

KANSAS TURNPIKE AUTHORITY AND KANSAS DEPARTMENT OF TRANSPORTATION

Using Tolls to Support Needed Transportation Projects

A RESOURCE FOR KANSAS POLICYMAKERS



November 2008

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1.0 Introduction and Background

The uncertainty of future transportation funding at both the Federal and state levels and the number of identified transportation needs across Kansas have created an increased sense of urgency in considering the financing options available for transportation projects in the state. As in many other states, the expanded use of toll financing may emerge in Kansas as one set of potential tools to help meet both current and emerging transportation needs. In this context, the Kansas Department of Transportation (KDOT) and Kansas Turnpike Authority (KTA) have jointly sponsored the development of background materials on tolls. These materials are for informational purposes only. They include information and conclusions drawn from a compilation of publicly-available documents. The materials are designed to be a resource on the toll strategies that have been implemented throughout the United States (U.S.) to help the state make policy-level decisions on when, if, and how to expand tolling in Kansas beyond the state's one toll facility in operation, the Kansas Turnpike. The materials are intended to help KTA and KDOT conduct a dialogue about toll financing options with the Kansas Legislature, city and county governments and the general public, and not to identify specific tolling projects.

The background materials include the following sections:

- ***Tolls 101*** provides a general definition of a ‘toll’ and a brief historical perspective on the evolution of tolling in the U.S. to ensure a basic understanding of tolls and implementation of toll facilities for the general public, as well as transportation and policy officials.
- ***The Current State of the Toll Industry*** is intended to give a broad overview and “big picture” of the toll industry today. By reading about tolling projects in other states (as well as around the world), policymakers unfamiliar with tolls will gain a more concrete understanding of current toll industry trends.
- ***Context for Considering Expansion of Tolling in Kansas*** provides a useful framework for more detailed consideration of tolling opportunities for financing of potential surface infrastructure improvements throughout the state.

Glossary

■ ***Definition of Terms***

Asset: Any item of economic value, either physical in nature (such as land) or a right to ownership, expressed in cost or some other value, which an individual or entity owns.

Automatic Vehicle Identification (AVI) Technology: An electronic toll collection (ETC) system using wireless radio frequency identification (RFID) transponders with readers that automatically identify vehicles as they enter and exit a tolling facility.

Barrier or Open Toll System: A toll system where a fixed toll is collected for all customers at specific points along the toll facility, regardless of distance traveled by each customer, as on toll roads in Oklahoma.

Bond: See General Obligation Bonds and Revenue Bonds

Brownfield: A site or project location where there is an existing facility (opposite of greenfield)

Build-Operate-Transfer: Public-private partnership arrangement involving private construction, private operation for given period of time, and eventual transfer to public ownership.

Build-Own-Operate: A private contractor constructs and operates a facility while retaining ownership. The private sector is under no obligation to the government to purchase the facility or take title.

Capital Expenditures: Long-term expenditures for a project either to buy fixed assets or to add to the value of an existing fixed asset with a useful life that extends beyond that taxable year. Expenses are used to acquire or upgrade physical assets such as property, equipment, or industrial buildings. For tax purposes, capital expenditures are costs that cannot be deducted in the year in which they are paid or incurred, and must be capitalized.

Closed or Ticket Toll System: A section of a toll facility where an entry ticket is needed and where the amount of the toll to be paid is subject to the distance traveled, as on the Kansas Turnpike. For manual collection, a physical ticket is used to indicate where a vehicle entered the system to be presented at the time of exit from the system. For electronic toll collection, an electronic record is kept of when the vehicle enters and exits the controlled system.

Concession: Long-term lease agreement that involves the lease of publicly financed facilities to a private sector entity (concessionaire) for a specified time period. Under the lease, the private sector

entity agrees to pay an upfront fee to the public agency in order to obtain the rights to collect the revenue generated by the facility for a defined period of time (usually from 25 to 99 years). In addition to the concession fee, the concessionaire operates and maintains the facility, which may include capital improvements.

Concession Benefits: Rights to receive revenues and other benefits (often from tolling) for a fixed period of time, including transferring responsibility for increasing user fees to the private sector; generating large up-front revenues for the public agency; transferring most project, financial, operational and other risks to the private concessionaire; and gaining private sector efficiencies in operations and maintenance activities.

