PUBLIC INVOLVEMENT AND ROAD USER CHARGE DEVELOPMENT:

OREGON'S EXPERIENCE

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ABSTRACT

In 2001, the Oregon Legislature created a Road User Fee Task Force with the charge to design a revenue collection strategy that can effectively replace the fuels tax in order to provide a long-term, stable source of funding for maintenance and improvement of Oregon's road system. The need to search for a fuel tax replacement stems from two causes. First, there is a growing perception that fuel taxes have little to do with road programs, and are therefore "just another tax." Second, the fuel economy of new vehicles is soon expected to dramatically improve. This will cause fuel tax revenue, along with road program funding, to plummet.

The Road User Fee Task Force and the Oregon Department of Transportation (ODOT) have jointly examined many ideas for replacing the fuels tax and analyzed many of the issues with potential replacements. As a result of work thus far, ODOT is pilot testing one potential concept for implementing a distance-based fee, which includes a distance-based congestion pricing component.

This has been a small, but high-profile, program. It's been managed in a very open manner, with a large amount of public outreach effort, considering the program's size. It has both supporters and opponents. Opponents' concerns are focused on privacy issues, the potential for rewarding the least fuel efficient vehicles, and the belief that distance-based fees would be in addition to the fuels tax, not a replacement. Early in this process, opponents were quite vocal. However, as ODOT continued to focus on the problems with fuel taxes, as ODOT and the Task Force specifically addressed opponents' concerns about distance-based fees, as hybrid-electric vehicle sales continue to rise, and as oil prices have risen dramatically, opposition has become almost silent.

ODOT's process, distance-based fee conclusions, and public involvement observations are detailed below.

PUBLIC INVOLVEMENT AND ROAD USER CHARGE DEVELOPMENT: OREGON'S EXPERIENCE

In 2001 the Oregon Legislature approved House Bill 3946, legislation that directed the Governor, Senate President and Speaker of the House to form a 12 member Road User Fee Task Force ("Task Force") with the charge to design a revenue collection strategy that can effectively replace the fuels tax in order to provide a long-term, stable source of funding for maintenance and improvement of Oregon's road system. The Task Force consists of legislators, city and county elected officials, members of the Oregon Transportation Commission, representatives of highway users, and a representative of the research community. The legislation also requires the Oregon Department of Transportation (ODOT) to staff the Task Force and to develop, design, implement and evaluate pilot programs to test fuels tax alternatives identified by the Task Force.

The mission of the Task Force is:

> To develop a revenue-collection design funded through user pay methods, acceptable and visible to the public, that ensures a flow of revenue sufficient to annually maintain, preserve and improve Oregon's state, county and city highway and road system.[1]

The Task Force recognizes that its mission should not include making recommendations on the level of funding for the road system but rather address the replacement of current revenue mechanisms, such as the fuels tax, that will be less effective revenue sources in the future.

By itself, the creation of a high-level public Task Force is a major component of public involvement. The Task Force is highly visible and deliberately seeks out public comment on road user charge development. This takes the form of official public hearings, providing a place to receive comments, and, through staff, providing a question and answer forum.

Problem Statement

In 2005, fully 80 percent of Oregon's road revenues depended either directly or indirectly on fuel taxes. This key revenue source, however, is in increasing peril. Historically, Americans have viewed fuel taxes as a fee for use of public roads. Unfortunately, there is a growing perception among members of the public and legislators that fuel taxes have little to do with road programs and therefore should be considered "just another form of taxation." By itself, this situation appears to be preventing any increases in fuel tax rates from being put into effect.

The other problem is that fuel tax revenue is dependent on consumption of fuel. In the next ten years, fuel economy of new vehicles is expected to dramatically improve. On a per vehicle-mile or per vehicle-kilometer basis, this will cause fuel tax revenue to plummet.

Indeed, this has already happened. By 2003, fuels tax revenue in "cents per vehicle-mile traveled" (in real terms) had *declined by half* since 1970. The fuels tax is failing the purpose for which it was originally intended – funding the construction, operation and

[1] Road User Fee Task Force Minutes, March 8, 2002

maintenance of Oregon's road system. The existing funding gap will be compounded by rapidly developing fuel efficiency improvements for conventional vehicles, market penetration of innovative vehicle technology and the development of non-gasoline fuel sources.

A Brief History of Oregon Road Finance

It is worthwhile to note that Oregon was a leader in road finance innovation during America's first years of modern road-building enterprise. The mileage fee program recommended by ODOT and the Road User Fee Task Force offers an opportunity for reasserting that quality of innovation into the 21st century.

1917 to 1982: Fuels taxes Finance Construction of Oregon's Highway System
Oregon enacted the nation's first fuels tax on gasoline in 1919. Build-out of the first Oregon Highway Plan provided the motivation for this new tax and several early rate increases.

1970 to 1981: Rampant Inflation Disrupts Road Purchasing Capability
Rampant inflation during the 1970s and early 1980s had a deleterious effect on road revenues. By 1981, increasing road costs had seriously eroded the buying power of fuels tax revenues. At great risk was Oregon's ability to maintain its roads and add capacity for increasing numbers of Oregonians who were driving more miles every year. Notwithstanding the deepening crisis, voters rejected fuels tax increases in 1976, 1978, 1980 and 1982.

1980s: Fuel Efficiency Reduces Gasoline Purchases and Fuels tax Revenues
While inflationary pressures continued to erode the purchasing power of the fuels tax throughout the 1980s, a new problem emerged that had an equally negative impact on available fuel-tax dollars. Owing to dramatic increases in gasoline prices, motorists sought and purchased more fuel-efficient motor vehicles. The improved statewide fleet fuel efficiency caused a proportionate reduction in gasoline purchases and, correspondingly, fuels tax revenues.

1983 to 1991: Legislature Responds to Road Revenue Crisis
Notwithstanding voter rejection of ballot measures for fuels tax increases, the Legislative Assembly sought to resolve the deepening road funding crisis by enacting fuels tax increases every session from 1981 through 1991. By 1993, the state fuels tax on gasoline was 24 cents per gallon.

Post 1993: Fuels tax Rate Stalls
The new road dollars flowing from gasoline tax rate increases enacted prior to 1993 allowed a limited road modernization program in the early 1990s. By the late 1990s, however, inflation, increasing statewide fleet fuel efficiency, and a stagnant fuels tax rate eroded road revenues enough for the governor to mandate a maintenance-only policy. In 1999 the voters rejected a fuels tax increase. The fuels tax has not increased in over 13 years.

Post 2000: Creation of the Road User Fee Task Force

Recognizing the impending problem with long-term highway funding, the 2001 Oregon Legislative Assembly created the Road User Fee Task Force to study alternatives to the current system of taxing highway use through fuels taxes, gather public comment on the alternative approaches, and make recommendations for an alternative design for revenue collection to support Oregon's roads and highways to the Department of Transportation (ODOT).

The Task Force met nine times from late 2001 through early 2003. During this time it:

- Established criteria for evaluating potential new revenue sources
- Recommended the adoption of several funding methods
- Deliberately chose not to pursue many other funding methods
- Developed criteria for configuring a mileage fee
- Resolved many critical issues related to mileage fees and congestion pricing.

These were reported to the Legislature in early 2003, and are summarized below.

Criteria for New Revenue Sources

The Task Force made the following policy choices for criteria for the new revenue sources comprising the recommended new revenue system design.

- **Users Pay.** Any new revenue system should be founded upon user pay methods that are directly related to providing road infrastructure and services. The Task Force had considerable discussion and debate over the issue of, "Who is a user?" Some Task Force members viewed users strictly as those traveling on the roads and streets they use. Others took a broader view that a motorist desiring the availability of a road to a distant locale is a user of that distant facility as well, although the motorist may rarely travel on that road. The Task Force was unable to reach consensus on the definition of user.

- **Local Government Sources.** Revenue sources that are traditionally and primarily the province of local governments should not be usurped by the state.

- **Revenue Sufficiency.** The sources comprising the new revenue system must collectively have the ability to raise revenue sufficient to ultimately replace the fuel tax as the primary revenue source for Oregon roads.

- **Transparent to the Public.** A new revenue source should be visible to the payers and should not be confusing. The public should know how much they pay in taxes or fees under any new revenue source. The public also should understand how the new revenue source is calculated.

- **Non-Governmental Burden.** A new revenue source should not impose substantial financial burdens on taxpayers or the private sector involved with tax or data collection.

- **Enforceability.** A new revenue source must be enforceable to ensure tax evasion is not substantial.

- **Support Entire Highway and Road System.** A new revenue source should be designed to support the operation, maintenance and preservation of the highway and road system for the state, cities and counties in all parts of the state, as the fuel tax does today.

