

Miami Dade's move to all-electronic cashless tolling

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Miami Dade Expressway Authority (MDX) is expected to begin formal procurement in early September of the toll systems needed to dispense with cash toll collection and go all-electronic. Along with North Texas Tollway Authority (Dallas TX) MDX has set 2012 as the target year for having all-electronic tolling (AET) complete, and cash collection permanently closed down. These will be the first two large networks in the US to make the conversion from a mix of electronic tolling (ET) and cash collection to AET/cashless.

(CTRMA's 183A in Texas and E470 in Colorado are individual tollroads that may beat MDX and NTTA in conversion to AET.)

The Dallas and Miami networks are different from one another. NTTA's roads are fully tolled with a mix of mainline and ramp plazas that cover every trip - no free rides.

MDX by contrast is wide open. Until early last year it had four tollroads (counting the closely coupled Don Shuler FL874 and Snapper Creek FL878 expressways as just one) and just four toll points, two of them one direction only. They estimated only 28% of traffic paid tolls. The other 78% used roadway segments without any toll.

Last year they opened an extension to the FL836 Dolphin Expressway with its own AET toll point - a trial for the full network AET - and also a new ORT plaza to toll traffic between the FTE's HEFT and the Dolphin. Those two extra toll points bring the total on the MDX network to six.

But still only about a third of the traffic pays tolls. Two thirds get free rides.

A move to comprehensive tolling - plugging the holes in the boat - offers the opportunity for MDX to:

- earn more revenue
- produce a fairer toll structure by instituting a more standard per mile toll rate
- lower toll collection costs by substituting technology for labor
- improve safety by eliminating the need to divide and merge transponder and cash payers
- manage congestion by eliminating toll chokepoints and varying toll by time of day
- reduce vehicle emissions with more even traffic flow

As far back as 2004 the board adopted all-electronic tolling by 2010 as its objective, and they commissioned a report from their general engineering consultants, a joint venture of PBS&J, PB and a local firm. In May 2006 the MDX board

of directors approved the consultants "ORT Master Plan". The schedule has slipped but the program is now to issue the RFP early September with the first tollroad (Gratigny FL924) complete by mid-2009 and the whole network complete by end-2012.

state route	924	112	836	874/878	total
expressway name	Gratigny	Airport	Dolphin	DShula/Sn MDX	
2-way toll points 2008	1	0	2	1	4
1-way toll points 2008	0	1	1	0	2
total toll points 2008	1	1	3	1	6
2-way toll point 2012	2	1	4	4	11
pairs of ramp tolls 2012	0	2	8	1	11
equiv 2-way toll points 2012	2	3	12	5	22
counting a pair of ramp tolls as equivalent of a 2-way toll point					

Alfred Lurigados, chief engineer, tells us the plan is to issue one RFP but it will be divided into two parts:

- in-lane or front end equipment
- video toll back office

Electronic tolling using SunPass will continue to be operated for MDX by the Florida Turnpike Enterprise (FTE). (NOTE: MDX plans to ask for optional pricing for a service center to take over all electronic toll transactions also. See follow-up at <http://www.tollroadsnews.com/node/3645> 2008-07-25 18:00)

Suppliers will be invited to respond with proposals for either the in-lane gear, or the video back office, or both. The 2006 report estimated the conversion of the network to AET to cost \$57m.

The planned sequence is FL924, FL874/878, then FL112 and FL836. A major interchange upgrade for FL836 at the Palmetto Expressway (FL826) is planned for completion before FL836 gets full AET.

To get full toll coverage the project will increase the number of mainline tolling points from 6 to 11. At present there are no ramp tolls on the MDX network. Eleven pairs of ramp tolls will be added for a total of 22 toll points.

Each toll point will have a 3m x 3m (10ft by 10ft) utility building and backup generator.

A major signing and publicity campaign is planned to minimize the number of motorists who inadvertently find themselves on a tollroad, and don't realize they need to pay a toll because of the lack of normal plazas and booths.

