



## **Tolling Innovations and State Interoperability**

### **2006 Summer TexITE Meeting Technical Program**

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Harris County Toll Road Authority

June 23, 2006

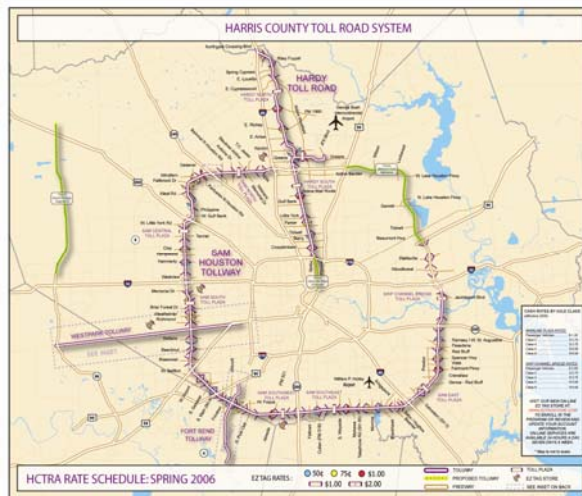
## **Agenda**

- The PPP Question
- Operations
  - More Electronic Toll Collection
  - Open Road Tolling
  - New EZ TAGs
  - Violation Enforcement
  - Video Tolling
- State Interoperability
- IH-10 Managed Lanes

# PPP?

- Private Public Partnership in Houston?
  - On June 21, 2006 Harris County Commissioner's Court unanimously voted against selling or leasing the toll roads
  - \$20 billion operation will continue to be operated by the HCTRA

## Present Toll System



### Toll Facilities

- Hardy Toll Road
- Sam Houston Toll Road
- Hardy Airport Connector
- Westpark Tollway
- Fort Bend Parkway  
(Operated by HCTRA)

### Totals

- ~1,100,000 EZ TAGs
- ~1,000,000 txns/day
- ~ \$1,000,000/day
- 100 Center-line Miles
- 250 Toll Lanes
- 203 ETC lanes

## Operational Initiatives

### Goals:

- Reduce costs
  - Capital
  - Transactional
- Become increasingly customer-centric
  - Increase throughput
  - Reduce accidents

## Less Cash, More EZ TAGs

### Operational Solution:

- Increase Electronic Tolling
  - More EZ TAG-only lanes at plazas
  - Add EZ TAG-only ramps
  - Open road tolling
  - Explore video tolling

## Plaza Lane Conversions: Before



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## Plaza Lane Conversions: After



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## Ramp Lane Conversions

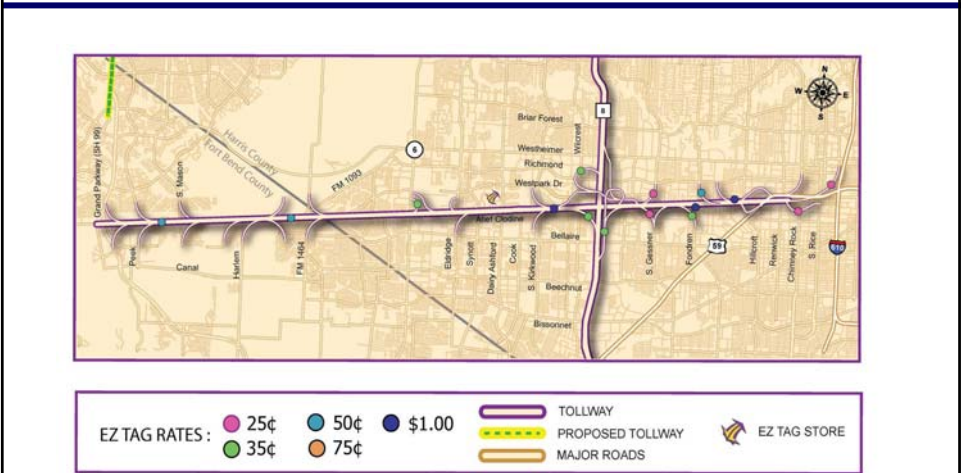
Exit to 249 NB off NB BW8
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## The Westpark Story



HCTRA's First "All Electronic" Toll Road  
20 Miles, \$400,000,000 to Construct

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## Open Road Gantry



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## Free Flow Ramps



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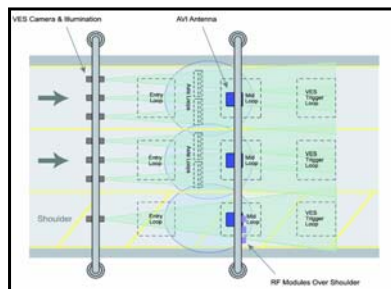
## ORT Solution