- **Public Acceptability.** A new revenue source should be acceptable to the public.

Task Force Solutions

The Road User Fee Task Force recommended four market-based user fees as the fairest and most stable replacements to the gasoline tax:

- **Mileage Fee (Distance Charge or Vehicle Miles Traveled Fee (VMT)).** A distance-traveled charge imposed according to the amount a vehicle owner/operator uses the road system. The Task Force considers a mileage fee to be the principal general revenue source for a new system that would ultimately replace the fuel tax.

- **Congestion Pricing (Value or Peak-Period Pricing).** Charging the owner/operator of a motor vehicle a fee for using certain roadways during periods of high congestion. This can be accomplished either through an independent electronic system using roadside readers or as a rate adjustment to a mileage fee for time of day travel in specific geographic areas where congestion prevails.

- **New Facility Tolling.** Tolling any new road, bridge or extended lane, to the extent practicable, for construction, maintenance and operation.

- **Studded Tire Use Fee.** Charging owner/operators of motor vehicles using studded tires for the damage caused to road pavement that is directly related to studded tire use.

Comments at Task Force meetings and public hearings indicate a measure of public support for these revenue sources, although opposing comments were made as well. Opposition appears to result not from opposition to the potential revenue sources themselves but rather from a preference for the existing fuel taxes on gasoline and a lack of understanding of the inability of fuel taxes to remain sustainable into the future.

In addition, the Task Force chose not to pursue 24 other possible road finance mechanisms identified by staff, Task Force members, ODOT employees, legislators and members of the public.

	Revenue Source	Principal Reason Not Developed
1	General Fund	Not user fee
2	Battery tax	Insufficient revenue
3	Bicycle fees	Insufficient revenue
4	Drive-through service fee	Imprecise user fee
5	Electricity generated by vehicle tax	Imprecise user fee
6	Emissions fee	Imprecise user fee
7	Indexing fuel tax for inflation	Imprecise user fee
8	Indexing fuel tax for fuel-efficiency improvements	Imprecise user fee
9	New vehicle tax	Not user fee
10	Parking fees	Local government source
11	Property taxes	Not user fee
12	Registration fees	Not user fee
13	Rental car tax	Imprecise user fee
14	Road utility fees	Local government source
15	Safety violation fee	Not user fee
16	System development charges	Not user fee / Local government source
17	Temporary visitor access fee	Insufficient revenue / Constitutional constraints
18	Tire tax	Insufficient revenue
19	Title fees	Not user fee
20	Transportation impact fee	Local government source
21	Use-fuel taxes increase	Not reliable / Imprecise user fee
22	Vehicle impact fee	Not user fee
23	Vehicle ownership tax	Not user fee
24	Weight-mile truck tax increase	Already precise user fee in Oregon

Criteria for Developing a Mileage Fee

The Task Force recommended the configuration of a mileage fee be developed according to the following criteria:

- **Accuracy.** The configuration of any mileage fee mechanism should facilitate accurate determination of distance traveled.

- **Reliability, Security and Technological Feasibility.** The technology used for a mileage fee must be reliable, secure and technologically feasible.

- **Minimal Evasion Potential.** The configuration of any mileage fee mechanism should allow minimal opportunities for evasion or fraud.

- **No Charge for Mileage Driven Outside Oregon.** A mileage fee should not apply to mileage traveled by Oregonians outside the borders of Oregon.

- **Minimal Burden on Private Sector.** Required capital expenditures and the costs of collection for a mileage fee should minimally burden the private sector.

- **Affordability.** Any new mileage fee system should be affordable in comparison with the existing fuel tax collection system.

- **Seamless Transition.** Transition to a mileage fee should be essentially seamless, with no more than an incidental loss of fuel tax revenue.

- **Privacy.** Oregonians must be assured the technology used for any mileage fee would not have the ability to be used to violate the level of privacy expected by the general public.

- **Cost of Administration.** Operating costs for administration of a mileage fee should not be a substantial percentage of the revenue raised.

Task Force Issues and Conclusions

Through a deliberative process, the Task Force resolved many critical issues. The issues and Task Force conclusions from the 2003 Legislative Report are summarized below.[2]

Issue: Choice of Technologies

The technology configuration implemented must be reliable, secure, feasible and interoperable with the other technology components.

[2] The 2003 Legislative Report can be accessed at http://www.oregon.gov/ODOT/HWY/OIPP/ruftf_reports.shtml.

Task Force Conclusion: *The GPS device and the AVI with odometer tag device, both combined with radio frequency mileage data transmission, offer the most functional and reliable technology upon which to base a mileage fee. The Task Force rejected the "paper and pencil" method as administratively cost prohibitive to operate and likely to lead to widespread evasion and a highly inaccurate assessment of in-state mileage. The Task Force rejected electronic hub odometers as less effective than GPS and odometer tags and unable to support congestion pricing. The Task Force is wary of cellular transmission of data because of identified concerns about the security of transmissions, public sensitivity to the potential for invasion of privacy and substantial annual operating costs compared to other transmission options. The Task Force also rejected AVL for similar reasons.*

Note: Subsequent to this Task Force Conclusion in the 2003 Legislative Report, ODOT learned from the researchers at Oregon State University that the GPS device and the AVI odometer tag device could be combined into one hybrid device for access to the advantages of both. The combined device is the one tested in the Road User Fee Pilot Program.

Issue: Expense of Retrofitting

The expense of retrofitting vehicles already in use makes certain technology options cost prohibitive to implement over a short time frame.

Task Force Conclusion: *Retrofitting GPS devices into every Oregon passenger vehicle is currently cost prohibitive over a short time frame. Retrofitting independent AVI devices is affordable, but these devices have limited application. Retrofitting odometer tag devices is somewhat more affordable than GPS.*

Issue: Phasing

A mileage fee system must be phased in over a fairly lengthy period. Logistical considerations alone indicate the practical impossibility of implementing any new system within one biennium. The cost of retrofitting electronic devices to collect and transmit mileage data can be managed in several ways.

Task Force Conclusion: *The Task Force recommends application of a mileage fee only to new or newly registered vehicles. This will require a mandate for the new vehicles to enter Oregon properly equipped with the necessary technology and for the newly registered vehicles to be retrofitted with the necessary technology. The Task Force does not recommend application of a mileage fee to in-use vehicles other than vehicles imported into Oregon. The mileage fee would apply only to vehicles containing the necessary technology. The Task Force accepts a phase-in period for a mileage fee, possibly 20 or more years, as a practical necessity.*

Issue: Retention of the Fuels Tax

During any phase-in period for a mileage fee, it would be necessary for the state to retain both the fuel tax and the mileage fee to ensure that vehicles without the necessary technology continue to pay their share of road taxes, including out-of-state users. It may be necessary to retain the fuel tax beyond the phase-in period for out-of-state users for any state that has not transitioned to a mileage fee similar to Oregon's.

Task Force Conclusion: *The mileage fee would apply only to vehicles containing the necessary technology. The fuels tax would apply to vehicles without the necessary mileage fee technology. The fuel tax would apply to out-of-state vehicles until a nationwide interstate compact is adopted to manage the issue of taxing mileage for interstate travel.*

Issue: Crediting or Refund of Fuel Tax Paid

During a phase-in period, it may prove functionally impracticable to avoid collecting both a fuel tax and a mileage fee from the same owner/operator of a vehicle. Other owner/operators will pay only the fuel tax. A credit of either the fuel tax against the mileage fee, or vice versa, or against another tax or fee (such as registration fee or income tax), would be necessary to avoid double taxation and unequal treatment compared to those paying only the fuel tax. Cash reimbursement of fuel tax paid is another possibility to ensure that double taxation does not occur.

Task Force Conclusion: *No owner/operator of a passenger vehicle in Oregon should be assessed both a fuel tax and the mileage fee without receiving a tax credit for one. Although it may prove functionally difficult to avoid actual payment of both for a period of time, mileage fee payers should be eligible for a tax credit of any fuel tax paid.*

Note: Subsequent to this Task Force Conclusion in the 2003 Legislative Report, ODOT learned that application of an administrative system for fee collection at fueling stations, called "Vehicle Miles Collects At Retail (VMTCAR)," would allow establishment of a way to collect either a mileage fee of a fuel tax from an owner/operator of the same vehicle without paying both. (See Description of VMTCAR below.)

Issue: Capital Costs of Implementation

A mileage fee will require significant capital expenditures beyond retrofitting, however configured.

