

Leasing the MassPike to Private Operators

By Ted Bunker

Transportation policy in Massachusetts in recent months has centered on how best to manage the Massachusetts Turnpike's 138 miles of toll road, tunnels and Boston's newly submerged central artery. Governor Mitt Romney wants to merge the Turnpike into MassHighway to cut costs and improve management accountability. Turnpike officials argue that an independent authority can better oversee MassPike's roads, bridges and tunnels.

Both sides in this thorny debate need only follow Interstate 90 west to Chicago for a glimpse of a third alternative—one that may have the potential of providing as much as \$5 billion to the Commonwealth while installing more efficient management over this vital transportation asset.

In January, an investment partnership paid the City of Chicago \$1.83 billion for the right to run the newly refurbished 7.8-mile Skyway for 99 years.¹ The City of Chicago, which owns the short stretch of Interstate 90 that connects the city to the Indiana Toll Road, recently spent hundreds of millions of dollars to fix it up.²

But it wasn't the layers of new paint, asphalt and concrete that attracted the jaw-dropping bid. Rather, it was the Skyway's potential to provide a steady and growing cash flow to the winning bidder, a partnership led by Cintra Concesiones de Infraestructuras de Transporte S.A., a Spanish toll road builder/operator, and Macquarie Infrastructure Group, an Australian investment bank. Skyway's operating revenue was \$43.2 million in 2002³—just one sixth of the MassPike's \$256 million that year.⁴



Chicago is not alone. A growing number of state and local governments in the United States are exploring the potential for freeing up financial resources or generating one-time windfalls through private sector participation in road, bridge and tunnel operations:

- ▶ In Virginia, home to the privately financed and operated Dulles Greenway, the Department of Transportation has tapped Flour Corp. to develop a plan to expand the congested capital beltway around Washington, D.C.⁵
- ▶ In Texas, an extraordinarily ambitious, 50-year, \$175 billion plan is engaging private concerns to build thousands of miles of highway/intermodal transportation corridors.⁶

Policymakers should consider whether operating a toll road is really a core competency of the state. If a private operator can do the job more efficiently, and pay the state handsomely for the opportunity, why not take that route?

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► And in Indiana, newly elected Governor Mitch Daniels publicly floated the idea of leasing that state's 157-mile stretch of I-90, also a toll road, as he took office in Indianapolis.⁷ A private lease to operate the Indiana Toll Road, with annual revenue of about \$93 million last year, could fetch \$3.5 billion or more by one estimate.⁸

Coming to America: Private management of toll roads

Private construction and operation of major highways is not uncommon in other parts of the world, including Europe, Asia and Canada. As traffic congestion has intensified here in the U.S., federal transportation officials have begun calling for greater private-sector participation in road construction and operation.

A growing number of state and local governments are exploring the potential for freeing up financial resources or generating one-time windfalls through private sector participation in road, bridge and tunnel operations.

"Public-private partnerships will bring transportation improvements to the public faster—in some cases far faster—than what we now consider a 'normal' timetable. They will cause systems to be more customer-focused and help relieve the congestion and bottlenecks that are choking our economy and degrading our quality of life," Federal Highway Administrator Mary Peters told a recent conference in Washington.⁹ "Traditional funding," she added, "is simply not keeping up with the growth of business and personal travel."¹⁰

In response, municipal and state governments around the United States are looking to tap substantial sources of private capital to both operate and build toll roads:

Chicago. As Chicago's \$1.83 billion Skyway lease shows, investors are enthusiastic about the modest 10 percent returns—that accrue over decades—offered by such infrastructure operating opportunities. And it demonstrates a way to squeeze out much of the political risk stemming from toll hikes. Chicago built into its lease with Cintra-Macquarie, the partnership that has taken over the Skyway, detailed rules governing future increases, linking them to inflation but capping their rise, even in the long out years of the 99-year deal.¹¹

