot be translated directly to a particular Level of Service without consideration of other traffic information, such as mix of vehicle types, roadway grade, type of facility, and average speed of travel.

^{xiv} CTE's definition of managed facilities is new limited-access lanes constructed in the right-of-way of an arterial roadway. Managed lanes are defined as projects adding one or two new lanes per direction along existing freeways, where only drivers using the new/added capacity are required to pay a toll.

^{xv} For further information, see <http://www.dot.state.co.us/CTE/Documents/CTEReport11-15-05.pdf>

^{xvi} CTE Annual Report, 2007, page 10.

^{xvii} North Carolina Turnpike Authority Annual Presentation to Joint Legislative Transportation Oversight Committee, January 23, 2008, as accessed on September 3, 2008 at <http://www.ncturnpike.org/pdf/JLTOC-Presentation-2008.pdf>

^{xviii} Matt Sundeen and James B. Reed, *Surface Transportation Funding - Options for States*, Denver, Colorado: National Council of State Legislatures, May 2006, pages 50, 51, and 53.

^{xix} <http://www.capitol.state.tx.us/BillLookup/Text.aspx?LegSess=80R&Bill=SB792>, as accessed on September 19, 2008.

^{xx} News Release from Texas Transportation Commission, "Transportation Commission Affirms Toll Road Building Principles," May 29, 2008 as accessed on September 19, 2008 at <http://www.txdot.gov/news/015-2008.htm>

^{xxi} The information presented here is based on the advertised Request for Proposals by the State of Connecticut Office of Policy and Management for Review and Analysis of Electronic Tolls and Congestion Pricing, posted on March 17, 2008 at www.das.state.ct.us/Purchase/New_PurchHome/Busopp.asp and www.ct.gov/opm/rfp.

^{xxii} Washington State Comprehensive Tolling Study, Final Report- Volume 1, page 3. Available at http://www.wstc.wa.gov/Tolling/WS_TollStudy_FinalReport_V1.pdf.

^{xxiii} An eighth question related only to toll policy alternatives at the Tacoma Narrows Bridge.

^{xxiv} Washington State Comprehensive Tolling Study, Final Report- Volume 2, September 20, 2006, pages 1-13 through 1-14. Available at http://www.wstc.wa.gov/AgendasMinutes/agendas/2008/Feb19/Feb19_BP8a_TollingStudyPhase2.pdf

^{xxv}

http://www.wstc.wa.gov/AgendasMinutes/agendas/2008/Feb19/Feb19_BP8a_TollingStudyPhase2.pdf

^{xxvi} Wilbur Smith Associates for Tennessee Department of Transportation, “Toll System Feasibility Study- Peer Review,” December 22, 2006, pages 16-17. Available at: <http://www.tdot.state.tn.us/documents/tollstudy/TDOTPeerReview.pdf>

^{xxvii} <http://www.tdot.state.tn.us/sr475/library/021908KnoxChamberPresentation.pdf>

^{xxviii} Kate Evans, “Toll Road Plan is Scrapped,” Morgan Messenger, August 27, 2008, as accessed on October 1, 2008 at http://74.95.82.237:591/mmonline/FMPro?-db=mmonline.fp5&-format=record_detail.html&-lay=allfields&Category=Top%20Stories&ArticleStatus=Current&-recid=12587442&-find=

^{xxix} Personal communication with Conrad Welzel, Maine Turnpike Authority, September 25, 2008.

^{xxx} “About us” on the Commission’s webpage as accessed on September 24, 2008 at <http://www.drjtbc.org/default.aspx?pageid=3>.

^{xxxi}

http://www2.ljworld.com/news/2006/feb/24/new_turnpike_interchange_be_built_near_to_nganoxie/

^{xxxii} http://ibtta.org/files/PDFs/Ryan_Tim1.pdf

^{xxxiii} <http://www.reuters.com/article/pressRelease/idUS283926+27-Feb-2008+BW20080227>

^{xxxiv} http://www.fhwa.dot.gov/innovativefinance/ifqwintr07.htm#sib_highlights

^{xxxv} A detailed discussion of these three strategies can be found on pages 42-53 of *Highway Finance: States’ Expanding Use of Tolling Illustrates Diverse Challenges and Strategies* (Washington, D.C., GAO-06-554, June 2006).