Task Force Conclusion: *The capital costs of retrofitting data collection and transmission technology for a mileage fee into the entire population of in-use vehicles are currently prohibitive, notwithstanding the technology choice made, without raising the base fee rate to unacceptable levels. The Task Force is therefore unlikely to ultimately recommend retrofitting of in-use vehicles with the necessary technology.*

Issue: Administrative Overhead Costs

Depending upon the scenario selected for a mileage fee, the administrative costs of operation could be significant.

Task Force Conclusion: *Centralized data and fee collection, whether private or public, may be cost prohibitive unless ways are found to reduce costs to acceptable levels. For this reason, the Task Force will continue to investigate ways to reduce the administrative cost of collection centers while focusing more intensively on data and fee collection at fueling stations.*

Note: Subsequent to this Task Force Conclusion in the 2003 Legislative Report, ODOT and the Task Force determined that application of an administrative system for fee collection at fueling stations, called "Vehicle Miles Collects At Retail (VMTCAR)," is the most efficient and cost effective collection system for the mileage fee. (See Description of VMTCAR below.)

Issue: Public versus Private Administration

A mileage fee could be administered either through an existing private collection mechanism (for example, payment at fueling stations), an existing government collection mechanism (for example, DMV registration fees), a new government collection mechanism or a new private collection mechanism.

Task Force Conclusion: *A private fee collection mechanism (e.g., payment at fueling stations) is viewed as likely to be the most cost effective and administratively efficient mileage fee collection system.*

Note: Subsequent to this Task Force Conclusion in the 2003 Legislative Report, ODOT and the Task Force determined that application of an administrative system for fee collection at fueling stations, called "Vehicle Miles Collects At Retail (VMTCAR)," is the most efficient and cost effective collection system for the mileage fee. (See Description of VMTCAR below.)

Issue: Privacy (and Public Acceptance)

Some Oregon citizens are uncomfortable with a government or other entity having the ability to follow vehicle movement either in real time or from a travel history.

Task Force Conclusion: *To provide technological safeguards to Oregonians, the Task Force recommends only the transmission of summary mileage data and not transmission of continuous vehicle locations. The Task Force also recommends transmission via radio frequency intermittently over only a few feet to local readers. The Task Force rejects transmission of data via cellular technology over a wider area. The Task Force also recommends legal safeguards be built in to any GPS-based mileage fee to prevent anyone other than the vehicle owner/operator from knowing the vehicle's movements without the consent of the vehicle owner/operator.*

Issue: Transparency vis-à-vis Ease (and Public Acceptance)

A natural tension exists between twin goals of having a mileage fee that is obvious to the payer and easy to pay. Payment of a mileage fee at the fueling stations with a credit of fuel tax paid would facilitate transition to a mileage fee. Vehicle operators would not have to change travel patterns or payment methods. On the other hand, paying at the fuel pump hampers both visibility of the fee payment and recognition of the mileage driven and fee amount paid. For fee collection other than at fueling stations, the effect is the opposite. Non-fueling station collection requires a change in payment habits but tends to reveal the mileage driven and the fee amount paid for those miles.

> ***Task Force Conclusion:*** *The Task Force values the goals of visibility and ease of payment equally.*

> Note: Subsequent to this Task Force Conclusion in the 2003 Legislative Report, ODOT and the Task Force determined that application of an administrative for fee collection at fueling stations, called "Vehicle Miles Collects At Retail (VMTCAR)," achieves both the goals of visibility and ease of payment. (See Description of VMTCAR below.)

Issue: Enforcement

The ability to ensure payment of a mileage fee varies depending upon configuration. For context, approximately 200 gasoline distributors pay the current tax on gasoline in Oregon, resulting in very low enforcement costs and low tax evasion. By contrast, payment of a mileage fee at an independent collection center or DMV depends upon payment by several million owner/operators of passenger vehicles, thus potentially increasing enforcement costs and rate of evasion. Conversely, payment of the mileage fee at fueling stations would generally facilitate few challenges to enforcement because enforcement of the mileage fee could be integrated with payment for fuel. (This would not be the case if the point of fuel taxation shifts to the fueling stations from fuel distributors.) Non-fueling station payment could be aided through assessment of traffic fines for nonpayment or use of the private debt collection system, such as debt collection agencies, private judgments and property levies.

> ***Task Force Conclusion:*** *For collection through an independent center or DMV, an effective enforcement program could be developed through assessment of traffic fines and access to the private debt collection system, such as debt collection agencies, private judgments and property levies. Alternatively, problematic enforcement issues could be avoided through collection of the mileage fee at fueling stations as part of the fuel purchase.*

> Note: Subsequent to this Task Force Conclusion in the 2003 Legislative Report, ODOT and the Task Force determined that application of an administrative system for fee collection at fueling stations, called "Vehicle Miles Collects At Retail (VMTCAR)," is the best way to resolve enforcement issues relating to the mileage fee. (See Description of VMTCAR below.)

Issue: Base Rate Overlays

The base rate for the mileage fee can be adjusted to take into account factors other than raising revenue such as congestion pricing, fuel economy, and geographic location.

> ***Task Force Conclusions:*** *For purposes of simplicity, a mileage fee should not be complicated with rate adjustments for factors other than generation of revenue. An exception should be made for variable pricing of congested areas to enable efficient system management and provide revenue for modernization. Other rate overlays suggested by commentators are considered to be outside the charge of the Task Force.*

Issue: Base Rate Adjustments

The base rate for a mileage fee, on a revenue-neutral basis compared to fuel tax revenues, would be 1.2 cents per mile in 2004 dollars. (The 1.2 cents per mile figure is calculated by dividing the current fuel tax of 24 cents per gallon by the 2004 average vehicle's fuel efficiency of 20 miles per gallon.) Whether to index the base rate to adjust for inflation is a major policy issue. In addition, the method of recovering capital and administrative costs needs to be determined.

> ***Task Force Conclusion:*** *The Task Force has determined that an automatic road-costs increase adjustment to the base rate of a mileage fee is outside the scope of the Task Force work. The Task Force recommends that a base rate for a mileage fee should be sufficiently high to allow for the necessary increased administrative cost of a new revenue source, including recovery of capitalized expenditures, and maintenance of the current level of revenues available for roads under the fuel tax.*

Issue: Difference Between Fuels Tax and Mileage Fee Payments

Under a flat mileage fee rate, containing no rate adjustments, some vehicles would be advantaged in comparison with fuel tax payments and others would be disadvantaged. Typically, passenger vehicles obtaining higher than average mileage per gallon would be disadvantaged in relation to their fuel tax payments. Operators of vehicles with high miles per gallon would pay more annually under a mileage fee than under the fuel tax. On the other hand, less fuel-efficient passenger vehicles would be advantaged under a mileage fee. Operators of vehicles with low mileage per gallon would pay less annually under a mileage fee than under the fuel tax.

> ***Task Force Conclusion:*** *This is a legislative issue.*

Congestion Pricing Issues and Conclusions

Issue: Appropriateness and Support

Economists have long identified congestion pricing (or value or peak-period pricing) as the best way to spread out usage of congested roadways and pay for capacity improvements to road systems. Despite advantages, roadways using variable pricing are a rarity in the United States, although they are more common than a decade ago. Multiple reasons exist for the failure to adopt congestion pricing in the past, including high infrastructure cost, inadequate technology (until recently) and lack of public support.

> ***Task Force Conclusion:*** *Congestion pricing is appropriate for certain Oregon urban areas. Cost and technology are no longer impediments. Public support may be forthcoming after explanation of benefits.*

Issue: Application to a Mileage Fee

Congestion pricing can be implemented either as a rate adjustment to a general system-wide road-funding mechanism or as a stand-alone mechanism.

> ***Task Force Conclusion:*** *Congestion pricing can be implemented at minimal expense to government, private sector and motorists as part of a rate adjustment to a mileage fee. Alternatively, a stand-alone pricing mechanism is not dependent upon connection to a mileage fee.*

Issue: Manner of Pricing

Congestion pricing can be implemented as a rate adjustment to a system-wide road-charging mechanism or as a separate stand-alone charge for a specific facility. The manner in which congestion pricing is implemented depends upon the type of technology selected to put in place, both in the vehicle and along the road, and the type of pricing preferred by policy-makers. These factors heavily influence one another.

There are four basic ways to vary pricing:

- **Area pricing** involves charging within a defined geography without specification or discrimination for a particular roadway or street because all routes are priced the same per mile traveled during the same periods. This type of pricing is dependent upon GPS-based systems.

- **Cordon pricing** involves charging for access to a particular location when crossing a boundary line. This type of pricing can be implemented using either GPS-based systems, AVI devices or license plate recognition systems.