Congestion Pricing: The policy of charging drivers a fee that varies with the level of traffic on a congested roadway. Congestion pricing is designed to allocate roadway space, a scarce resource, in a more economically feasible manner.

Customer: Any driver on a toll facility that pays the required fees or tolls. The customer can pay by various means including cash or electronic toll collection. In toll collection terms, the customer may also be referred to as the “user”.

Dedicated Short Range Communication (DSRC): A short to medium range communications service that supports both public safety and private operations engaged in roadside-to-vehicle and vehicle-to-vehicle communication environments. DSRC is meant to be a complement to cellular communications by providing very high data transfer rates in circumstances where minimizing latency in the communication link and isolating relatively small communication zones are important.

Default: When a covenant has been broken or an adverse event has occurred. A monetary default occurs when a repayment is not made on time. Other defaults may include failure to meet a project parameter, milestone or other contractual obligation, such as insurance and bonding requirements.

Demonstration Project: A project that serves as a model for future transportation projects. May also be called a “pilot project.”

DOT: Department of Transportation (may be state or Federal).

Design-Bid-Build: The traditional, public-sector project delivery method where design and construction are separately procured in sequential steps for project development. One contract is bid for the design phase and then a second contract is bid for the construction phase of the project.

Design-Build: A procurement or project delivery arrangement whereby a single entity (a contractor with sub-consultants, or team of contractors and engineers, often with sub-consultants) is entrusted with both design and construction of a project. The term encompasses design-build-maintain, design-build-operate, design-build-finance and other contracts that include services in addition to design and construction.

Design-Build-Finance-Operate (DBFO): A project delivery approach in which responsibilities for designing, building, financing and operating are bundled together and transferred to private sector partners. A DBFO project is either partly or wholly financed by debt leveraging revenue streams dedicated to the project, with direct user fees (tolls) representing the most common revenue source. Capital and project development costs may be supplemented by public sector grants in the form of money or contributions in kind, such as right-of-way, and by equity investments by private partners.

Due Diligence: A thorough assessment of the transaction which covers financial, legal, technical, and insurance aspects of the project in order to ensure that there are no undisclosed or potential problems.

Dynamic Pricing: Tolls that vary in real-time in response to changing congestion levels, as opposed to variable pricing that can follow a fixed schedule with respect to time of day, season, etc.

Electronic Toll Collection (ETC): The process of collecting tolls based on the automatic identification and classification of vehicles using electronic systems. *K-TAG* is the ETC system currently used on the Kansas Turnpike.

Equity: Commitment of money from public or private sources for project financing with an anticipated rate of return pay-out.

Express Lane: An ETC lane where vehicles pass the toll collection point (overhead gantry, plaza, etc.) at highway speeds without stopping. Some agencies refer to these lanes as “Highway Speed ETC lanes”. This term is sometimes used in conjunction with toll lanes that are adjacent to general purpose highway lanes and function as tolled HOV or HOT lanes.

Gantry: A physical structure, generally located over the tolled lanes at the toll collection point, used for the location of ETC equipment, signs, etc. These structures are commonly used on Express Lanes and Open-Road Tolling where ETC is used.

General Obligation Bonds: A municipal bond backed by the credit of the issuing jurisdiction rather than the revenue from a given project. General obligation bonds are issued with the belief that the

entity will be able to repay its debt obligation through taxation or other generalized funds. No assets are used as collateral.

Global Positioning System (GPS): Used to identify positioning of vehicles equipped with receivers on road segments with the use of satellites.

Greenfield: A site or project location where there is no existing infrastructure.

Guarantee: An agreement to repay a loan or ensure performance. It may be limited in time and amount.

High Occupancy/ Toll (HOT) Lanes: A High Occupancy Vehicle (HOV) lane that also allows access to low occupancy vehicles if drivers pay a toll. It is a type of managed lane. This allows more vehicles to use High Occupancy Vehicle lanes while maintaining an incentive for mode shifting.

High Occupancy Vehicle (HOV): Vehicles having more than one occupant. Examples include carpools, vanpools and buses. Transportation systems may encourage HOV use by having designated HOV lanes.