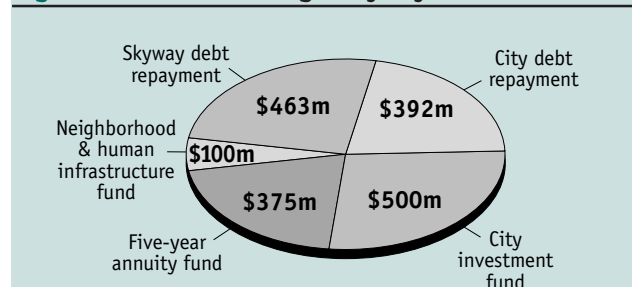
Cintra-Macquarie based its bid on several factors, including anticipated cost-savings and tax benefits from depreciation rights that would come with the lease. But most important was the road's revenue growth potential—the Skyway currently operates at about 30 percent

of capacity—and the expectation that future toll hikes would not have negative effects on traffic.¹² In part, that's because the available alternative routes are at capacity and there is little chance of new construction creating a competitive option in the built up urban area.

In addition, Cintra-Macquarie is experienced in implementing new toll collection technologies. They are betting that the Skyway's \$16.2 million in operating costs (out of about \$43.2 million in 2002 revenue) could be significantly reduced. Nearly \$5 million of its expenses pay for operations, including labor-intensive manual toll collection.¹³ Presently, all Skyway toll collection is by hand.

Cintra-Macquarie's \$1.83 billion up-front payment is being used to retire the Skyway's \$438 million in long-term debt, at an expected cost of \$463 million, and to pay off another \$392 million in city debts. Another \$500 million was used to set up an investment fund to benefit the city's general fund and \$375 million went into a five-year annuity fund, to generate funds for a variety of uses. And \$100 million was set aside for a Neighborhood and Human Infrastructure fund. So far, monies from that pool have been earmarked to fund \$15 million in housing initiatives over several years, to pay for a \$10 million effort to fight homelessness this year, to underwrite a \$5 million library automation project and to finance new senior centers for \$9.3 million (figure 1).¹⁴

Figure 1. Uses of Chicago Skyway lease revenue



Texas. In the Lone Star State, private-sector management offers a way to finance new highway construction without burdening government credit ratings and operational budgets. Texas Governor Rick Perry has launched a \$175 billion project to hire private contractors to build and operate a 4,000-mile network of transportation corridors to crisscross the state.¹⁵ The winning \$7.2 billion bid for the first portion of the work came from a Cintra-led partnership. It will pay Texas \$1.2 billion in concession fees for a 50-year operating lease and spend \$6 billion to build 316 miles of four-lane highway TTC 35 connecting the Dallas-Fort Worth area in the north to San Antonio in the south.¹⁶

Governor Perry stuck to his vision despite the disastrous failure of Camino Colombia, a privately built and operated \$90 million toll road bypassing Laredo and connecting to a bridge to Colombia, Mexico. Three years

In Indiana, where the I-90 Toll Road produces barely more than a third of the Pike's revenue, initial estimates of its lease value have gone as high as \$5 billion.

after the 22-mile road opened in October 2000, it was sold to creditors for less than 15 percent of its cost, a victim of traffic volumes that fell far short of expectations.¹⁷

Some of Camino Columbia's traffic shortfall was tied to improvements made in public roads to relieve congestion in Laredo and a border crossing on Interstate 35.¹⁸ Last year, Texas bought Camino Colombia for \$20 million—paying just 22 cents on every construction dollar spent by the private investors who built the road, at their own risk, and lost all of their investment. Now, a Texas government agency operates the nearly new highway as its only state-run toll road.

Although the first of Perry's proposed new toll road corridors would roughly parallel north-south I-35, it would permit faster transit times by avoiding inner city areas of Dallas, Austin and other Texas urban centers. It is also expected to offer truck-only toll lanes as an attraction to commercial operators, who often pay the bulk of the fees collected on toll roads.¹⁹

Virginia. In Virginia, early financial woes forced a refinancing of the privately built and operated Dulles Greenway. Still the Commonwealth of Virginia is considering a private-sector proposal to widen 325-mile Interstate 81 by adding four truck lanes. The Commonwealth is also negotiating with Fluor Corporation's Fluor Daniel unit to build and operate new highway lanes along the Capital Beltway in the congested area of northern Virginia around Washington.²⁰ Fluor is already building and plans to operate a new 29-mile toll road in Colorado, E-470.²¹