- **Facility pricing** involves charging for access to a particular facility (such as high-occupancy/toll, or HOT, lane or bridge), and pricing can vary dynamically with actual roadway conditions. This type of pricing is generally dependent upon AVI devices for implementation.

- **Network pricing** involves charging variable tolls for a whole freeway system in an urban area with the potential for price differentiation depending upon the nature of each freeway. This type of pricing requires an extensive application of AVI technologies.

Task Force Conclusion: *Area pricing is the most viable strategy from an operational and cost-effectiveness standpoint because of the configuration of the local geography and current road system and the land use polices of Oregon. Area pricing is feasible for GPS mileage-data gathering technology and theoretically for other data-gathering technologies.*

Issue: Pricing Technology

Choice of technology determines the type of congestion pricing that can be implemented. For example, a "complex" GPS-based system enables peak-hour pricing by specific highway or street segment, thus having the flexibility for implementation of any of the four basic pricing scenarios. On the other hand, a "simple" GPS-based system will allow implementation of peak-hour pricing only by area and covers primary routes and side roads and streets equally. An AVI-based system is more limited and capital intensive because hardware must be installed along each road priced, but AVI technology still permits facility pricing and network pricing through mechanisms such as freeway pricing, queue-jumping at on-ramps, bridge pricing and spot tolling, all by time of day. Other technologies may exist that would allow implementation of peak-hour pricing by area.

> ***Task Force Conclusion:*** *A simple GPS-based mileage fee system would allow effective congestion pricing through peak-hour pricing by area. Alternatively, a simple AVI-based mileage fee would allow effective congestion pricing for particular facilities but not for a defined area.*

Issue: Phase-In of Congestion Pricing

There are constitutional impediments to applying congestion pricing to only a portion of the passenger vehicles using a priced roadway.

> ***Task Force Conclusion:*** *Congestion pricing could not be applied in Oregon under area pricing or cordon pricing strategies until after a mileage fee is fully phased in. Facility pricing could be implemented during a phase-in period without legal impediment.*

Issue: Allocation of Congestion Pricing Funds

There are four basic options for allocation of funds generated from congestion pricing:

- Allocate congestion pricing revenue to the State Highway Fund.
- Allocate congestion pricing revenue according to the jurisdictions responsible for modernizing the particular roadways generating the revenue.
- Earmark congestion pricing revenue for a particular roadway.
- Earmark congestion pricing revenue by categories of roadways generating the revenue.

Task Force Conclusion: *All funds generated from congestion pricing within a specific area should be allocated to the modernization of the roads within the area based on VMT estimates by jurisdiction. Alternatively, all funds generated from a particular facility should be allocated to the modernization of the particular corridor parallel to and including the facility.*

Task Force Summary: *The Task Force prefers that the design configuration for a congestion pricing system be configured as a rate adjustment to a mileage fee in an area pricing format. The funds generated should be allocated by jurisdiction based on estimated VMT data and dedicated to modernization.*

MILEAGE FEE CONCEPT DEVELOPMENT

Development of Policy Guidelines

Following the criteria established by the Road User Fee Task Force for development of the mileage fee and in accordance with the Task Force conclusions described above, the Task Force and ODOT collaborated to refine a set of policy-based design features for a new mileage fee system. These design features were developed in an iterative process of data collection, analysis, policy development and evaluation. They reflect input from industry and public sector experts as well as public sentiments and concerns obtained during an ongoing public involvement effort. The policy recommendations described in this section often address multiple issues simultaneously, or issues that are by nature multidisciplinary—affecting mobility, citizens' rights and fiscal responsibility in ways that must integrate theoretical and practical concerns sensibly in any ultimate system deployment.

ODOT contracted with research consultants from Oregon State University and Portland State University to examine alternative policy and technology options to support a mileage fee system. ODOT staff and the Task Force reviewed a number of reports and presentations, the most important of which are listed at **http://www.oregon.gov/ODOT/HWY/OIPP/ruftf.shtml.** These technical reports and related ODOT policy analysis generated discussion, debate and consensus on a set of refinements to the Oregon mileage fee concept.

Under the Oregon mileage fee concept, upon statewide implementation of a mileage fee within the state, all passenger vehicles equipped with the necessary technology would pay a per-mile charge in lieu of the gasoline tax during a gradual phase-in period of up to two decades. Oregon's weight-distance tax would be retained for heavy trucks. As designed, the Oregon mileage fee concept could support imposition of congestion pricing fees without additional technology infrastructure or alternative system design. As policy possibilities, however, the mileage fee and congestion pricing fees can be considered separately.

Public Input to Policy Guidelines

A major pathway for public input and for introduction of public concerns and preferences came from ongoing interaction of the Task Force members with their individual constituencies and the public as members discussed pertinent policy issues. The Task Force and ODOT also engaged in a public involvement effort, the results of which are described in the 2003 Legislative Report. ODOT continues to respond to all written and electronic correspondence submitted by the public on the development of the mileage fee concept and associated pilot program. The Task Force receives copies of all of ODOT's written and electronic correspondence with members of the public as well as media reports. Comments submitted by members of the public and media reports were substantial, many of which originated outside the borders of Oregon.

Fee Collection Policy

There are two basic possibilities for electronic collection of the mileage fee.

- Centralized Collection. This requires mileage data uploading to a central data and fee collection center for fee calculation and periodic billings to owners of passenger vehicles using Oregon's road system.

- Collection at Fueling Stations. Mileage data is uploaded to fuel pumping stations for fee calculation and payment as part of the fuel purchase transaction.

Focusing on creating a new system that would be easy to use, cost effective to operate and acceptable to the motoring public, ODOT noted several structural issues with the mileage fee collection scenarios requiring resolution.

1. Cost of Start-up and Operations. While customer service centers are quite common for tolling operations, the cost of setting up and operating a statewide centralized collection operation is cost prohibitive when compared to the current cost of collection for the fuel tax on gasoline. The annual costs of centralized fee collection are likely to exceed $50 million. These high costs primarily relate to data processing and bill collection activities. In its 2003 Legislative Report, the Task Force made this finding from an ODOT assessment detailing the various costs for six potential collection scenarios.[3] Thus, centralized collection failed to meet one objective of the Task Force – that the new system be affordable.

   Collection at the fuel pump results in low operational costs because fee payment can be electronically embedded into the fuel purchase price transaction. No expenses related to monthly billings and bill collection activities are required. Collection at the fuel pump is estimated to have operating costs of about $1.6 million per year.

2. Collection Enforcement. One systemic problem with centralized collection is determining a consequence for a motorist's failure to pay the monthly billings. Without a consequence for non-payment, many motorists will not pay the periodic billing. While the mileage fee, in essence, is a usage fee that turns the road system into a public utility, there is no way to efficiently and effectively "turn off" access to the roads for non-payment as can occur for failure to pay one's water, electricity or natural gas bill.

   While it has been suggested that prohibiting re-registration of the non-payer's vehicle could operate as the necessary consequence, there are two major problems with this approach. One, a significant percentage of American motorists already operate motor vehicles without appropriate registration. Losing revenue from a significant percentage of the motoring public would require either depleted revenue to the state or an unacceptable increase in the mileage fee rate to cover the loss. Thus, this manner of consequence is not particularly effective.

[3] The 2003 Legislative Report can be accessed at http://www.oregon.gov/ODOT/HWY/OIPP/ruftf_reports.shtml. See Appendices M, N, O, W and X.

Collection at the fuel pump does not have systematic collection enforcement issues because the mileage fee payment is embedded into the fuel purchase price transaction. One pays the mileage fee bill along with the fuel price bill. This is similar to how the current fuel tax bill is paid by the motorist.

3. Ease of Use by Motoring Public. The prospect of managing the acceptability of change is a substantial challenge in developing a mileage fee system. ODOT determined that the public would be more likely to accept the mileage fee if asked to do only one thing differently compared to payment under the current fuel tax collection system. This led to collection at the fuel pump where the only change is the nature of the amount paid. Otherwise, the behavior required to pay the mileage fee at the fuel pump is no different from payment of the fuel tax at the fuel pump. Centralized collection, however, is riddled with behavioral changes required for payment and thus less likely to be accepted by the motoring public.

4. Integration with Current Fuel Tax Collection System. This integration became important once the Task Force reached two conclusions: (1) the mileage fee should be phased in over an extensive period of years to enable the appropriate technology to become embedded over time into the statewide automobile fleet, and (2) no user should pay both the fuel tax and the mileage fee.