High Occupancy Vehicle (HOV) Lanes: A designated freeway lane that may have limited access and is typically reserved for vehicles with occupancy of two or more (or sometimes three or more). HOV lanes typically have higher operating speeds and lower traffic volumes than adjacent general purpose lanes.

Innovative Finance: Alternative methods of financing construction, maintenance, or operation of transportation facilities. The term innovative finance covers a broad variety of non-traditional financing, including the use of private funds.

Intelligent Transportation Systems (ITS): The application of advanced electronics and communication technologies to enhance the capacity and efficiency of transportation systems, including traveler information, public transportation, and commercial vehicle operations.

Interest: Sum paid or calculated for the use of borrowed funds in order to compensate for the time value of money owed.

Interoperability: The technical capability for pieces of equipment to work with each other or in the absence of that technical interoperability, a cooperative arrangement established between public and/or commercial entities (toll agencies, parking lot operators, etc.) wherein transponders issued by

one entity would be accepted at facilities belonging to all other entities without degradation in service performance.

Investment Grade: Describes the top four rating categories of relatively secure bonds suitable for a conservative investor.

Lease: An agreement in which the owner of an asset (the “lessor”) makes an asset available to another in exchange for payment from the user (the “lessee”).

Level of Service (LOS): A measure of quality based on traffic conditions. LOS assessments range from A to F, with LOS A representing the best of conditions, and LOS F the worst of conditions. Common characteristics affecting LOS are travel speed, travel time, freedom to maneuver, convenience, comfort, and frequency of interruptions. Safety is not included in LOS measurement.

License Plate Vehicle Recognition: The process of identifying a vehicle by its license plate, typically using video cameras and optical character recognition (OCR).

Managed Lane: One or more lane(s) designed and operated to achieve stated operational goals by managing access to the lane(s) according to classifications such as user group, pricing, or other criteria. A managed lane facility typically provides improved travel conditions to eligible users. This term is typically used in combination with HOV lanes, HOT lanes, and value pricing.

Open-Road Tolling: Fully automated electronic tolling in an open road environment allowing vehicles to travel at normal speeds when passing through toll collection points without physical toll booths. In practice, Express Lanes and Highway (or “Higher”) Speed ETC are all considered forms of Open-Road Tolling.

Optical Character Recognition (OCR): A hardware and software system that is capable of recognizing alpha-numeric characters and converting them to digital data. In the tolling environment, OCR is often used in conjunction with video cameras to identify vehicle license plates.

Pay-As-You-Go Financing: Describes government financing of capital outlays from current revenues or grants rather than by borrowing.

Photo monitoring system: A system where a sensor, working in conjunction with an electronic toll collection system, is installed in the toll lanes to produce an automatic image of the vehicle and the vehicle license plate as it passes through the toll facility.

Private Sector Partner/Private Partner: A person, entity or organization that is not the Federal government, a state, or a political subdivision of the state and that proposes to enter into an agreement with the state to participate in any or all portions of the design, development, construction, improvement, expansion, extension, delivery, operation, maintenance or financing of a project

Public Facility: A building, structure, vehicle, vessel or the like where ownership is retained by the public sector and where the facility is available for use by the general public. This does not include any facilities that are owned by the private sector.

Public-Private Partnership (PPP): A contractual agreement formed between public and private sector partners, which allows more private sector participation than is traditional. These agreements usually involve a government agency contracting with a private company to renovate, construct, operate, maintain, and/or manage a facility or system. While the public sector usually retains ownership of the facility or system, the private party is often given additional decision rights in determining how the project or task will be completed most cost effectively. The term public-private partnership defines an expansive set of relationships from relatively simple contracts (e.g., A+B contracting), to development agreements that can be very complicated and technical (e.g., design-build-finance-operate-maintain). The term “public-private partnership” is used for any scenario under which the private sector would be more of a partner than they are under the traditional method of procurement.

Radio Frequency Identification (RFID): A technology using an antenna to emit specific radio frequencies to read (and sometimes write to) recognized in-vehicle transponders as they pass through toll plazas.

Ramp-Up Phase: The initial operational phase in a project's life-cycle during which the project's revenue stream is established.

Rating: An evaluation of creditworthiness provided by a bond rating agency.

Rating Agency: An organization that assesses and issues opinions regarding the relative credit quality of bond issues. The three major municipal bond rating agencies are Fitch Investors Service, Moody's Investors Service, and Standard and Poor.

