

# Traffic Data and VMT Pricing

A Framework for Evaluating System  
Requirements

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# Why VMT or Mileage-Based Pricing?

- **Revenue**
  - Fuel efficiency eroding revenues
- **System management and other policy objectives**
  - Congestion management
  - Environmental benefits
  - Impacts by user type
- **Cost allocation**
  - Allocate resources based on use

# Who is talking about it?



## NATIONAL

Transportation Research Board Fuel Tax Study  
(2006)

National Surface Transportation Policy and  
Revenue Commission (2007)

National Surface Transportation Infrastructure  
Financing Commission (2009)

## STATE

Oregon

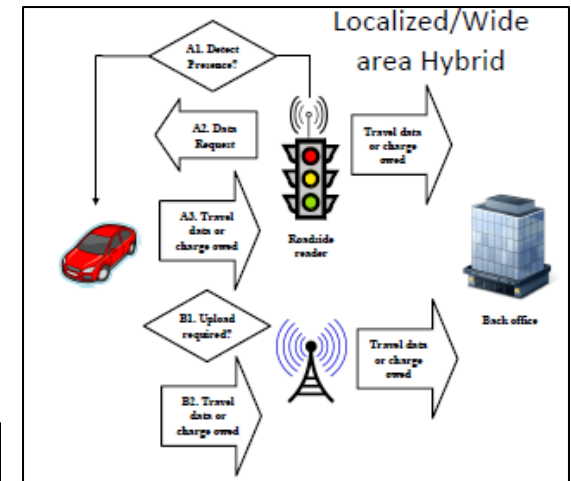
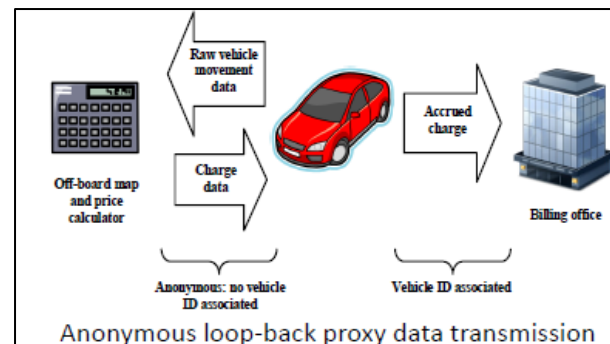
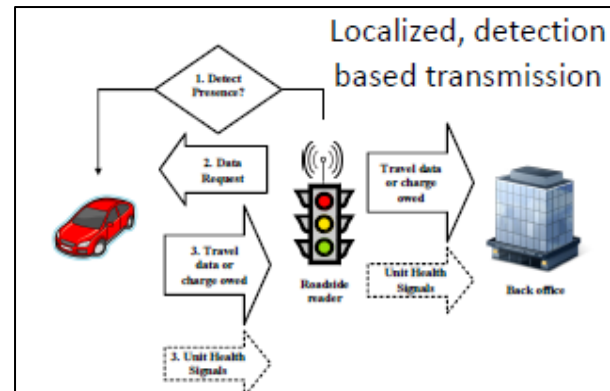
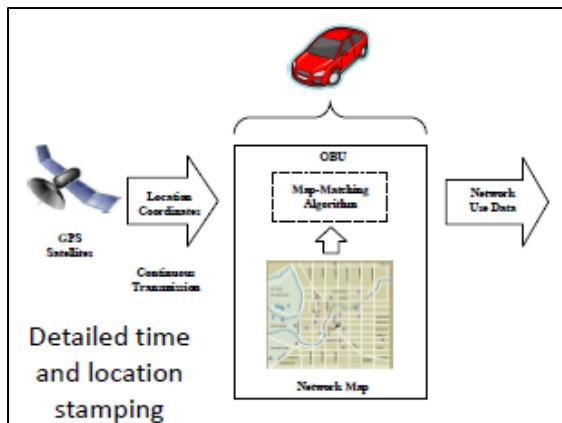
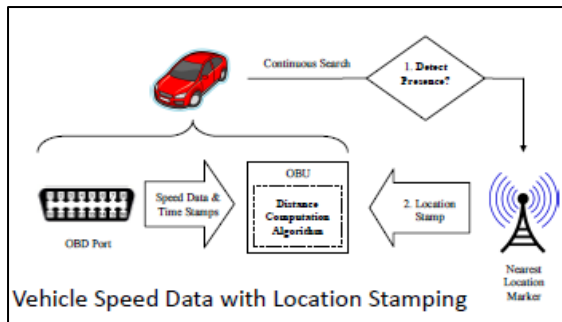
Minnesota

Nevada

Texas

I-95 Corridor Coalition

# There are many technology options and system configurations available for mileage fee implementation



but certain configurations are better at achieving certain policy goals.