   Centralized collection has the advantage of separation from the fuel tax collection system during the long phase-in transition (and would thus have no integration problems) but would require establishment of a tax credit for mileage fee payers who also pay the fuel tax at the pump to assure no double taxation. Applying the fuel tax credit would require another action on the part of the taxpayer, either mailing an application for reimbursement or a claiming a credit against another revenue element such as the income tax or the automobile registration fee. This added complexity and related likely motorist confusion are significant disadvantages to centralized collection.

   The manner of collection at the fuel pump ultimately preferred by the Task Force – Vehicle Miles Traveled Collected At Retail (VMTCAR) – was not one of the six collection scenarios evaluated by the Task Force in its 2003 Legislative Report. Rather, ODOT developed VMTCAR in response to the structural problems with integrating the mileage fee collection with fuel tax collection. Through innovative applications of existing technology, VMTCAR solves all integration issues and does not require a fuel tax credit because electronic collection at the fuel pump determines whether the motorist pays the mileage fee or the fuel tax. A more extensive description of VMTCAR and its advantages are presented below.

Linking Policy Decisions to Mileage System Features

Table 1 shows how the policy objectives established by the Task Force relate to, and are addressed by, the technical and institutional components of a design framework for the Oregon mileage fee concept. ODOT has developed a pilot program to precisely test the critical elements of the Oregon mileage fee concept in real world circumstances.

As set forth in the 2005 Legislative Report, a distance traveled charge collected at the fuel pump can be developed in many ways other than the Oregon Mileage Fee Concept described in Table 1.[4] The Task Force and ODOT have examined the various distance-based fee alternatives and believe the Oregon Mileage Fee Concept to be the superior model.

[4] The 2005 Legislative Report can be accessed at http://www.oregon.gov/ODOT/HWY/OIPP/ruftf_reports.shtml.

Table 1: How Mileage Fee System Features Support Policy Framework

How the Mileage Fee System Works (Key Technical, Operational and Administrative Features)	Related Elements of Oregon Policy Framework
HOW DOES THE NEW MILEAGE FEE SYSTEM ENSURE THAT EVERYONE PAYS FAIRLY FOR OREGON'S ROADS? WHAT ABOUT OUT-OF-STATE VEHICLES?	
All Motorists Will Contribute to Oregon's Roads. Upon statewide implementation of the mileage fee system, all vehicle miles traveled (VMT) within the state will be assessed a per-mile charge in lieu of the fuel tax. A mileage fee will be collected from motorists operating new vehicles equipped with manufacturer-installed instruments that meet prescribed specifications. Motorists with older vehicles will continue to pay the fuels tax at the pump. Thus, in order to purchase fuel, all motorists (except heavy trucks) refueling within Oregon state borders, regardless of fuel choice, will pay either fuels tax or mileage fee. Tampering with on-vehicle mileage fee instrumentation in gasoline-powered vehicles will automatically trigger reversion to the fuels tax system at next refueling, thus precluding evasion. Oregon's weight-distance tax would be retained for heavy trucks.	☑ **Minimum Evasion Potential.** The method of payment for the mileage charge shall result in a rate of tax evasion no worse than for the fuels tax.
Proven Technology Ensures That Only In-State Miles Will Be Subject to Mileage Fee. The VMT data would be collected electronically by zone (e.g. state) through combined odometer and global positioning system (GPS) technology. The odometer would count the miles driven and the GPS receiver would differentiate zones. As conceived, the zones would be polygons that represent state borders. (Note: Zones could be smaller to allow local option fees or for peak-period pricing on a local option basis, but such pricing strategies are separate issues.	☑ **Differentiation of State Boundaries.** An Oregon mileage charge should be based on a rate applied only to miles driven in Oregon. Out-of-state miles driven by Oregon motorists should not be charged under Oregon's per-mile payment system.
HOW IS A VEHICLE'S MILEAGE DATA COLLECTED, USED AND STORED? HOW DOES THE SYSTEM BALANCE NEEDS FOR ACCURACY AND AUDITING, WITH PRIVACY CONCERNS?	
No Tracking or Storage of Motorist Movements Required for System Compliance and Accuracy. The on-vehicle device that records mileage never stores a vehicle's travel history; therefore, no vehicle location data are sent back to the satellite or anywhere else. The on-vehicle device's GPS receiver generates location data only for the purpose of identifying zones where mileage accumulates. Essentially, the sole purpose of the GPS receiver is to answer in a yes/no manner whether the vehicle is driving in a particular zone (e.g., within state), for purposes of assigning miles driven to fee or non-fee categories. Data collection and fee payment would occur at fueling stations. VMT data and vehicle identification (to permit auditing and	☑ **System Accurate and Reliable.** The new per-mile payment system should be as accurate and reliable as the current fuels tax.

How the Mileage Fee System Works (Key Technical, Operational and Administrative Features)	Related Elements of Oregon Policy Framework
error detection) would be read from vehicles by readers at retail fueling stations via short-range radio frequency communications. The only data read by the RF reader would be the vehicle and device identification and the total number of miles driven in the differentiated zone categories (i.e., odometer readings that only get larger) for purposes of applying the per-mile fee. There would be no transmission of travel location points at any time to anyone. Only private sector entities would be involved with installing and maintaining the on-vehicle device, and operating the fueling station equipment for receiving the transmitted VMT data. The only operational component the Oregon government (i.e., ODOT) would have is a central computer system that would store the latest VMT data (odometer readings for zones) to compare against new VMT data read at retail fueling stations, identification numbers of vehicles and fueling stations, and records of transactions dates and the amount of fuel purchased. This information would be retained to allow adequate auditing by ODOT to ensure accurate fee assessment and lessen any potential for fee evasion. The only other direct involvement of ODOT in the mileage fee system is to receive fee revenues.	☑ **Protection of Privacy.** In recognition of strong public sentiment demanding that individual anonymity be assured for all mileage fee payers, system design should explicitly minimize both government and private institutional access to mileage data, fee application records and other identifying information or components.
HOW WILL MOTORISTS PAY THE NEW MILEAGE FEE? **No Behavior Change Required of Motorists.** VMT data transmitted from an equipped (new) vehicle would get passed to the point-of-sale system when a fueling transaction is started, at which time the mileage fees are applied to fuel purchase and gasoline or other fuels taxes are deducted. Motorists would experience no change in payment process. Existing fuels tax system will be maintained for non-equipped (older) vehicles, and will operate as it does today.	☑ **Ease of Use by Motorists.** A mileage-based revenue system will be more popular with the public, and thus politically acceptable, if behavior changes required of drivers to use the system are minimized.
WHAT WILL THE NEW MILEAGE FEE MEAN TO FUEL RETAILERS OR DISTRIBUTORS? **Negligible Change in Administrative Burden to Fuel Retailer.** Retail fueling stations would remit the mileage fee to ODOT through a paperless reporting system integrated with the current fuel tax collection mechanism. There will be no more employee involvement in collecting the mileage fee than for the existing fuel tax system, other than issuing one monthly check to ODOT to remit the mileage fees accrued above the fuel tax paid.	☑ **Minimal Burden on Private Sector.** Technology should be applied to the mileage fee system in a manner to minimize the burden on private sector participants.

How the Mileage Fee System Works (Key Technical, Operational and Administrative Features)	Related Elements of Oregon Policy Framework
HOW WILL THE TRANSITION BE HANDLED?	
Transition Will Not Result in Any Revenue Disruption. A long phase in for the new mileage fee system will be necessary to ensure an orderly and low risk transition. Approximately five percent of the vehicle fleet turns over each year. Thus, the new system could take close to 20 years for full phase in. The fuels tax system will have to be retained and run concurrently with the mileage fee for non-equipped vehicles during the phase in period.	☑ **Seamless Transition Must Ensure Stable Transportation Revenues for Oregon's Roads.** Transition from the per-gallon fuels tax payment system to a per-mile payment system should be designed to avoid disruption in revenue collection.
The State Fuels Tax Would be Maintained for Non-equipped Vehicles and for System Redundancy. No motorist would pay both the mileage fee and the fuels tax but each motorist would pay one or the other. If a motorist disables the in-vehicle VMT technology, the motorist would pay the fuel tax in lieu of the mileage fee because the readers at retail fueling stations would not read the VMT data. If a system-wide failure occurred for some catastrophic reason (e.g., satellite signaling interruption), the fuels tax would be reactivated for all motorists traveling on Oregon roads with no change of motorist tax paying behavior required.	☑ **System Redundancy.** In the unlikely event of technological difficulties or widespread tampering with the electronic mileage fee system, a reliable back up system should be built into the new system to ensure the system is not entirely at risk.
IS THE SYSTEM AND ITS RELATED TECHNOLOGIES RELIABLE AND AFFORDABLE?	
Oregon State University Research Specialists Select from Proven Technology. Through a recent series of successful trial runs, Oregon State University researchers have publicly demonstrated that the mileage fee technology included in the proposed set of recommendations is feasible. ODOT and OSU are working with leading industry experts to continually refine, test, evaluate and update technology and system design to maintain reliability and security.	☑**Technology that is Feasible, Reliable and Secure.** The technology used in the new mileage fee system should not have unmanageable technological difficulties.
Capital and Administrative Costs Are Minimized through Appropriate Policy and Technology Choices. System design ensures affordability. The on-vehicle technology will be designed and installed by the vehicle manufacturer and embedded in the price of the vehicle, with no expensive retrofitting of vehicles. Statewide capital costs for fueling station equipment and computing technology will be less than $35 million. If bonded, this cost will result in less than a two percent increase in the mileage fee rate.	☑ **System Affordability.** A new mileage-based system must have reasonable capital cost requirements, and annual operating costs comparable to those associated with the current fuels tax.