Virginia transportation planners are pursuing the Beltway project after watching the Dulles Greenway weather its early financial problems, which stemmed in part from traffic-easing improvements made on competing State Route 7 between Dulles International Airport and Leesburg, Virginia. In 2003, Greenway owners said the highway lost \$30 million a year after all costs and debt service payments had been made. But with sought-after toll increases, the owners projected that the road would become profitable in 2011.²²

Presumably, state transportation planners expect new Beltway lanes to avoid similar pitfalls. The additional Beltway lanes would differ significantly from the Greenway by connecting to the region's high-occupancy vehicle (HOV) lane system, by charging reduced tolls for vehicles with a driver and one passenger and by making them free to vehicles with multiple passengers.²³

California. California's tenuous experiment with private road operation has also been instructive. Although financially successful and effective in providing congestion-free passage into Orange County from neighboring Riverside, the tolled express lanes on the Riverside Freeway (SR91) ultimately wound up being sold to Orange County for \$207.5 million.²⁴

Opened to traffic in December 1995 after a \$130 million investment by a private partnership, the express lanes initially permitted high-occupancy vehicles (carrying three or more persons) to pass without charge. While those discounts went through some modifications, the all-automated toll system still charges varied rates depending on time of day, a technique known as congestion pricing.

To protect its investment, the private operator, a partnership called the California Private Transportation Company (CPTC), negotiated a provision in its operating agreement with the state that prohibited the creation or expansion of competing roads, including the adjacent non-toll lanes of SR91. But rapid growth in the region—three million people live in Orange County alone—led to congestion on the free lanes of SR91, and county authorities sought to widen parts of it.

That move led the toll partnership to sue to enforce its lease agreement. The political firestorm that erupted made it hot enough that the partnership sought to get out of its 35-year operating agreement. In January 2003, CPTC sold the lanes to the Orange County Transportation Authority (OCTA) for a 59 percent premium over what it paid to build the road. Though OCTA initially touted plans to roll back tolls, last year the peak tolls for afternoon rush hours were raised by 75 cents to \$5.50 for a spin down SR91's 10-mile length.²⁵

Should Massachusetts take the private management route?

As the Texas and Skyway agreements show, there are large amounts of private sector capital looking for the chance to invest in U.S. transportation facilities. Mark Florian, a managing director in Goldman, Sachs & Co.'s Chicago office, which worked on the Skyway lease, describes it as a "seller's market."

Putting a value on a long-term lease of the MassPike is an extremely complex task. Estimates of the Skyway lease's potential value fell far short of the actual final bid. Some say the winning \$1.83 billion bid was twice what had been expected. In Indiana, where the I-90 Toll Road produces barely more than a third of the Pike's revenue, initial estimates of its lease value have gone as high as \$5 billion.²⁶



Understanding the financial condition of the Turnpike will not be a simple task. Although laid out in its annual reports, insiders and outsiders alike say there is little that is straightforward about the Pike's financial condition. Some major Wall Street credit analysts such as Standard & Poor's will no longer offer investor guidance on the Pike's finances.²⁷

In the end, the value a MassPike lease will be based on a private operator's ability to maximize net revenue from MassPike operations. This will depend on the unique physical, financial and market characteristics of the Turnpike. Nonetheless, the key drivers of bid values are expectations of steady traffic and revenue growth across the system. Those factors were the drivers of the larger-than-expected winning Skyway bid.

Other variables will play a part as well. The range of variables that will influence the potential value of a MassPike lease include:

- net operating revenue
- potential for growth in use by motorists
- potential for raising tolls
- cost-cutting opportunities
- tax benefits from asset depreciation
- other revenue sources

A comparison of key characteristics for the Turnpike with the Chicago Skyway suggests that the possibilities of a private lease are worth exploring.