The master plan suggested the principle that motorists trips already paying tolls should not cost more because of the changeover, so given they will usually pass more toll points, the toll at each toll point will be reduced. The increased toll revenue is to come from getting a toll from the presently free trips. Overall toll revenue should be boosted about a third, the master plan report suggests.

down of cash collection.

MDX's tollroads are 60km (37 miles) centerline miles. They expect to do about 1.25m transactions per day with comprehensive coverage in place. Transponder tolls are expected to be in the 75 to 85% range. Total toll collection costs are expected to be about 11 to 12% of toll revenues to begin with but that ratio should steadily decline. Revenues in 2012 should be around \$200m/year. (When operated by the lackadaisical Florida Turnpike as recently as 1997 revenues were barely \$10m/year)

The wing to go

MDX's most distinctive piece of toll architecture The Wing with its leaning tower and a cable stayed canopy for cash will be redundant with AET in 2012 hardly ten years after it opened. (see picture above)

2.2.1 SR 112 (Airport Expressway) ORT Gantry Locations



Other part free systems

There are other part-toll/part-free systems like this in the US: New Hampshire, West Virginia Turnpike, Maryland's Kennedy Highway (I-95), the Delaware River Joint Toll Bridge Commission, and the Delaware Turnpike (I-95). But none are as intensely urban as MDX. None are as critical to the internal movement of a major metro area.



Not all going AET

Florida Turnpike Enterprise and Orlando Orange County expressway Authority are both steadily converting all mainline

plazas to provide open road tolling down the middle but keeping cash on the sides. FTE has a \$230m Toll Replacement Project with Raytheon that involves a virtually complete rebuild of their toll collection - cash, electronic and imaging in some 800 toll lanes. This is probably the biggest single toll system upgrade presently being done in the US.

(CORRECTION:we initially reported the contract value as \$270m whereas the correct figure is \$230m)

Several open road installations for FTE have been only recently completed by TransCore. They will all be replaced by Raytheon with systems of higher accuracy, officials say - though they will still get several years use out of the TransCore systems because they will be replaced around 2012 or 2013. Raytheon is presently doing design. Their installations will begin mid-2009.

FTE's toll systems have been cobbled together over the years and the present replacement is the first effort to integrate the different payment modes. When electronic tolling started there they had major problems because of over-reliance on writing back the customer balance to the transponder. Electronic tolling was initially done on the cheap without fully integrating it with cash lanes.



MDX gantries

FTE has been on-&-off about AET. Years ago plans were announced to make the Sawgrass Expressway to the northwest of the Miami area AET. Those plans were cancelled, revived and cancelled again. Present policy is to go AET at new toll points - mostly where a new interchange is built - but there are no plans to take the network cashless.

Tampa's elevated reversible on the Selman Crosstown Expressway was the first AET tollroad in Florida. It was built new with only gantry based electronic tolling. But cash payers on much the same route can use the old ground level expressway with cash toll booths.

Then general engineering consultants Dade Transportation Consultants, a joint venture of PBS&J, PB and a local firm produced the AET master plan in 2006. HNTB are now general engineering consultants to MDX and are doing most of the consulting work on AET implementation.

TERMINOLOGY: We use the term Open Road Tolling (ORT) to describe any toll point that resembles an open road with two or more lanes separated only by regular lane stripes where tolls are collected from gantry borne and in-pavement equipment at highway speeds - whether or not there is cash collection to the sides.

We use the term All-Electronic Tolling (AET) to describe a situation where there is only electronic tolling (ET) by which we mean the use of electronic transponders in the cars and readers above, license plate reading cameras or other location based devices such as satellite or mobile phone based equipment.

AET can also be called Cashless tolling. In their master plan report MDX use the term Open Road Tolling (ORT) and IBTTA recently held a conference on AET using the title ORT. We think this blurs an important distinction.

There is a big difference between having ORT down the middle plus cash collection on the sides, and having only ORT, and that distinction is better captured by the term AET for the no-cash setup. Editor

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