Source: Oregon Department of Transportation Office of Innovative Partnerships and Alternative Funding (May 2005).

Guidelines for Technical System Development

Following selection of the mileage fee as the principal general revenue source for a new road revenue system, the Task Force directed ODOT to develop the mileage fee concept to meet the requirements set forth by the policy framework identified in the right hand column of Table 1. In an immediate, practical sense, the development of the concept was also oriented toward a prototype mileage fee technology system design, the feasibility of which could be tested as part of a planned Mileage Fee Pilot Program, in accordance with Chapter 862, Oregon Laws (2001).

ODOT's Technology System Requirements

The specific directives ODOT provided to Oregon State University emphasized the need for technology to be developed to satisfy customer (i.e., future mileage fee payers) preferences as understood by ODOT, and to respect and address customer concerns and constraints. These customer preferences for the technology are consistent with the policy framework of Table 1 and are summarized in Table 2. On April 16, 2004, Oregon State University delivered and demonstrated to ODOT a technology configuration that met these requirements.

Table 2: ODOT's Mileage Fee Technology System Requirements

- The system developed will simulate a real implementation of an electronic mileage-based (VMT-based) revenue collection system.
- The systems developed must not "track" drivers to a greater degree extent than existing payment systems (e.g. credit cards) permit.[5]
- The systems developed do not require any additional actions on the part of motorists relative to what occurs today.
- Mileage data (VMT) collection within predefined geographic zones is accurate.
- On-vehicle devices can be installed in secure "out of sight" locations on vehicles.
- On-vehicle devices are accessible for replacement or maintenance purposes.
- The system and its components are secure and tamper resistant.
- The system indicates to the user the amount spent for fuel and the amount of mileage fee paid.
- The system can be phased in over time and accommodate out of state drivers.
- Functional and technical specifications for the systems and system components are well documented.

[5] This privacy requirement changed over time—as the ODOT came to a better understanding of the privacy protection needs of the general public—to provide an additional element for protection of the driving history of motorists. To this end, this second bullet of the ODOT mileage fee system requirements functionally became, "The systems developed

Data Collection Technology

ODOT's Oregon State University consultants proposed two possible electronic data collection, storage and transmission technologies. One was based on the vehicle's odometer. A second was based on a global positioning system (GPS) receiver. Both systems met the ODOT system requirements.

ODOT ultimately recommended that the odometer-based technology and the GPS receiver-based technology be combined into a hybrid, taking the best attributes of both to enable an accurate and cost-efficient system. The hybrid technology uses the odometer's speed sensor to measure miles traveled and a GPS receiver to indicate which zone the vehicle is traveling in (and thus what zone mileage "odometer" should accumulate mileage). Thus, the hybrid odometer/GPS technology combines the odometer's accuracy at measuring miles traveled with the GPS receiver's precision and flexibility to differentiate zones.

Protection of Privacy

High on the list of ODOT and Task Force concerns was the need to maintain the privacy of Oregon citizens. ODOT thus directed its technology development consultant, the Oregon State University School of Engineering, to develop the technology to support the mileage fee concept in accord with the Task Force requirements, again emphasizing the need to eliminate or maximally reduce the privacy concern about the proposed technology.

The major concern regarding the potential loss of privacy brought about with the Oregon mileage fee system is the use of GPS technology, and the ability of the government to use the system to "track" motorists' movements. To better explain how the Oregon mileage fee technology incorporates GPS technology while still maintaining the privacy of motorists, the phrase "GPS technology " will be clarified as will the concept of "tracking motorists". This will be followed by a discussion of commercially available GPS devices and their components/functions that enable varying levels of "tracking". These functions/components will then be compared to the technology used in the Oregon mileage fee system, which is designed to maintain privacy.

The phrase "GPS technology" will likely have different meanings to different readers based on each individual's use and exposure to GPS products. In the Oregon mileage fee system, the phrase "GPS technology" refers to a "GPS receiver" (also referred to as a GPS engine or GPS module). The GPS receiver has the ability to generate location and time data but, in general, it cannot by itself transmit this information wirelessly, or save a large amount of these data. The use of the data produced by the GPS receiver differs for different products and these products have different hardware and software components. These differences are what determines the capabilities of various "GPS products" and whether they can be used for "tracking".

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must not store or transmit precise vehicle location." The technology designed by OSU for the pilot program ultimately met this requirement as well.

With the use of GPS technology in the on-vehicle devices as part of the Oregon mileage fee system, the concern of some motorists is that they will now be "tracked" by the government. In this context, "tracked" is interpreted to mean that the detailed movements or routes (including times) of motorists can be produced, either as the motorists are driving, or sometime after they have completed a driving trip. For clarity, the first type of tracking defined will be called "real time" tracking, and the second type will be referred to as "historical" tracking. In order to accomplish either type of tracking, frequently generated location points along with times must be produced and saved. The difference in the two types of tracking lies in how soon after the location data is obtained that the vehicle route can be constructed.

In real time tracking the location and time data must be sent via some means to the government (or other centralized location) shortly after it is generated. A common method used to transmit these data is cellular communications. General Motors On-Star system has this ability, although it is not used in the manner described to track a vehicle. However, there exist commercial products targeted at fleets of commercial vehicles that are designed to track vehicles. There are a variety of reasons a company may choose to use such a system but often cited reasons are driver safety, asset control, and accurate predictions of arrival times. Many handheld commercial "GPS units" used for personal navigation also generate a route as the individual is traveling, but this route data are self contained and not transmitted as it is generated.

To implement historical tracking the location data and time data generated by the GPS receiver must be saved as it is generated in such a manner that it can be accessed later. In the case of vehicles, travel routes can then be reconstructed from this data. Commercial products with such capabilities are common and are used by companies to track the movement and use of company vehicles. Similar products have been used by rental car companies and insurance companies. Many handheld "GPS units" used for personal navigation have the ability to "download" route data.

In the Oregon mileage fee system the on-vehicle devices have GPS receivers but utilize the location and time data differently than most of the GPS products discussed above. The location data is used to only answer the questions, "Is the vehicle traveling in Oregon?" and, "Is the vehicle traveling in a smaller jurisdictional area such as a city?[6]" The answers to these questions are a simple, "Yes," or, "No," with no specific location data being saved within the devices or transmitted to another entity. *Thus, under the Oregon mileage fee technology developed by Oregon State University, it is impossible to track the location or movements of motorists either historically or in real time.* [7]

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[6] The application of the Oregon mileage fee system to jurisdictions smaller than a state would facilitate an effective application of peak-period pricing. The Task Force believes the best application or peak-period pricing would be via area pricing. "Area Pricing" charges a fee for VMT within a defined area during set peak hours. The fee applies to use of all highway facilities (i.e., roads, streets, bridges and highways) without differentiation by jurisdiction or type of facility.

[7] Some respond to the information that government tracking of motorists is impossible under the Oregon system by asserting that using a device with a GPS receiver is a dangerous "first step" in that direction. Those making such assertions should consider how such tracking could actually be accomplished. For tracking of individual motorists to occur, another separate law must be passed – which ODOT has no desire or intention of seeking – to authorize a government agency to add continuous transmission technology to the on-vehicle device for vehicles without it (or gain access to continuous transmission technology for vehicles already containing it) or to create an electronic driving record

Data Transmission

The Task Force proposes using short-range radio frequency for transmission of mileage data. As part of its overall and integrated set of privacy protections, the Task Force wants to avoid systems with broad transmission range capability, such as cellular, that would enable tracking of vehicular movements. The Oregon State University researchers report that the maximum range for radio frequency technology is 300 feet but expect to refine this technology so that transmission will be limited to the particular reader aligned with the fueling pump, thus preventing data theft. In addition, the on-vehicle technology is considered "passive" for the purposes of VMT data transmission; this means that on-vehicle devices will only transmit data when instructed by the reader. Short-range radio frequency cannot be used by any entity to track vehicular movements.