Net Operating Revenue. The Chicago Skyway, just 7.8 miles of toll bridges and elevated highways, produced \$43.2 million in toll revenues with operating expenses of \$10 million before depreciation, in 2002. This translates into earnings before depreciation and amortization of \$33 million, an earnings margin of about 78 percent, as shown in figure 2.

Figure 2. Net operating revenue before depreciation

	Skyway 2002	MassPike 2003
Operating revenue	\$43,200,000	\$301,656,000*
Operating expenses (before depreciation)	\$10,050,000	\$152,997,000
Net revenue before depreciation	\$33,227,000	\$148,659,000
Earnings margin	77.67%	49.28%

*Adjusted to include State contract assistance of \$14.3 million to cover operating costs of submerged artery portion of I-93

On an operating basis, the Pike produced positive cash flow and positive net operating revenue as recently as 2003, the last year for which audited statements were available.²⁸ Still, MassPike operations are relatively less productive than Skyway.

MassPike's 138 miles of toll road and tunnels produced \$301.7 million in operating revenue in 2003, including concessions, rents, state contract assistance and court fines. Operating expenses before depreciation

and amortization totaled nearly \$153 million. The resulting net operating revenue (before depreciation and amortization) of \$148.7 million represents an earnings margin of 49 percent. This is less than two-thirds of Skyway's earnings margin, as shown in figure 2.²⁹

There are numerous ways to calculate the potential value of a MassPike lease. A cursory estimate can be made based on the outlines of the Skyway deal and net operating revenue at MassPike. While admittedly simplistic, it offers one indication of the order of magnitude of the price that a long-term lease of MassPike might fetch.

The winning Skyway lease bid of \$1.83 billion pegged the value of the Chicago roadway at about 55 times its 2002 earnings before depreciation. Applying a comparable multiple to MassPike's earnings (accounting for MassPike's lower earning margin) produces a MassPike value of about \$5.2 billion, as shown in figure 3.

Figure 3. Preliminary estimate of potential lease payment for the MassPike based on earnings

Lease payment for Chicago Skyway	\$1,830,000,000
Chicago Skyway earnings*	\$33,227,000
Chicago Skyway payment multiple (lease payment/earnings)	55.08
Earnings margin* ratio (Chicago Skyway/MassPike)	64%
MassPike estimated multiple (55.08 x 0.64)	35.25
Estimated MassPike lease payment	\$5,240,408,141

*Before depreciation and amortization

Cost-cutting opportunities. The Pike may be shouldering operating costs that could be more rapidly reduced under private operation than by the state authority that oversees the road. An analysis by the Romney administration, which has proposed merging the Turnpike with MassHighway, estimates that overhead spending on Pike maintenance and operations far exceeds what is spent on other state highways.

On the Pike's operations east of Route 128, for example, figures from the state's Executive Office of Administration and Finance show that the Turnpike Authority spends \$51,300 per lane mile on overhead, compared to just \$14,200 per lane mile in overhead costs for MassHighway's interstate operations.³⁰

Turnpike officials note that they have already made significant strides in reducing employment costs. A greater reliance on part-time toll takers has reduced overtime pay by about \$1 million per year. Worker compensation costs have also been reduced by more aggressively pursuing abuses.³¹ The introduction of FastLane electronic toll collections has also allowed MassPike to reduce the number of toll takers from 606 at the end of 1998 to 489 as of April 1, 2005.

Still, the average toll taker makes about \$52,000 a year in pay and another \$20,000 to \$22,000 in benefits.³²

An estimated one in five toll takers earns \$80,000 a year or more, and one former Pike official says some made more than \$100,000 a year when he was working in the authority several years ago.³³