# For example.....

Revenue Generation



*No information regarding time of travel and location is required*



## **Manual Odometer Reading**

- **Very strong privacy protection**
- **High level of distance measurement accuracy**
- **Low level of charge accuracy based on location**
- **Limited opportunity for use of data for planning and mobility applications**

Revenue Generation  
Revenue Reallocation  
Congestion Pricing



*Requires information on where travel is occurring and at what times of day*



## **GPS –based Charging**

- **Lower privacy protection**
- **Lower level of distance measurement accuracy**
- **High level of charge accuracy based on location**
- **Numerous potential data use opportunities**

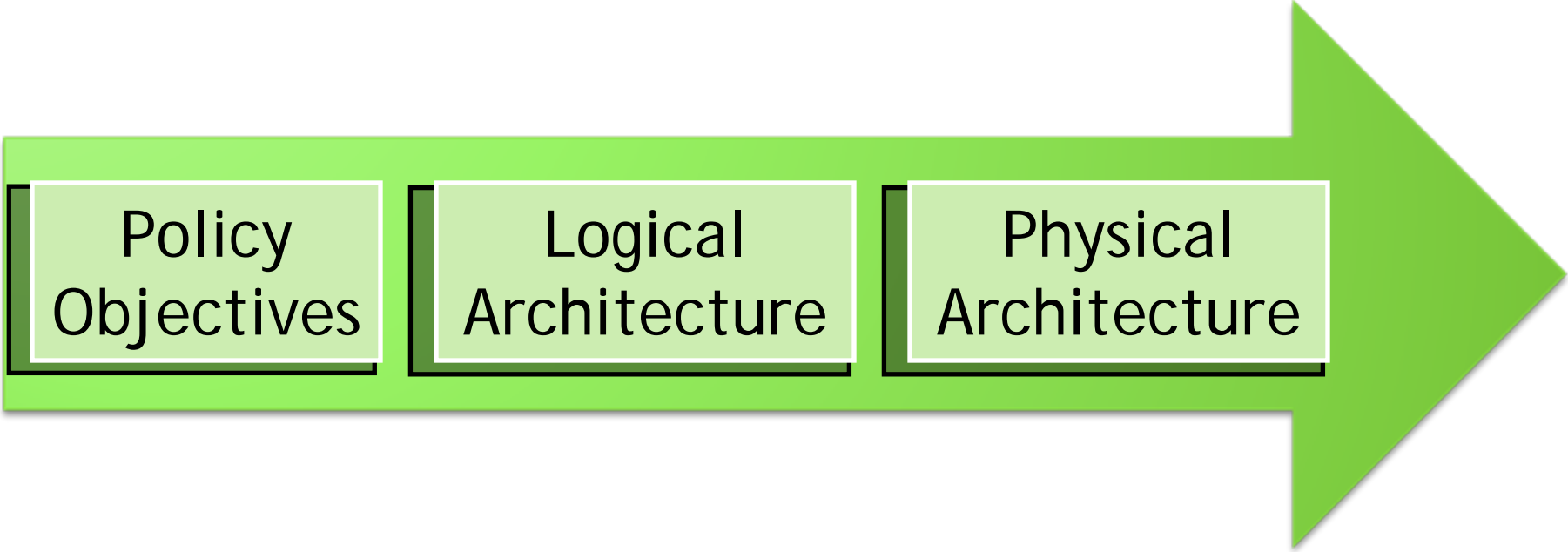
# Possible Policy Objectives

## **Possible Objectives**

- Revenue generation
  - Local retention of revenue
  - Revenue allocation by facility
  - Revenue allocation by vehicle type
- Congestion pricing
- Emissions pricing

## **Other System Characteristics**

- Driver privacy
- Fee accuracy (fairness)
- Administrative/operating costs
- Data security
- Enforcement
- User ability to audit charges
- Value-added services
  - Safety
  - Mobility
  - Parking
  - Insurance



Policy  
Objectives

Logical  
Architecture

Physical  
Architecture

# Logical Architecture

## *Conversion of data describing vehicular movement into a bill*

- 1. Roadway Use Assessment** - Collection of data describing vehicular movement
  - What raw data are collected?
  - What levels of temporal and spatial accuracy are needed?
- 2. Charge Computation** - Data processing to determine amount owed
  - Where are data processed?
  - What data may leave a vehicle?
  - Where are data stored?
- 3. Vehicle-to-back-office communication** - Transmission of data to compute fees or amount owed to a charge or billing
  - How often are data uploaded from vehicles?
  - What is the scale of data transmission?



## POTENTIAL VALUE-ADDED APPLICATIONS



Safety Applications	Mobility Applications	Personal Applications
In-vehicle signage	Travel time studies	Parking locator
Curve speed warning	Congestion pricing	Pay-as-you-drive insurance
Signal and stop sign violation warning	Planning studies	Personal navigation
Road and traffic condition warning	Routing assistance	Parking payment
Collision warning	Environmental mitigation	
	Real-time traffic information	

# Questions?

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