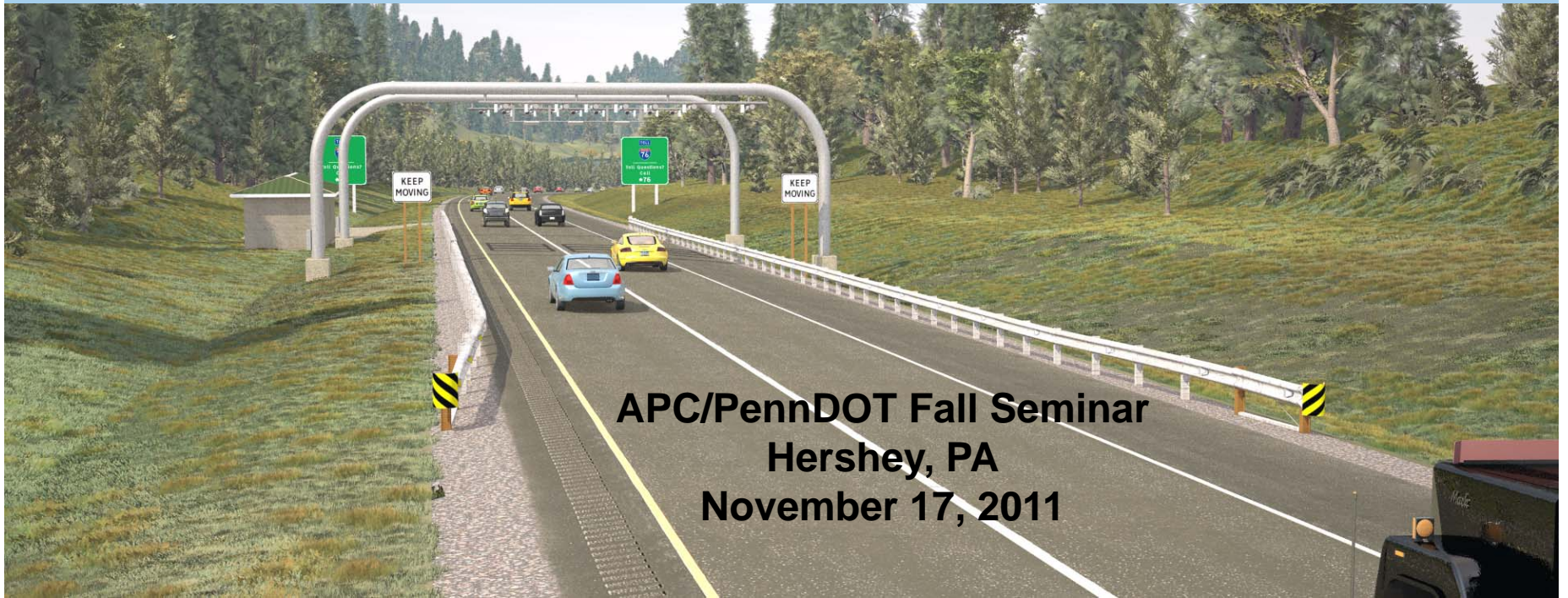


ALL-ELECTRONIC TOLLING

AET Progress Report



**APC/PennDOT Fall Seminar
Hershey, PA
November 17, 2011**

Status

Completed to date

- Inventory of existing PTC system
- Baseline cost and revenue for use in comparisons
- Survey of other agencies and best practices
- Initial evaluation of revenue impacts to establish differentiators for further evaluation
- Initial AET capital and ongoing operating estimates
- Progress report
- Cash customer surveys
- License plate surveys

Status

Completed to date

- VISSIM Analysis
- Safety Analysis
- Conceptual Interchanges Developed
- Draft Legislative Gap Analysis
- Maintenance and Operations (M&O) Cost Table
- Business Rule Assumptions
- 10 Year Net Revenue Outlook

Existing PTC System

- 65 Tolled Interchanges
- 463 Toll lanes



Existing PTC System

- Ticket/E-ZPass Entry and Exit Lanes



Existing PTC System

- Coin Drop Tolling – Non ticket



Existing PTC System

- Open Road Tolling (Express E-ZPass) with Cash/Ticket Plaza
- Open Road Tolling (Express E-ZPass) with Coin Drop Plazas – Non ticket



Existing PTC System

- Express E-ZPass
5 locations
 - Gateway
 - Warrendale
 - Mid-County
 - M19
 - M52



What is All-Electronic Tolling?

- All Cashless
- Non-stop
- Electronic Tolling
- Video Tolling



Why Consider AET?

- Reduced delays – Reduced travel times
- Safer operations – Reduced crashes
- Customer convenience – No stopping, No cash
- Operational efficiencies – Reduced emissions,
Lower costs

What are other agencies doing?

- North Texas Tollway Authority (NTTA)
- Tampa-Hillsborough County Expressway Authority (THEA)
- Miami-Dade Expressway (MDX) Authority
- Central Texas Regional Mobility Authority (CTRMA)
- E-470 Public Highway Authority in Colorado
- *ICC/MD200 Maryland Transportation Authority*

What are other agencies doing?