Refinancing: Prepayment of the existing debt and substitution of new debt on more attractive terms (e.g., at a lower cost, with a longer maturity, or with fewer or less restrictive covenants).

Revenue Bonds: Instruments of indebtedness issued by the public sector to finance the construction or maintenance of a transportation facility. Revenue bonds, unlike general obligation bonds, are not

backed by the full faith and credit of the government, but are instead dependent on revenues from the roadway they finance.

Shadow Tolling (Pass-Through Tolling): 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.

Single Occupant Vehicle (SOV): A vehicle occupied by only one person.

Staffed Lane: A toll lane wherein a toll attendant is present to accept cash or some other manual form of payment from a customer for tolls incurred.

State Infrastructure Bank (SIB): A state or multi-state revolving fund that provides loans, credit enhancement, and other forms of financial assistance to surface transportation projects.

State Transportation Improvement Program (STIP): A short-term transportation planning document covering at least a three-year period and updated at least every two years. The STIP includes a priority list of projects to be carried out in each of the three years. Projects included in the STIP must be consistent with the long-term transportation plan, must conform to regional air quality implementation plans, and must be financially constrained (achievable within existing or reasonably anticipated funding sources).

Tag: The in-vehicle device component of an ETC (or DSRC) system which is a receiver or transceiver permitting the operator's in-lane equipment to communicate, identify, and conduct an electronic toll transaction. Also known as a “transponder.”

Toll: A “Toll” is a fee charged by a toll facility operator in an amount set by the operator for the privilege of traveling on a said toll facility.

Toll Collection Point: The physical location on a toll facility where the fee for using that facility is collected. There could be single or multiple toll collection points on a given toll facility.

Toll Collection System: The combination of elements and components that constitute the means to collect a fee for use of a tolled facility. A toll collection system may include manual cash collection, electronic toll collection, and a photo monitoring system.

Toll Lane: A lane that channels the traffic flow to facilitate either the automatic or manual collection of tolls.

Toll Plaza: An area, with restricted traffic flow, where tolls are collected from drivers, either manually or electronically.

Toll Violation: A record of an unpaid toll which occurs when a customer does not pay the proper amount.

Tolling: The process of collecting revenue whereby road users are charged a fee per roadway use. Tolls may be collected on a flat-fee basis, time basis, or distance basis and/or may vary by type of vehicle.

Traditional Toll Lane: A toll lane in a physical toll plaza in which a variety of means may be used to collect toll payments: such as collection of tolls by a toll attendant, automated payment machine, or electronic toll collection.

Transponder: The in-vehicle device component of an ETC system which is a receiver or transceiver permitting the operator's in-lane equipment to communicate, identify, and conduct an electronic toll transaction. Also known as a "Tag."

User Fees: Direct payment for a service provided, which can include, but is not limited to tolls, fees, charges, tariffs, etc.

Value or Variable Pricing: A system of managing traffic volumes on a facility by using different toll rates during peak and non-peak periods. Time-of-day pricing for tolls can vary by facility location, traffic levels, congestion, season, day-of-week, or other factors.

Violation: A record of an unpaid toll which occurs when a customer passes through a lane without paying the proper amount.

Violation Enforcement System (VES): The collective equipment and procedures for capturing a violation transaction and image, and processing a citation.

Violations Processing: The composite set of procedures, equipment, and operations used in the back office to examine violation images and assign the correct toll to either an ETC account holder or to a toll evader based on a division/department of motor vehicle lookup of license plate vehicle registration. True violations include a fine, processing/administrative fee, and any other punitive action as dictated by local law.