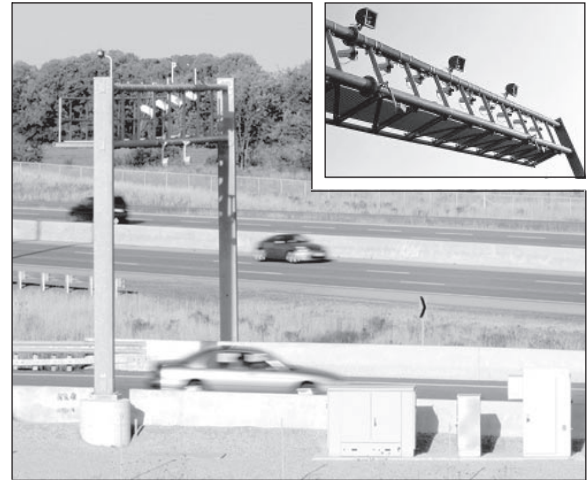
Cost-saving technologies and policies. Should a private operator take over, the Pike's operations may offer significant room for further improvement. Proven technologies exist, for instance, to implement fully automated tolling.³⁴ Technologies are in use elsewhere that let vehicles without transponders or existing collection accounts pass through electronic tolling sites and be charged for the fare without slowing down. These systems use devices to read number plates and other techniques to bill operators that lack transponders.

More aggressive use of current electronic tolling technologies appears to offer opportunities for significant savings at the Turnpike. Automated tolls handle 1,200 to 1,300 vehicles per hour at the Pike's 15 mph toll plaza speed limit, while manual toll takers put through 250 to 300.³⁵ Each electronic transaction costs about 10 cents, while each hand-collected toll costs 28 cents (see figure 4). Moving the Pike toward 100 percent electronic tolling could reduce Pike costs by as much as \$20 million per year.

Yet, critics say the Pike has been relatively slow to implement electronic toll collection in comparison to other systems where it is used. Other automatic toll collection systems give out transponders freely. The Pike charges \$27.50 per unit, even though their use greatly improves operational efficiency.³⁶ Six years after launching Fast Lane automated toll collection, just under one-half of all tolls are still collected by hand.³⁷

Other toll policies at the Turnpike may offer additional savings opportunities: In 2002, Massachusetts Auditor Joseph DeNucci said the Turnpike Authority lost \$548,000 in toll revenue in 2001 because of the policy of waiving tolls and only warning first-time Fast Lane interlopers lacking working transponders. DeNucci also said that the Turnpike could have collected another \$4.8 million by fining scofflaws on the first offense.³⁸

Potential to increase use by motorists. The ability to increase the number of users will influence the value of the Turnpike to private operators. Skyway use was estimated at just 30 percent of capacity, offering significant room for growth.



Electronic tolling technologies (shown above) could offer opportunities for significant savings at MassPike.

Turnpike Authority officials were unable to provide an estimate of the MassPike's utilization rate. However, they do state that the improvements made by the Big Dig have greatly enhanced the ability of the Turnpike and other Boston highways to carry traffic.³⁹

This suggests that through creative pricing, dedicated lanes and other strategies, private operators may be able to increase use of the Turnpike and thus increase its revenue potential. Use of high-occupancy vehicle toll discounts, currently under study at the Pike, as well as congestion-reducing peak-hour toll premiums might be implemented more rapidly by a private operator with a strong profit motive.

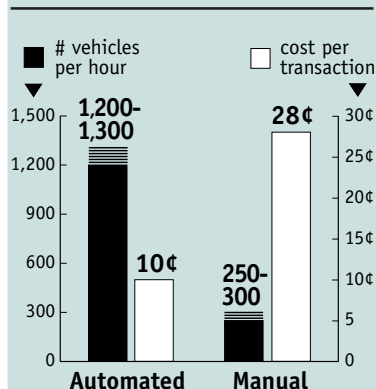
Moreover, the Pike already enjoys a relative monopoly in rapid east-west road travel. There is little likelihood that any competing roads will be built, at least in the already highly developed areas of Eastern Massachusetts—the area covered by the Pike's Metropolitan Highway System, which includes the Big Dig and airport tunnels.

Potential for raising tolls. A long-term lease of the entire Turnpike would depend, at a minimum, on retaining tolls and would probably require regular toll increases over the length of the lease. The Skyway lease, for instance, is premised on tolls that grow roughly at the rate of inflation.