### Electronic Requirements for Open Road Tolling:

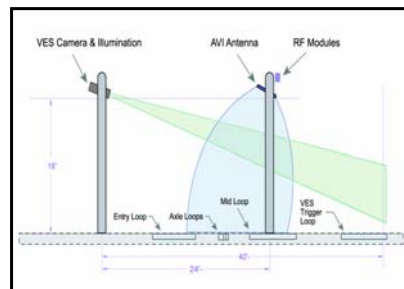
- Automatic Vehicle Identification
- Automatic Vehicle Classification
- Violation Enforcement System
- Redundant Transaction Infrastructure

## All Electronic Solution

### Automatic Vehicle Identification and Classification



Top View



Side View



# Violation Enforcement

VERIFICATION STATION [USER-FPHILIPSON]

Backshot

Region Of Interest

Load File: Y10709CR.tag

03-13-2005 11:53:19 SAM HOUSTON-NORTH Sam Houston North Lane: 07  
Toll Charged: \$1.25 Violation: RUN THRU  
Toll Paid: \$0.00 Tag ID: 0 - Status: 0 Authority:

Name - Last, First, Init Address Vehicle- Make, Model, Year, Color, VIN

Registration / Drivers Lic# City / State / Country / Zip Code

Z13NLB TX  
State Conf: 0 Plate Conf: 74  
Edit Plate  
Accept  
Reject  
Exception  
Incident Review  
Exit

start

7:21 AM

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# Real Time Violation Alerts

**To:** HCTRA\_VES@atsol.com  
**Subject:** TOP Violator Location Alert-[H92FBN at Beltway8\_At\_249]  
**Vehicle License Plate:**H92FBN  
**Time:**11 Nov 2005,08:59:58



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## Video Tolling

- Fleet tolling
  - Yellow cab billed retroactively without transponders
- Rental car solution
  - Indirect video tolling through third party (ATS)
    - No transponders
    - No risk for authority - 100% revenue collection guaranteed
    - No collection issues for authority
    - Non-stop tolling for rental car customers
    - One account, one interface



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## Transaction Infrastructure

- Redundant lane controllers
  - No data loss if communications or back office services fail
- High availability data center
- Disaster recovery site
- Fiber helps

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## New Tag vs. Old Tag

- Began 18 month tag recall effort May, 2006.
- Averaging 100,000 tags per month so far...
- Sell rather than rent
- One tag per car!
- Increased opportunity for interoperability



## EZ-TAG Volume

- EZ TAG as a % of total transactions
  - 53% in 2003
  - Finished 2004 at 64%, 70% peak
  - 2005 was same, but traffic increased 16% year over year
- EZ TAG Subscriber base increasing
  - Houston Airport System
  - Developing co branding option for area auto dealers
  - Private parking an option

## Interoperability Mission

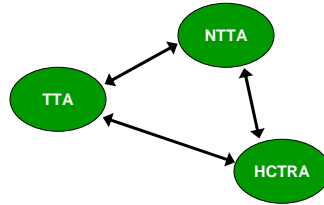
To balance the requirements of many stakeholders and develop a coordinated, effective, and efficient interoperability program

At a minimum, the toll facilities within the State of Texas must be interoperable

## Goals

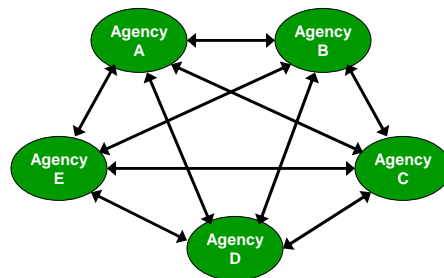
- Serve the traveling public:
  - One tag
  - One account
  - One supporting agency per account
- Support / enable toll agencies:
  - Economies of scale
  - Joint marketability
  - Local autonomy
  - Maintain existing programs

## Current Structure



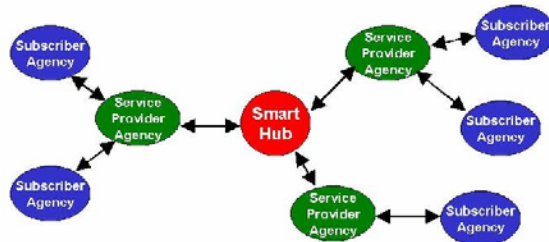
TTA, NTTA and HCTRA currently use a “Peer-to-Peer” structure for interoperability

## Expanded Structure



Expansion of the Peer-to-Peer structure would result in many interfaces per agency

## Vision: Transaction Hub



A jointly-developed, centralized transactional hub architecture will facilitate efficient data exchange between interoperable agencies

## I-10 Managed Lanes



EZ TAG Only, Time-of-Day Pricing

# Questions?



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