

# VMT pilot studies: What should drive them?

**20 April 2010**

**Minneapolis, Minnesota**





# Transformational Thinking

“Imagination is more powerful than knowledge. It is key to bringing change into our reality. ”

Albert Einstein



# Future for Mobility and behavior change? Intelligent Infrastructure

- ***Intelligent design:*** Infrastructure 'fit for purpose' and flexibility
- ***Intelligence from Infrastructure:*** Information collected and collated to optimise use and measure performance/effectiveness
- ***Design in intelligence:*** Built as "open systems/standards" into vehicles and local autonomous systems
- ***Intelligent use:*** For people, by people, and Influences behaviour by choice & fitting style





# EXAMPLE: VMT - An alternate to fuel excise tax

## • *Vehicle Miles Travelled (VMT) taxing is:*

- ❑ The most favored road pricing alternative to gas tax
- ❑ Tax on infrastructure usage that does not diminish with increasing fuel efficiency
- ❑ Allows countrywide, national, free flow tolling/pricing

## • *Challenges:*

- ❑ Politically difficult (perhaps easier than raising gas tax)
- ❑ Governance of highways
- ❑ Integration with asset management and capital investment
- ❑ Challenge to integrators
- ❑ Appropriate first steps
- ❑ Enforcement
- ❑ Transition

**Pay by the mile** | Oregon recently tested a system for charging road users by the mile to replace the dwindling gas tax. The yearlong test involved about 285 vehicles and two service stations:

### 1. Data collected

A global positioning satellite beams information to a device in the car that counts miles driven in Oregon and in the Portland area during rush hour.



### 2. Data downloaded

The mileage count is transmitted to a receiver in the gas pump.



### 3. Cost calculated

The gas tax is subtracted from the price, and the mileage fee is added. The entire process is automatic for the motorist.

**RECEIPT**

Gas to Go	Commercial Ad., OR
06/12/08 12:45 PM	19.50
Gallons	12.349
Price/Gal	1.57
ST Fuel Tax	0.10
Sale Total	19.50
... 0007 VMT ***	15.12
VMT Fee	20.2
Rush Hour	1.280
In Oregon	10
Non-Oregon	10
No Signal	
THANK YOU	

**State fuel tax**  
This is a credit for the state gas tax of 24 cents/gallon.

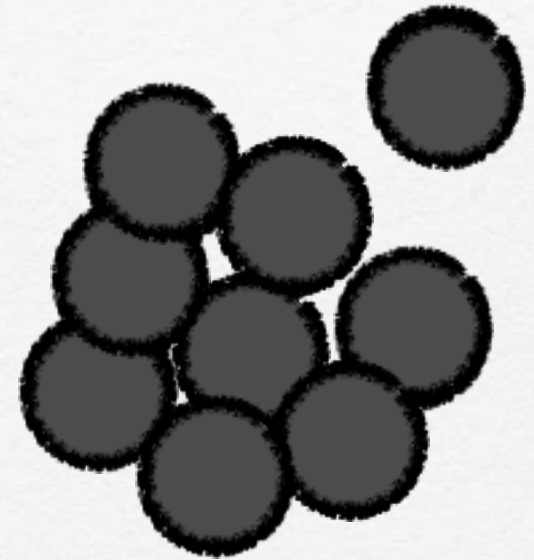
**Sale total**  
This is the total amount that this driver must pay at the pump. The price of gas and mileage fee minus the state gas tax.

**VMT fee**  
This is the mileage fee calculated for this vehicle. The pilot project included a higher fee for miles traveled during rush hour in Portland.

**Rush hour/In Oregon**  
These are the zones the miles are being counted in. The numbers here represent miles counted since this vehicle's last mileage reading.



There are no silver bullets...  
but there is platinum buckshot!





## Key Issues – Where should trials be heading?

- Objectives and goals must be clear
- End to end system design and business rules
- Open architecture