ODOT had several conversations with privacy advocates on the issue of privacy protection. After thorough review of the technology upon which the Oregon mileage fee concept is based, certain privacy advocates retained a concern that law enforcement officials may be able to use the radio frequency vehicle identification element to measure highway speeds for purposes of electronic citations for speeders.

Fee Calculation

ODOT's researchers at Oregon State University identified and field tested two possible electronic scenarios for calculating the fee at fueling stations. Neither scenario would involve fueling station personnel in the transaction to a greater degree than is currently required for calculating fuels taxes. The recommended scenario for calculating the fee uses one-way communication that takes data from the vehicle to a central computer and does not return information to the vehicle. The second possibility, two-way communications between reader and vehicle, is more complicated and would allow more evasion, but would also enable other vehicle-roadside communications to occur.

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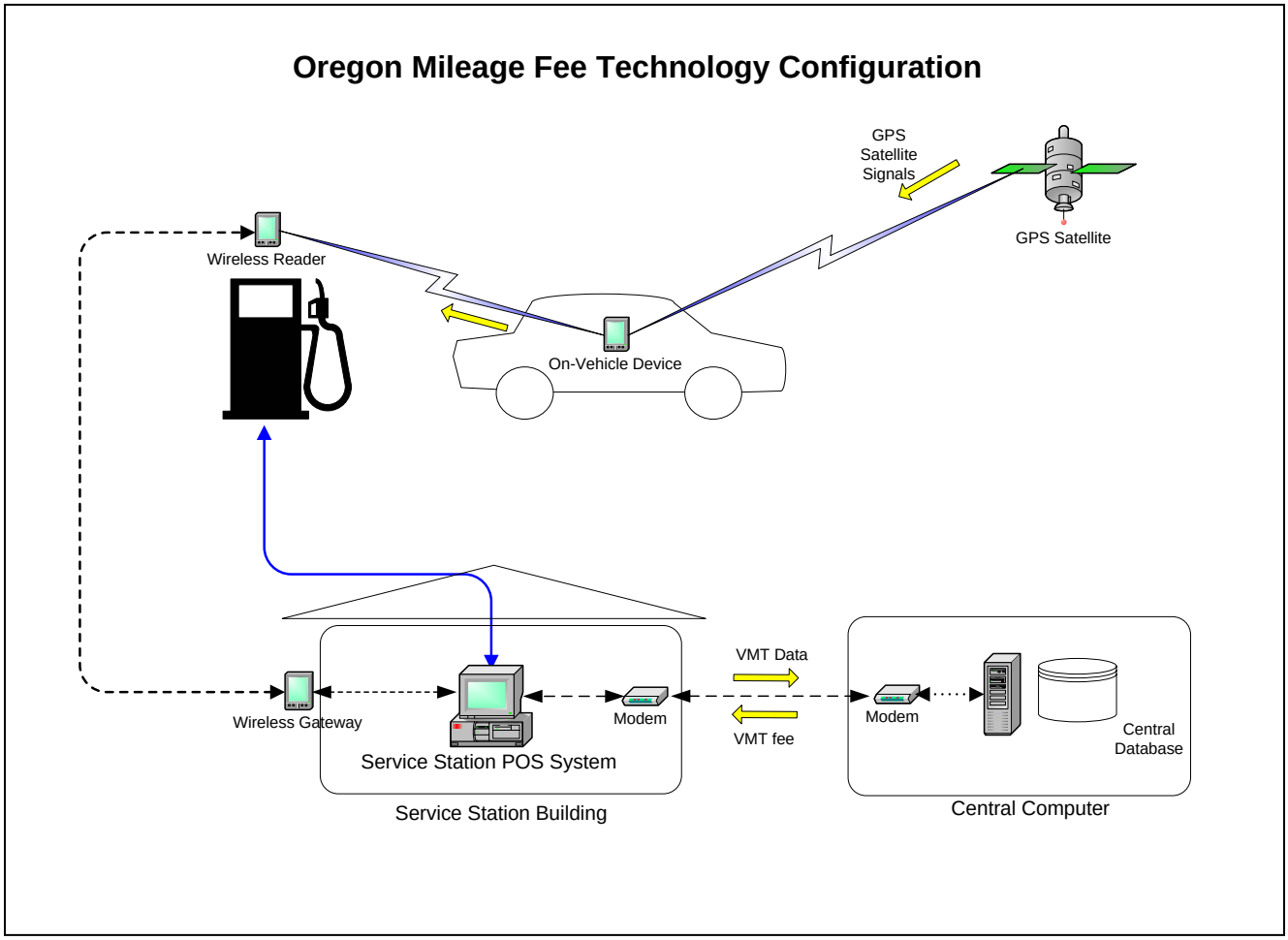
that a government agency is authorized to access. Given prevailing public attitudes towards privacy protection in the western world, we ask the rhetorical question, "Does anyone think such a law would ever pass?"

Oregon Mileage Fee Technology Configuration

Figure 1 illustrates the recommended technology configurations as discussed above, and shows the flow of information required for accurate and secure fee assessment.

Figure 1: Technology System Features of Oregon Mileage Fee System



Source: ODOT Office of Innovative Partnerships and Alternative Funding (2005)

System Administration: Vehicle Miles Traveled Collected At Retail (VMTCAR)

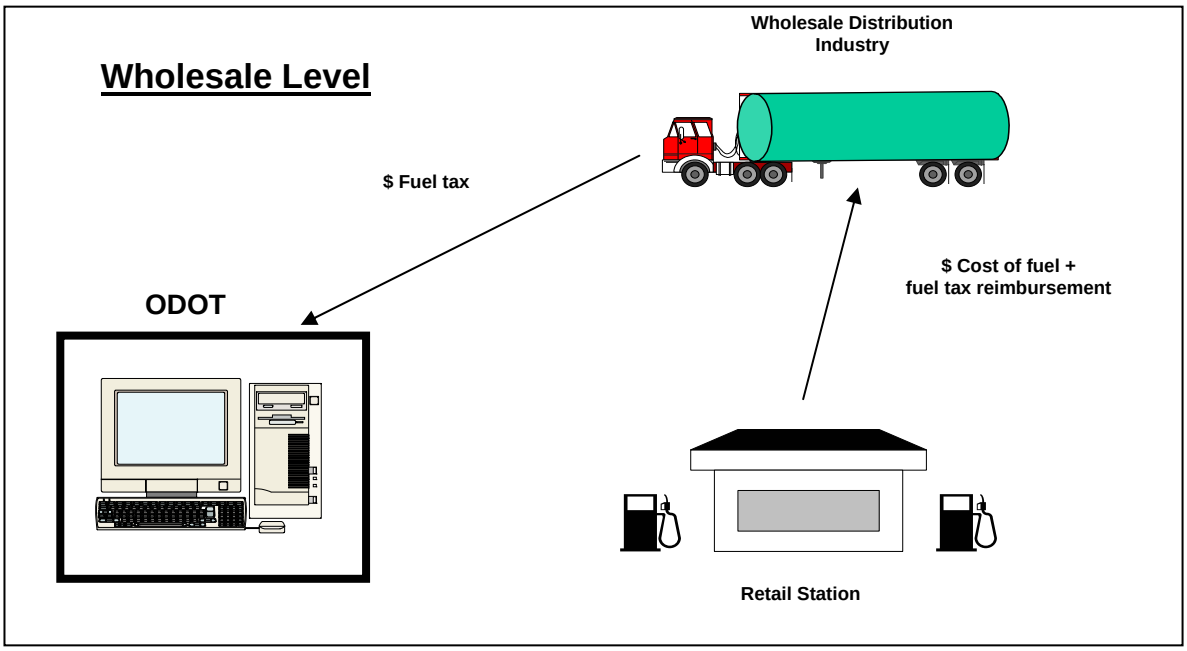
The principal administrative challenge associated with the mileage fee is how to ensure proper crediting of state fuels tax payments for gasoline purchases by motorists who pay the mileage fee. This task must be accomplished in order to deduct that fuel tax amount from the sale price. There must also be a way of accounting for the two types of fees (state gasoline tax and mileage fee) throughout the revenue collection pathway. This issue is particularly thorny because, for purposes of state revenues, fuels tax payments for gasoline do not occur at the retail fueling station but rather at the first point of wholesale distribution in the state (i.e. “at the rack”). Retail stations then reimburse the gasoline distributor and the motorists, in turn, reimburse the retail stations. Given the existing tax

assessment structure, an administrative system designed to address the integration of mileage fee collection with state gasoline tax was developed; it is called Vehicle Miles Traveled Collected at Retail (VMTCAR). VMTCAR is described below.

