MBUF Research Project

• Mn/DOT is conducting a research project on Miles Based User Fees (MBUF)
  – One possible funding alternative
  – 2007 legislation directed MBUF study
Mileage-Based User Fee

- Drivers pay for road use on a per-mile rather than per-gallon basis
- In-vehicle technology could be used to record total miles driven
- Payment collected on a periodic basis
- Complex issue with many technical and policy options
Study Overview

Two-Part Research Effort

1. Technology Demonstration
   - 500 vehicles in Hennepin and Wright Counties
   - Recent news headlines

2. Policy Study
   - Engaging stakeholders to identify and evaluate MBUF issues
   - Policy Task Force
Policy Study Overview
Policy Study Overview

- Focus Group Discussions in Greater MN
  - Rochester, Duluth, Bemidji, St Cloud & Willmar
- Individual Stakeholder Meetings
- Internet Panel Survey
- Policy Task Force led by:
  - Bernie Lieder, Former State House Transportation Committee Chair (Crookston)
  - Jim Hovland, Mayor, City of Edina
- Expert Panel Roundtable Forums
Transportation Funding
History of the Gas Tax

- **State** gas tax introduced in MN in 1925
- **National** gas tax introduced in 1950s
- In MN, gas tax revenues are constitutionally dedicated for highway use

- Other sources for transportation funding
  - License tabs
  - Vehicle sales tax
  - Property taxes
  - Tolls
  - General fund revenues
## Annual MN State Gas Taxes Paid

<table>
<thead>
<tr>
<th>MPG</th>
<th>10,000 miles per year</th>
<th>15,000 miles per year</th>
<th>20,000 miles per year</th>
</tr>
</thead>
<tbody>
<tr>
<td>40 mpg</td>
<td>$69</td>
<td>$103</td>
<td>$138</td>
</tr>
<tr>
<td>30 mpg</td>
<td>$92</td>
<td>$138</td>
<td>$183</td>
</tr>
<tr>
<td>20 mpg</td>
<td>$138</td>
<td>$206</td>
<td>$275</td>
</tr>
</tbody>
</table>
## Gas Taxes Paid per Mile

<table>
<thead>
<tr>
<th>Fuel Consumption (mpg)</th>
<th>State Gas Tax (cents per mile)</th>
<th>State + Federal Gas Tax (cents per mile)</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 (delivery truck)</td>
<td>2.8</td>
<td>4.6</td>
</tr>
<tr>
<td>20 (passenger car)</td>
<td>1.4</td>
<td>2.3</td>
</tr>
<tr>
<td>30 (passenger car)</td>
<td>0.9</td>
<td>1.5</td>
</tr>
<tr>
<td>40 (hybrid)</td>
<td>0.7</td>
<td>1.1</td>
</tr>
<tr>
<td>50 (hybrid)</td>
<td>0.6</td>
<td>0.9</td>
</tr>
</tbody>
</table>
Is there a Gas Tax Problem?
Emerging Trends

1. Gas tax revenues expected to trend downward due to:
   – Greater number of hybrids and electric vehicles
   – Higher fuel-efficient vehicles
2. Growth of VMT may moderate due to higher gas prices
3. Decline in purchasing power due to inflation
Average Vehicle Fuel Efficiency (MPG)

U.S. Average Annual Vehicle-Miles Travelled (Billions)

Decline in Federal Gas Tax Purchasing Power
(Based on Inflation Since 1993)

Other Factors

1. Reluctance to raise gas tax or adjust for inflation
2. Higher gas prices at the pump may lower fuel consumption
3. State estimates $50 billion shortfall for road construction and maintenance over next 20 years ($2.5 billion per year)
Potential Alternatives

1. Continued reliance on the gas tax & other transportation fees (tabs, MVST, wheelage tax, etc)
2. General fund revenues (sales tax, income tax, property tax, etc)
3. New user-pays system (mileage-based user fees)
Road User Pays Principle
1. Road construction and maintenance costs are a function of **road use** and **vehicle weight**

2. Vehicles of the same weight that use less fuel or no fuel at all cause the same damage to roads as those that use more fuel

3. Charging vehicles per mile and by weight can be more fair and equitable
Characteristics of Mileage-Based User Fees (MBUF)

• Also called vehicle-miles traveled (VMT) fee
• Charges are based on miles driven not fuel efficiency or type of fuel used
• Revenues increase as vehicle miles increase
• Revenues not directly affected by fluctuations in fuel prices
Potential Purposes of Mileage-Based User Fees and Comparison to the Gas Tax
• Collect revenues in a sustainable way to fund the roadway system

• Per-mile rate could be adjusted by:
  – Weight
  – Class of vehicle
  – Vehicle fuel economy
  – Type of roadway
  – Time of day
Potential Societal Outcomes

• Resulting price incentives could have societal outcomes related to:
  – Total vehicle-miles traveled
  – Gas consumption
  – Emissions reduction
  – Road wear and tear
  – Congestion reduction
  – Improved safety
Technology & Privacy
Technology

Three available technology approaches:

1. Annual odometer reading (low tech)
   - similar to smog checks
   - no location information obtained

2. On-board unit (medium tech)
   - connect with diagnostic port of any vehicles since 1996,
   - Uses cellular communications, general location information obtained
Three available technology approaches:

3. Geographical Positioning System (GPS)
   - high tech
   - Provides accurate mileage, route and location information
   - Uses wireless communications
Cost & Use of Revenues
Collection Costs

• Gas tax is simple and cost effective to collect
  – Refined over past 90 years in MN
  – 1% to 2% collection cost
  – Collected at fuel pump
  – Included in the price of gas

• MBUF requires entirely new collection method
  – Upfront capital cost to install equipment
  – Likely more expensive to collect, administer and enforce relative to gas tax
Collection of Fees
Transparency

• Mileage-based user fees are more transparent
  – provides drivers direct price signal
  – user pays principle

• Gives drivers incentive to better manage how much, where and when they drive so as to reduce their driving cost
How to collect fees?

• Fees could be collected in a number of ways:
  – At the gas pump
  – Monthly invoices
  – Quarterly, bi-annually or annually
  – Using a credit card account to replenish once minimum threshold is reached
Summary & Wrap Up
Summary

- Electric, highly fuel-efficient, and hybrid vehicles projected to make up a larger part of the fleet
- Long-term, the gas tax will not produce enough revenue to build and repair roads
- Alternatives such as mileage-based user fees are currently being researched, including gathering input from this group
Wrap Up

• Focus group and survey feedback will inform the MBUF Policy Task Force
• Task Force final report will be available in December 2011
• Visit MBUF study website for additional information

www.dot.state.mn.us/mileagebaseduserfee/
Thank you!

Lee Munnich
Humphrey School, University of Minnesota

Imunnich@umn.edu