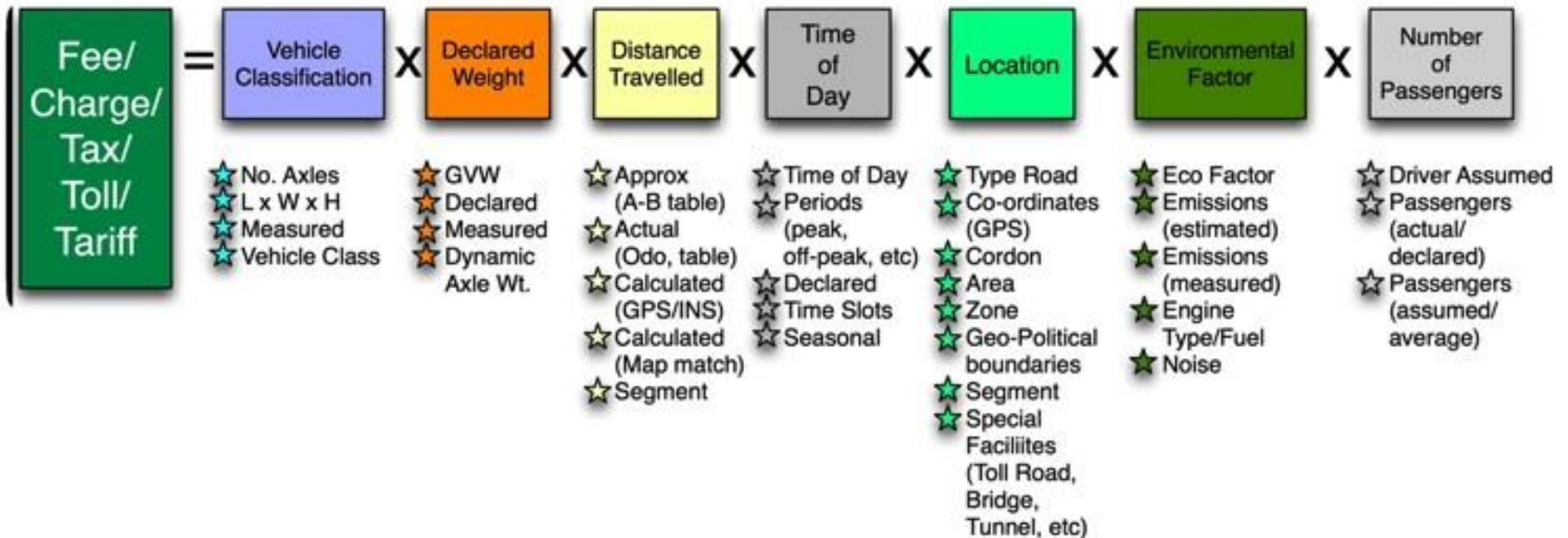


# There are many possible objectives, but some of those can conflict

- Revenue (where from, on what economic principles, what is it used for);
- Manage congestion (what standards of service, how dynamic);
- Economic efficiency (To reduce infrastructure costs, reduce vehicle operating costs, improve modal neutrality);
- Environment (Reduce noxious emissions? Reduce CO2? Enhance use of alternative fuels?);
- Safety (Use of intelligent transport systems, linkage to PAYD insurance).



# RUC Tariff can match Policy Objectives



**KISS — Keep It Simple Stupid ...**





# It isn't just about GPS

- Installation/replacement
- Customer service
- Communications
- Payment options, outlets
- Enforcement
- Map maintenance
- Offsetting other taxes
- Unequipped vehicles





# EXAMPLE: Mobile Payment Evolution

Metal token



Coins



Paper ticket



Carnet Tickets



Magnetic ticket



Mylar Magnetic ticket



Contact Smart Card



DSCR RW Transponder



Contactless Smart card

Blink Contactless Credit Cards



Blink Contactless Credit Cards



Smart token



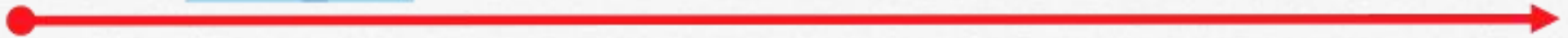
NFC Phone



Limited Use smart ticket



Low Usage (LU) smart ticket



1980

1990

2000

2010



# EXAMPLE: V2V & V2I will transform transport

## Government

### Communicaitons

- ▶ Communications

### Highway Departments

- ▶ Improved traffic management
- ▶ Improved safety

### Transit Industry

- ▶ Improved operations

### Freight Industry

- ▶ Increased efficiency

### Citizen Groups

- ▶ Equality

### Privacy Groups

- ▶ Privacy

### Insurance Providers

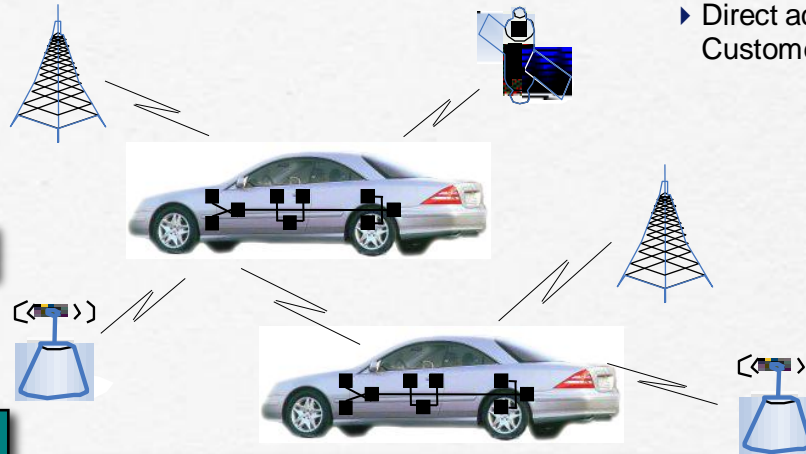
- ▶ Improved safety
- ▶ Lowered regulation costs
- ▶ Better customer data

## Customers

- ▶ Improved safety
- ▶ Improved mobility
- ▶ Commercial and consumer applications

## Vehicle Manufacturers

- ▶ Potential increased vehicle sales
- ▶ Additional service and device revenues
- ▶ Real-time vehicle data for improved service and reduced warranty costs
- ▶ Direct access to customer; improved Customer Relationship Management



## Service/Content/Application Providers

- ▶ Subscribers
- ▶ Service and hardware revenue
- ▶ Access to customer base

## Carriers

- ▶ Air time
- ▶ New subscribers
- ▶ Data services

## Automobile Dealers

- ▶ Sales of services and vehicles
- ▶ Marketing

## Hardware Suppliers

- ▶ Sales



# Open systems and architecture are the way of the future

- No clear advantages in proprietary systems in this context;
- Interoperability, let diversity of providers and suppliers meet needs of users as customers;
- Spread risk of customer service failure;
- Output driven procurement so private sector can innovate and manage risk;
- Platform of ITS architecture for other voluntary or mandatory applications (e.g. safety);
- 5.9 GHz provides a stepping stone.





## Transformational Thinking - Policy of Change

“We can't solve problems by using the same kind of thinking we used when we created them.”

Albert Einstein



# Thank you!

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