- Why – Reduced travel times, increased safety, reduced operating costs
- Characteristics:
 - Longest converted roadway is 47 miles
 - Urbanized high traffic cities
 - In state users 90% of transactions
 - All five agencies had achieved 70% ETC before conversion
 - Strong legislation linked to registration
 - Strong staff re-training activities
 - Emphasis on public outreach

What is the risk/reward?

PTC FY 2012-13 gross toll revenue

Revenue

- ETC (E-ZPass) is expected to generate \$580,885,000 gross toll revenue/year (WSA bring down letter)
- Cash is expected to generate \$300,812,000 gross toll revenue/year

Cost of Collecting Revenue

- \$115.3 Million/Year

What are the biggest risks of conversion?

- Initial capital investment
- Protecting the existing cash revenue stream
- Cost and risk of video transactions

What are the biggest risks of Non-conversion?

- The need for additional capacity at some toll plazas
- Increasing labor costs
- Aging and non-supported equipment
- Aging infrastructure
- Energy costs
- Safety – Toll collectors and drivers

On-Line Cash Customer Survey

Interviews were conducted on August 1-22, 2011 via online (web) survey hosted on PA Turnpike Commission Website.

The sample size included:

- 10,775 cash motorists
- 147 cash commercial users

Results of On-Line Cash Customer Survey

- Cash customers travel the Turnpike mostly for social reasons.
- The majority of those customers averages using the Turnpike less than 5 times/year
- Business/social travelers cite lack of uses as the main reason for not enrolling in E-ZPass
- Commuters cite preferring cash as the reason for not using E-ZPass
- Those using the Turnpike on a weekly basis cite the option to use cash as the main reason for not using E-ZPass
- Nearly 2/3 would enroll in E-ZPass for a discount
- A 20% discount was the key price point

License Plate Survey Results – Cash Customers Only

Conducted July 21st - August 4th, 2011 between 8 am and 4 pm.

Passenger vehicles only, no commercial vehicles counted.

| States Surrounding PA | | | | | | | | | |
|-----------------------|-------|------|------|------|------|------|------|------------|--------|
| | PA | OH | NJ | MD | NY | WV | DE | All Others | Total |
| Volume | 18004 | 2448 | 1551 | 1259 | 875 | 390 | 146 | 5466 | 30139 |
| Percent | 59.7% | 8.1% | 5.1% | 4.2% | 2.9% | 1.3% | 0.5% | 18.1% | 100.0% |
| | 22.1% | | | | | | | | |

40% from out of state, with **OH** being the highest.

Operational benefits and potential challenges

Vissim Analysis completed for Pocono, New Stanton, Valley Forge and Breezewood.

2020 traffic volumes were developed and volumes evaluated at each interchange both “with plaza” and “without plaza”.

Compared both Emissions and Delay – results showed a decrease in both between the “with plaza” to “without plaza” scenario.

Delay compared average delay time(s) per vehicle in the network

| Interchange | AET Delay Reductions | |
|--------------|----------------------|--------|
| Pocono* | -19.6% | |
| New Stanton | -84.2% | |
| Valley Forge | Enter (PM Peak) | -77.1% |
| | Exit (AM Peak) | -84.5% |
| Breezewood | -93.5% | |

*Network includes Intersection with SR 940 so the overall delay comparison is much less.

Emissions Comparison

| Interchange | Movement | AET Emissions Reduction |
|---------------------|-----------------|--------------------------------|
| Pocono | Enter Turnpike | -45.4% |
| | Exit Turnpike | -37.2% |
| New Stanton | Enter Turnpike | -41.7% |
| | Exit Turnpike | -45.0% |
| Valley Forge | Enter Turnpike | -39.9% |
| | Exit Turnpike | -36.4% |
| Breezewood | Enter Turnpike | -51.9% |
| | Exit Turnpike | -70.1% |

Safety Benefits – Reviewed crash records from 2008 through July 2011

Urban high volume (Bensalem, Exit 351): 14 crashes total – 50% angle or sideswipe. Also 10 additional non-reportable crashes occurred.

Rural high volume (Breezewood, Exit 161): 4 crashes, 3 were rear-end collision. Two were caused by the car in front backing up from the toll booth, one was caused from congested conditions from a queue formed at the toll booth

Rural low volume (Donegal, Exit 91): 1 crash, Hit Fixed Object – Hit attenuator just past the toll plaza at the westbound on-ramp to the PA Turnpike. Driver was distracted by the toll ticket when the crash occurred.

Options for existing cash customers

Investigated locations across PA that offer check cashing. There is not one store with locations throughout PA. There are locations by region. Going to pursue a meeting with Sheetz to discuss options for kiosks.

What are we studying further?

- Initial Video toll structure
- Required legislation
- Options for existing cash customers
- Revenue loss protection
- Video toll processing
- Interoperability

Schedule/Next Steps

- Schedule
 - Decision on feasibility Winter 2011/12
 - Final report early 2012
- Next steps if AET is feasible
 - More detailed studies related to phased implementation plan
 - Development of Detailed Implementation Plans