■ ***List of Acronyms and Abbreviations***

AAA	American Automobile Association
AADT	Annual Average Daily Traffic
AVI	Automatic Vehicle Identification
BOO	Build-Own-Operate
BOT/BTO	Build-Operate-Transfer/Build-Transfer-Operate
BRT	Bus rapid transit
CAPEX	Capital Expenditures
CDA	Comprehensive Development Agreement, a type of agreement authorized by Texas HB 3588
CHP	Comprehensive Highway Program, KDOT's ten-year transportation funding bill passed in 1989
CPI	Consumer Price Index
CPTC	California Private Transportation Corporation, the initial owner and operator of the 91 Express Lanes in southern California
CTE	Colorado Tolling Enterprise
CTP	Comprehensive Transportation Program, the successor to KDOT's CHP, with the CTP a ten-year transportation funding bill passed in 1999
D/E	Debt to Equity Ratio
DB	Design-Build
DBB	Design-Bid-Build
DBF	Design-Build-Finance
DBFO	Design-Build-Finance-Operate
DBFOM	Design-Build-Operate-Maintain-Finance
DBOM	Design-Build-Operate-Maintain
DEIS	Draft Environmental Impact Statement
DMV	Department or Division of Motor Vehicles
DSCR	Debt Service Coverage Ratio
DSRC	Dedicated Short Range Communication
EA	Environmental Assessment
EIS	Environmental Impact Statement

EPA	Environmental Protection Agency
ETC	Electronic Toll Collection
FAIR	Fast and intertwined regular lanes, a concept that builds on the HOT lane approach by offering credits to drivers in non-tolled lanes to be used on tolled express lanes at another time
FHWA	Federal Highway Administration, a division of the U.S. Department of Transportation
FONSI	Finding of No Significant Impact
GAO	Formerly known as the General Accounting Office, renamed the Government Accountability Office on July 7, 2004, the GAO is the investigative arm of Congress charged with examining matters related to the receipt and payment of public funds
GARVEEs	Grant Anticipation Revenue Vehicles (bonds or notes)
HB 3588	A Texas legislative bill enacted in 2003 which provided many new tools for use on transportation projects
HOT	High Occupancy Toll
HOV	High Occupancy Vehicle
IAG	Interagency Group, as in the E-ZPass Interagency Group, now comprised of 24 agencies in 13 states
IBTTA	International Bridge, Tunnel and Turnpike Association
ISTEA	Intermodal Surface Transportation Efficiency Act
ITS	Intelligent Transportation System
KDOT	Kansas Department of Transportation
KTA	Kansas Turnpike Authority
K-TAG	The version of ETC in place on the Kansas Turnpike
LOS	Level of Service
LRTD	In Missouri, refers to Long-Range Transportation Direction, a comprehensive statewide planning process used by Missouri DOT
NEPA	National Environmental Policy Act
MHTC	Missouri Highways and Transportation Commission
MoDOT	Missouri Department of Transportation
MPO	Metropolitan Planning Organization

NCHRP	National Cooperative Highway Research Program
NCTA	North Carolina Turnpike Authority
NDOT	Nevada Department of Transportation
NTP	Notice to Proceed
NTTA	North Texas Tollway Authority
OCR	Optical Character Recognition
OCTA	Orange County Transportation Authority
ORT	Open Road Tolling System
O&M	Operations and Maintenance
OPEX	Operational Expenditures
PPP	Public-private partnership (alternatively public private partnership, without a hyphen)
PV	Present Value
RFID	Radio Frequency Identification
RMA	Regional Mobility Authority, a new type of entity authorized by Texas HB 3588
SAFETEA-LU	Safe, Accountable, Flexible, and Efficient Transportation Equity Act: A Legacy for Users
SB 792	A Texas legislative bill enrolled in October 2007
SIB	State Infrastructure Banks
SOV	Single Occupancy Vehicle
STIP	State Transportation Improvement Plan
T&R	Traffic & Revenue
TDOT	Tennessee Department of Transportation
TEA-21	Transportation Equity Act for the 21st Century
TIFIA	Transportation Infrastructure Finance & Innovation Act
TOT	Truck Only Toll lanes
TRB	Transportation Research Board
TTC	Texas Transportation Commission, a five member board appointed by the Governor to oversee the Texas DOT
TxDOT	Texas Department of Transportation

UPA	Urban Partnership Agreement, a Federal funding program to support such transportation initiatives as congestion pricing
USDOT	United States Department of Transportation
UTP	Unified Transportation Plan, the 10 year planning document used by the state of Texas
VES	Violation Enforcement System
VMT	Vehicle miles of travel or vehicle miles traveled
WAVE	Wireless Access in a Vehicular Environment, a developing national standard for wireless communications among motor vehicles and between motor vehicles and roadside infrastructures that would operate at 5.9 GHz