THE MINNESOTA ROAD FEE TEST (MRFT)

BEN PIERCE, BATTELLE
Enabling Legislation

2007 Legislature

“$5,000,000 is for a pilot project to demonstrate technologies that will allow for the future replacement of the gas tax with a fuel-neutral mileage charge.”
Battelle’s Role

• Develop software and hardware systems to conduct a demonstration of mileage-based user fees (MBUF)

• Demonstration will:
  – Utilize Commercial Off-The-Shelf (COTS) hardware
  – Include 500 in-vehicle devices & back office processing system
  – Be deployed for a 1-year duration (split into 3 deployment waves)
  – Require extensive software development
  – Permit a comparison of technology vs. odometer readings
Mileage-Based User Fee Operational Concept

• Discounting System

  – Everyone has to pay a flat fee per mile driven based upon odometer readings (annual or at sale of vehicle)

  – Technology used to discount from a flat fee per mile according for a fee system based upon:

    - Country (inside vs. outside the United States)
    - State (inside vs. outside Minnesota)
    - Large geo-zones (inside vs. outside a metropolitan area)
    - Roadway classification (Interstate vs. Non-Interstate)
    - Time of day
    - Day of week
    - Vehicle heading
    - Type of vehicle
Study Design Overview

Six Months
In-Vehicle Data Collection

- Participant Recruited
- First Odometer Reading
- Second Odometer Reading
- Third Odometer Reading
- Equipment Deployed
- Equipment Recovered

- Participation is voluntary and can be changed on a trip-by-trip basis
- Will have before/after odometer readings to compare to GPS readings
- Will have information on the number of times user opted out
System Concept

In-Vehicle Smartphone

Electronic Odometer Mileage by Fee Category

Cellular Tower

Data Warehouse

GPS Position is NOT being transmitted for the Fee Assessment
MBUF Fee Assessment

• “Real” money will change hands
  – Demonstration includes invoicing and payment by participants through PayPal

• Each participant will be provided with an up-front incentive to participate
  – Incentive will be sufficient to “cover” approximately four months of travel

• No MBUF fees assessed until the third month of participation
  – Participant pays MBUF fees for months 3-6
  – Will never have to pay more than the initial incentive
MBUF – How it works

• Designed as a “thick client”

• MBUF application accumulates mileage driven by fee category (roadway type, geography, etc.)

• Every 24 hours accumulative mileage by fee category transmitted via cellular to data warehouse

• Invoice generated monthly based upon aggregate miles in fee categories
In-Vehicle Design Overview

**Samsung Galaxy S**

In-Vehicle Computational Device and Display Unit

**OBD-II Diagnostic Tool**

ELM327 With Bluetooth Data Connection

**Mounting Hardware and Cables**
Installation Pictures
Minnesota Road Fee Test Main

- Reports
- CoPilot
- Settings
Minnesota Road Fee Test - Running

- MBUF Rate
- Interstate Notification
- MBUF Geography
- GPS Status
- Current Fee: 3.5¢
- Version 0.5.868
MBUF In-Vehicle Trip Report

Accumulated Miles and Fee From

05/06/2011 10:20 AM
Miles: 6.55
Estimated Fee: $0.11

For detail MBUF Reports, please visit http://www.MnRoadFeeTest.com
Participants Have Web-Access
Electronic and Paper Invoices

Minnesota Road Fee Test

Monthly Invoice

Matthew G Burns
505 King Ave
Columbus, OH 43201

Invoice Date: 6/9/2011

Invoice #: 2099
2002 VW Passat

Due Date: 6/22/2011

Total Amount Due: $0.46

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Payment Detail

Last Payment Amount: $0.47
Last Payment Date: 5/24/2011


Payments also may be made by appointment by calling (612) 708-7288.

For questions about this invoice, call (612) 708-7288 or email billing@mnroadfeetest.com
Current Status and Schedule

• Current Status
  – Final System Testing and Validation

August 1, 2011
Field Deployment

November 2010

December 2010 – May 2011