From a strictly economic standpoint, the MassPike appears to enjoy relatively inelastic demand for its use—toll hikes in July 2002 apparently had little impact on overall use, which rose 1.4 percent in 2003.⁴⁰

While tolls are politically unpopular, additional toll hikes are already scheduled for the portion of the Turnpike east of Route 128, and bonds issued to fund the western Turnpike are not scheduled to be repaid until 2017. Even then, it is fair to ask if it's likely tolls will be removed. The original bonds issued to build the Turnpike were paid off decades ago and yet tolls persist on most of the highway.

Figure 4. MassPike toll collection methods: volume vs. cost



Finally, establishing a long-term policy toward tolls on the Turnpike would be in line with a growing national movement toward greater use of tolls to provide highway funding. In the face of state and federal budget deficits, nearly two dozen states have adopted legislation authorizing new toll roads.⁴¹

Other revenue opportunities.

After tolls, the Pike's major additional 2003 operating revenue sources were rents and leases, which contributed about \$29.8 million. Included in these are \$18.1 million in payments from concessionaires for rights to operate service plazas and \$11.8 million from air rights and other leases, including telecommunications rights-of-way and cellular telephone tower sites. Court fines brought in almost \$4.9 million.⁴²

Turnpike management has been aggressive in pursuing revenue from these sources. Private operators may have ideas for squeezing even more revenue from concessionaires or for more profitable use of Turnpike property.

Crafting a lease that protects the public interest

Private-sector road management has not always been successful or popular. In Canada, California, Virginia and Texas, privately operated toll roads have been either politically unpopular or financially disastrous for initial investors. Those negative experiences offer plenty of lessons for policy makers in Massachusetts. If a long-term lease on MassPike were to be offered, bid parameters and other limits would need to be included to ensure that similar problems do not occur here.

For instance, toll increases can be capped and/or governed under any lease agreement, as they are in the Skyway lease. Such limits could help make toll increases predictable and, by being left to a private operator to impose, may help to douse political firestorms of the sort that have engulfed private road operators in Toronto and in Southern California in recent years.

About the author

Journalist **Ted Bunker's** lifelong interest in the intersection of governments and markets has informed his work for a variety of publications, including the *Boston Herald*, the *Worcester Telegram & Gazette*, *Investor's Business Daily*, *The New York Times* and *The Economist*. His reporting beats have included Capitol Hill, Wall Street and Boston. His studies in economics, politics and government have taken him from Kenyon College to Harvard University (MPA, 1986) via the University of Washington (BA, 1978).



Massachusetts could also take a cue from the Skyway agreement and stipulate both maintenance requirements and that the road be returned in the same condition (or better) as it was in at the outset of the lease.

Should the state adopt a model used in Chile and Peru, a flexible term that runs for only as long as it takes the operator to earn a stipulated, agreed-upon return, it could further reduce the financial risk involved.

If toll revenue falls short of expectations, or costs exceed plans, the lease

term is automatically extended; if the operator's income exceeds expectations, the term shortens.

A flexible lease term built around an accepted present value revenue goal can also shield policy makers from political fallout from a private operator reaping outsized profits from tolls and other Pike revenue sources. The private operator's expected earnings are to some degree assured—and limited.⁴⁴

Are we there yet?

Many complex questions must be resolved before Massachusetts can lease the Turnpike to private operators. These include establishing responsibility for the portions of I-93 now managed by the Turnpike, and how land and air rights would be managed. The requirements of the state's anti-competition law, the Pacheco law, also would have to be addressed. For example, the Legislature could elect to exempt the Turnpike from the Pacheco law.

Refinancing Turnpike debt would be a problematic undertaking because of the complex structure of Turnpike bonds. However, Turnpike officials are already seeking Legislative approval to refinance its debt in order to take advantage of historically low interest rates. This approval would allow the Turnpike to lower total debt costs and allow for simplifying the Turnpike's debt structure. Both would work to the advantage of a long-term lease deal.

It is far from certain that the MassPike could attract a significant bid from private operators. But at a more fundamental level, policymakers should consider whether operating a toll road and capitalizing on its abundant resources is really a core competency of the state. If a private operator can do the job more efficiently, and pay the state handsomely for the opportunity, why not take that route? In Chicago, the Skyway lease has pumped more than \$100 million into the city's operating budget and other public projects this year alone.⁴⁵ If the issue is money, then the question should be whether Massachusetts could afford not to lease the Turnpike.

