

## **Dynamic tolling could be the key to ease congestion while raising money**

Oliver Moore

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Before the first opponent can scream “cash grab,” North American politicians who pitch the idea of road tolls typically turn to one of two justifications: We need the money to pay for city building or we want to manage congestion. Toronto Mayor John Tory picked option A.

The possibility of tolls on the Gardiner Expressway and Don Valley Parkway vaulted to the top of the local agenda this week when Mr. Tory said he would back the idea, touting it specifically as a way to raise money for infrastructure. The possible reduction of traffic on these highways was an afterthought.

Can't tolls do both? To a degree, yes. But it's complicated. Setting up a tolling system with the primary goal of raising money likely would not have as much impact on traffic as one designed with congestion in mind. And experts caution the basic system Toronto is talking about will make it harder to do either very well.

### **Money vs. congestion**

In theory, any meaningful toll will both raise money and reduce traffic. But the relative effects depend on how the system is priced.

Consider the example of a tolling system designed to reduce congestion. The price will be set sufficiently high to discourage enough people from using the road – or encourage them to use it at less busy times – that the remaining motorists will be able to drive freely. But doing so could mean relatively few drivers will pay that high toll.

“The trade-off you've got there is an interesting one, because you just don't know what the impact is at the end of the day,” said Harry Kitchen, a professor emeritus in the economics faculty at Trent University, who has written extensively on tolling and municipal finance options.

“It's the old, what we call in economics, the elasticity argument. You raise the price, demand goes down. How much does it go down? If it goes down a whole lot, then your revenue's not going to be high.”

This scenario was exemplified by the Union Pearson Express airport train. Originally priced too high for mass appeal, it suffered from low ridership and did not make enough money. But riding it was pleasant, with lots of room on board.

The contrary example is to set the toll to raise as much revenue as possible. In this case, the price would be chosen to turn off as few drivers as possible, maximizing the number of people using the road. Each of whom would pay a relatively small toll, adding up to a larger total.

This is what eventually happened with the UPX, when politicians lost patience and forced a price cut. The service is sometimes now standing-room-only and has lineups at certain times of day. The train is, effectively, suffering from congestion.

There is a middle ground – where the toll achieves both goals, but could also achieve neither – but Toronto clearly wants revenue generation to be a priority. The tolling options laid out this week are part of a city staff report on how to find more money. And with the estimated cost to rebuild the Gardiner Expressway jumping this week by a bit more than \$1-billion, to \$3.64-billion – the project would soak up an estimated \$1.65 of whatever toll price might be imposed – the need for revenue is starker than ever.

### **A better system**

Mr. Tory told reporters on Thursday he wanted “the most technologically advanced” tolling system in the world. There are lots of good examples to look to, although the city report talks about the sort of transponder-based system Singapore installed nearly three decades ago. And Mr. Tory said he was favouring the simplicity of a flat fee, which would limit the toll’s effectiveness.

“I think a flat fee anywhere is the wrong way to go,” said Martin Collier, founder of the road-pricing advocacy group Transport Futures. “It’s wrong to just say it’s going to be \$2 all day. They have to have a dynamic price.”

Numerous jurisdictions have moved to a toll that changes by time of day. Some tailor the price to traffic conditions, adjusting as needed to keep vehicles moving at a specific speed.

This dynamic pricing is intended to put a fairer price on the road, which is more in demand at certain times of day than others. And it is a way to encourage people to shift their travel patterns. This can work, as shown by a toll road in California where the most severely tolled part of the day raises relatively little money, with the high price acting as a disincentive to travel at that time.

The staff report makes passing reference to the possibility of tolling by distance, but the revenue projections are based on fixed tolls. The numbers are also based on a transponder style of system that some traffic experts consider already out of date. Some jurisdictions are looking at using GPS to track road use or testing systems that charge for all driving, a way to prevent people fleeing toll roads and clogging other routes.

“The methods used to collect tolls are currently evolving and other technologies may be available in the future,” the report acknowledges.

Still, the consensus from people who study tolling is that what Toronto is discussing now has the potential to be a good start.

“I’d view it as sort of a phased thing, and this is the first step,” said David Levinson, a transportation analyst and professor in the civil engineering faculty at the University of Minnesota, who has researched road pricing. “It’s much easier to move from a toll to a toll with differentiated time of day prices than it is to move from no toll to tolling.”