IBTTA
Annual Technology Summit 2019

Roadside Systems and Innovations


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Agenda

1. Evolution of Technology
2. Convergence of ITS and Tolling
3. Future Trends and Technologies
4. Questions
Intelligent Transportation System Technologies

- Primarily used for sharing real-time information with the public to ensure safety and increase mobility

- Analysis of information gathered led to the development of several Active Traffic Management Strategies
  - Automated Incident Detection
  - Variable Speed Limits
  - Dynamic Lane Use/Merge Control
  - Adaptive Traffic Signal Control
  - Adaptive Ramp Metering
  - Reversible Lanes
Evolution of Technology

**Manual Collection**
- Toll Facilities
- Manual Toll Collectors
- Road Congestion
- Labor Intensive
- Toll revenue leakage

**Electronic Tolling**
- Open Road Tolling
- Vehicle Transponders
- License Plate Readers
- Pay-by-plate Charges
- Video-based Classification
- Standard fees for all Customer Service Centers

**Congestion Pricing**
- Commuter choice for enhanced travel time
- Higher fees, greater value
- Integration of real-time data
- Use of ITS technologies
Convergence of ITS and Tolling

**Communications** – real-time information to traveling motorists and detection of initial toll point

**Pricing** – accuracy in the detection of vehicles and determination of speeds of vehicles through toll points

**Payment** – electronic tag readers and in-vehicle solutions designed for pay-per-use

**Enforcement** – effective means to enable enforcement of fraud and potential evasion
Convergence of ITS and Tolling

Intelligent Transportation Systems

Tolling Collection Systems

Big Data
Convergence of ITS and Tolling

Intelligent Transportation Systems

Tolling Collection Systems

Rideshare Programs
Connected Vehicles
Freight Information

Big Data

Transit Systems
Crowd-sourcing
Other???
Future Technologies / Trends

Latest Trends

• Availability of connected infrastructure
• Increase in vehicle sensors (additional data)
• Use of Artificial Intelligence / Machine Learning (AI/ML)
• Enhanced traveler information to motorists

Future Applications

• DSRC/5G-based tolling to reduce costs
• Tolling transaction messages, travel times in-vehicle
• Enhanced dynamic pricing based on traffic intelligence
• Road usage charges in lieu of, or in addition to, gas/luxury taxes