Endnotes

- ¹ City of Chicago news release, Jan. 26, 2005.
- ² Goldman, Sachs & Co., “Concession Sale” summary statement, March 23, 2004.
- ³ *Ibid.*
- ⁴ Massachusetts Turnpike Authority 2003 Annual Report, page 6.
- ⁵ Commonwealth of Virginia Department of Transportation news release, Jan. 20, 2005.
- ⁶ Jim Vertuno, Associated Press article in the *Houston Chronicle*, page 3, Dec. 25, 2004.
- ⁷ Kevin Corcoran, *Indianapolis Star*, Jan. 6, 2005.
- ⁸ *Tollroads News* internet site, www.tollroadsnews.com, Jan. 1, 2005.
- ⁹ Federal Highway Administration’s Mary Peters, remarks as prepared for delivery to the 16th Annual ARTBA Conference on Public Private Ventures in Transportation, Dec. 9, 2004, Washington, DC.
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- ¹¹ *Tollroads News* internet site, www.tollroadsnews.com, Nov. 23, 2004.
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- ¹⁶ Texas Transportation Commission news release, Dec. 16, 2004.
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- ²⁰ Commonwealth Transportation Board of Virginia news release, Jan. 20, 2005.
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- ²⁴ Orange County Transportation Authority internet site and Federal Highway Administration, “A Guide to HOT Lane Development,” March 2003, Chapter 7.
- ²⁵ *Ibid.*
- ²⁶ *Tollroads News* internet site, www.tollroadsnews.com, Jan. 1, 2005.
- ²⁷ Interview with Laura Macdonald, Standard & Poors credit analyst, Feb. 24, 2005.
- ²⁸ Massachusetts Turnpike Authority 2003 Annual Report, page 6.
- ²⁹ Both the Turnpike and Skyway ran net deficits, when non-operating revenues and costs are considered.
- ³⁰ Massachusetts Department for Administration and Finance presentation, March 2004, page 12.
- ³¹ Interview with Michael Powers, Massachusetts Turnpike Authority general counsel.
- ³² Interviews with state and Massachusetts Turnpike Authority officials.
- ³³ Interviews with former Massachusetts Turnpike Authority officials.
- ³⁴ In addition to Cintra-Macquarie’s 407 ETR in Ontario, similar technology has been deployed successfully in London.
- ³⁵ Interview with state fiscal analysts.
- ³⁶ Massachusetts Turnpike Authority internet site, www.masspike.com.
- ³⁷ Interview with Michael Powers, Massachusetts Turnpike Authority general counsel.
- ³⁸ State Auditor Joseph DeNucci’s office, Oct. 31, 2002, news release.
- ³⁹ Interview with Michael Powers, Massachusetts Turnpike Authority General Counsel.
- ⁴⁰ Massachusetts Turnpike Authority 2003 Annual Report, page 3.
- ⁴¹ Timothy Egan, “Paying on the Highway to Get Out of First Gear,” *New York Times*, April 28, 2005.
- ⁴² Massachusetts Turnpike Authority 2003 Annual Report, page 13.
- ⁴³ *Ibid.*, page 12.
- ⁴⁴ For more extensive discussions of the flexible-term, least present value of revenue method of hiring private sector transportation facility managers, see Eduardo Engel, Ronald Fischer and Alexander Galetovic, “A New Approach to Private Roads,” *Regulation*, Fall 2002; also, “Privatizing Highways in the United States,” Nov. 20, 2002, conference paper by the same authors for the University of Michigan Office of Tax Policy Research; and “Privatizing Highways in Latin America: Is It Possible to Fix What Went Wrong?” July 2003 paper by the same authors for the Economic Growth Center at Yale University (Center Discussion Paper No. 866).
- ⁴⁵ Interview with Lisa Schrader, City of Chicago spokeswoman, Jan. 30, 2005.