Deployment of Mileage Charging Systems in the United States

Presented to

The 2nd Mileage Based User Fee Symposium

Minneapolis, Minnesota
April 20, 2010

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Office of Innovative Partnerships and Alternative Funding
Today’s Presentation

1. Recommendations for a National Mileage Based Charging System

2. What We Still Need to Learn Prior to Adoption and Implementation

3. Results of Oregon’s Recent Pilot Test of an Automated Weight-Distance Tax for Heavy Trucks
Policy Issues for Mileage Based Fees

- Purpose of the system
- Nature of payer and charge
- Cover all motorists
- Cover all roads
- Cover all mileage
- Protecting motorist privacy
- Local option
- Congestion pricing
- Rate structure
- Public vs. private operations

Revenue source, management of congestion, encouraging operation of fuel efficient vehicles

All motorists pay based on distance, time and place of travel and vehicle characteristics

YES, all public roads

YES, except on private land

YES, according to motorist choice

YES, states, counties, cities

YES, decided locally

Multiplier applied against flat rate; Lower rate for highly rural zones

Public private partnership with government agency as default
Public Concerns for Mileage Based Fees

- Confidence in system
  - Efficiency
  - Fairness
  - Perceptions of large and costly bureaucracy
- Privacy & fear of technology
- Imposition of a government mandated on-vehicle device
- Motorist class wars
  - Rate structure
  - Rate equity
- Flexibility of road pricing

Create an efficient, fair, cost-efficient operation run via public private partnership

Offer motorists various options for protecting privacy to levels they choose, including choice of on-vehicle device
Default should not be manual reporting

Simply endure the struggle
Impose sideboards that define limits
Structural Issues for Mileage Based Fees

- Easy motorist use
- Crediting gas tax
- Administration
- Integration with other systems
- Reliability and back up system
- Managing nonpayment and fraud
- Transition management
- Overall system risk
- Operating costs
- Capital costs

**Under interoperable technology platform, motorists chooses on-vehicle technology and invoicing and payment method**

Motorist chooses between precise credit or estimated credit

**Operated as public private partnership with payment at the pump for cash option and default payment**

Operating cost target should be low

Capital costs yet to be tallied
Technology for an Interoperable Mileage Charging System

- Specificity of travel: Identification of geographic zones or specific travel routes via GIS map?
  - Motorist chooses but bears burden of choice

- Central server/computer connected with databases
  - YES

- An *interoperable technology platform*
  - Technology platform:
  - Operating system:
  - Data transfer:
  - Invoicing and payment:
  - On-vehicle device:
  - Establishment of available standards
  - Establishment of available standards
  - Options allowed that meet standards
  - Multiple options for invoicing and payment
  - Pre-market default device with motorist choice from post market options
  - At fueling/charging station during transition

- Enforcement:
  - Separate systems for light and heavy vehicles
  - YES
On-Vehicle Devices Under Interoperable Platform

Market provided on-vehicle devices must comply with prescribed standards and certifications

- Data accuracy and form
- Data transmission frequency
- Vehicle identification
- Anti-tampering and enforcement protocols
- Certification of on-vehicle devices and installation

Motorist choice of on-vehicle device

- Spectrum of privacy protection capabilities
  - GPS versus cellular
  - GIS map versus odometer
  - Thick versus thin client
  - Data encryption
  - Trusted third party
- Data generation and retention alternatives
- Functionality: Additional applications & services
- Precision and Cost
An Interim System: VMT Estimate Model

Vehicle Identification and Fuel purchase amount

Service Station POS System

Central Database

Central Computer

Vehicle ID, Fuel Purchase

VMT Charge

AVI Reader

Vehicle Identification Device (AVI)
Things we need to learn about implementing a mileage charging system in the US

1. GPS and Cellular. Would it be wise to allow GPS and cellular on-vehicle devices in the same system?

2. Effective enforcement. What is an effective enforcement mechanism during a partial application?

3. Interoperability standards. What should the standards be for a system built upon an interoperable technology platform?

4. Choice of on-vehicle device. Will choice placate motorists’ fears?

5. Private sector role. What should the private sector role be in a US deployment?

6. Cost. Can we build an affordable system and what will it cost?

7. Early Deployments. Voluntary adoption, electric vehicle mandate or interim system?
Automating Current Oregon Weight-Distance Tax

• Under current manual entry process, truck drivers or company office staff keep paper record of each trip, truck combination, number of axles, and beginning and ending odometer readings

• Monthly or quarterly, trucking companies complete mileage report, calculate the weight-distance tax, and send payment with 1/4 using Oregon Trucking Online
Pilot test of Truck Road Use Electronics – TRUE

• Upon request of Oregon Congressman Peter DeFazio, ODOT developed TRUE, a modified BlackBerry and a custom-built computer application.

• In January 2010, ODOT partnered with a Portland company to put TRUE devices in five of its trucks and conducted pilot test in February and March.
TRUE: An Automated Weight-distance Tax Process

• A wireless smartphone in the truck cab sends GPS signals to a computer application that converts the coordinates to mileage, combines with electronic reporting of truck combinations and number of axles, calculates the tax for travel on Oregon roads and sends a bill for payment
TRUE reports and billing

- No paper reporting

- Automated reports included a list of dates and times a TRUE-equipped truck transited a weigh station, comparing weight and axle information entered by drivers with recordings at the station

- Online reports gave the company access to details about truck trips and tax, with ability to pay online
TRUE: GPS Data Comparison

• Comparison of the TRUE-reported GPS coordinates with data from Qualcomm wireless devices already in company’s trucks showed TRUE readings matched Qualcomm to within 0.05%. TRUE was actually more accurate.

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Biggest Deviation: 0.05%
Average Deviation: 0.01%
Truck Road Use Electronics
037497 - ABC TRUCK LINE LLC

Weight-Mile Tax Reports

Add to Cart | Month / Year | Weight-Mile Tax Due
-------------|--------------|---------------------

[ ]  

February 2010  

$2,172.03

Submit  Back

Oregon Trucking Online
Motor Carrier Transportation Division  550 Capitol Street NE
Salem OR 97301-2530  Salem Headquarters - 503-378-4923
## Truck Road Use Electronics

037497 - ABC TRUCK LINE LLC

### Weight-Mile Tax Report

February 2010

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Oregon Trucking Online

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Salem OR 97301-2530  Salem Headquarters - 503-378-4923
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Road User Fee Pilot Program
Road User Fee Task Force
Truck Road Use Electronics

www.oregon.gov/ODOT/HWY/OIPP/index.shtml