Under the existing state gasoline tax collection system, when a retail station collects fuel tax reimbursement payments from the motorists, the amount collected automatically matches up with the reimbursement paid to the distributor, because it is based on fuel volumes at the distributor/retailer transaction and at the pump, for all motorists. However, upon implementation of a mileage fee, that situation will change. In that case, even after deducting each individual motorist's redundant state gasoline tax from a gasoline sale to a mileage fee customer, the aggregate mileage fee collected from customers each month, plus the state gasoline tax collected from those customers continuing to pay it, will almost certainly fail to match the reimbursement already paid by the retailer to the distributor. Depending on the mix of vehicles refueling at a given retail station, sometimes the amounts collected will be higher and sometimes lower than if the fueling station sold fuel only to non-equipped vehicles subject only to the state gasoline tax.

To solve this problem, ODOT developed an electronic accounting mechanism, a "truing up," that will allow for ODOT billings to the retailer if the amount collected at the pumps is higher than paid to the distributor for the gasoline delivered and ODOT reimbursements to the retailer if the amount collected is lower than the amount paid to the distributor. Figures 2, 3 and 4 illustrate the process schematically. Figure 2 (VMTCAR at Wholesale Level) illustrates the flow of revenues from state gasoline taxes as they occur now, and which would remain unchanged under a mileage fee. Thus, the wholesaler remits state gasoline tax to ODOT, and the retailer reimburses the wholesaler for the amount of those taxes.

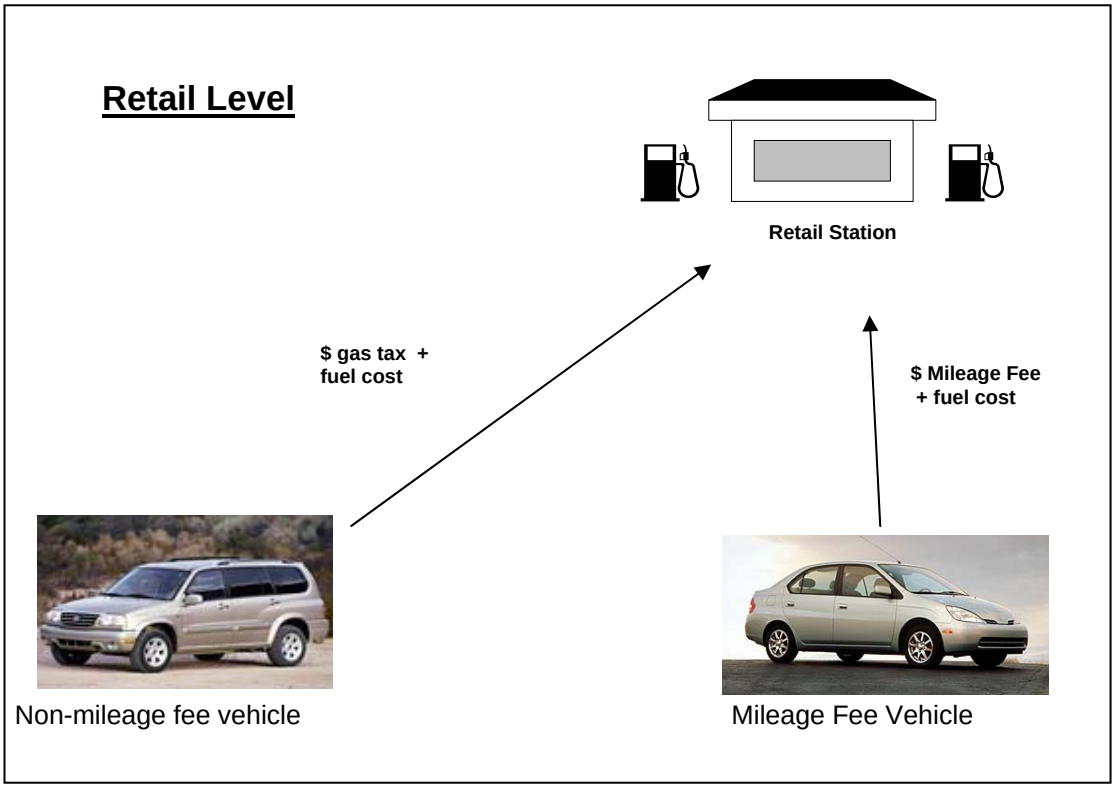
Figure 2: VMTCAR at Wholesale Level



Source: Oregon Department of Transportation (November 2004)

Figure 3 (VMTCAR Revenue Flow at Retail Level) shows how the retail gasoline station collects the fuels taxes from motorists at the POS under a mileage fee scenario. At the retail level, the fueling station customer will purchase fuel as he or she does now. Those motorists with non-equipped vehicles (gasoline only) will pay their state gasoline tax at the pump, as they always have. Those with vehicles equipped for the mileage fee will do likewise—however, an electronic calculation will be included in the process, whereby the state gasoline tax is deducted and the mileage fee is added to the price of fuel, in the case of gasoline purchases. Alternative fuels vehicles, as they arrive at market, would also be subject only to a mileage fee. With respect to state gasoline taxes, retailers continue to collect taxes, after having already paid the gasoline distributor for the fuel *plus* the state gasoline tax.[8]

Figure 3: VMTCAR Revenue Flow at Retail Level

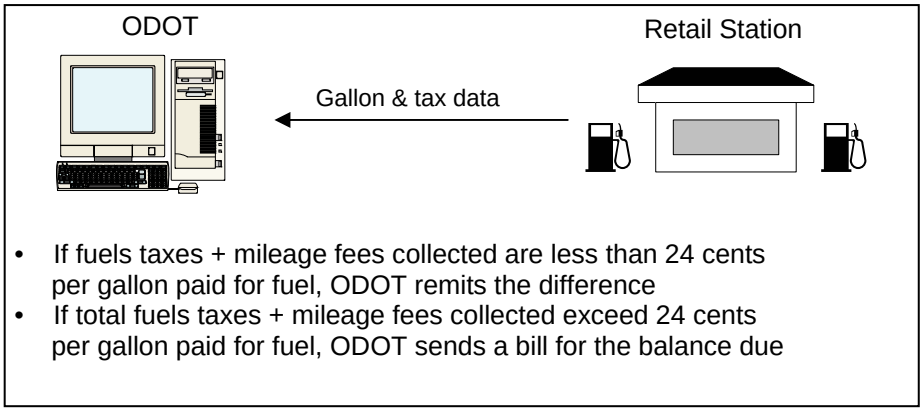


Source: Oregon Department of Transportation (November 2004)

The benefit of the VMTCAR "truing up" as shown in Figure 4 is to remove the burden of accounting for taxes and fees from the shoulders of employees at fueling stations, and instead to accomplish it electronically. Adjustments are handled easily, accurately and efficiently through regular billings or reimbursements, as appropriate.

[8] Alternative fuel vehicles are currently subject to a Use Fuels tax (this includes diesel for vehicles not subject to Oregon weight-mile tax) of $0.24 per gallon equivalent, imposed at the retail level and remitted to ODOT by retailers. Although this tax is still minimal in terms of the number of vehicles currently paying the tax, expected market penetration of alternative-fueled vehicles would increase the number of vehicles subject to the Use Fuels tax, absent the mileage fee.

Figure 4: Final Step in Tax/Fee Collection: VMTCAR "True Up" Transaction between Retailer and ODOT



Source: Oregon Department of Transportation (November 2004)

As previously explained, gasoline tax collection at the distributor level will remain the same. Gasoline tax reimbursements from the retail station to the distributor at the point of distribution will remain the same. The only change will involve the information submitted to ODOT to determine how the true up transaction will occur. ODOT will electronically receive from the retail stations the following information necessary in order to account for the amount of revenue owed to ODOT (or to be reimbursed to retailers by ODOT):

- Concurrent reporting of the amount of gallons of fuel purchased by customers at the station subject to VMT charges for a given period; and
- The amount of mileage fees paid by mileage fee payers during the same period.

This information will allow ODOT to manage the truing up mechanism. For stations owing revenue to ODOT, invoices would be mailed monthly. For stations getting a reimbursement by ODOT, the payment would occur weekly.

The VMTCAR truing up method will minimize the involvement of retail station personnel because of the reliance on real time electronic transfer of data. Fueling station attendants will not be required to change their current behavior. The only additional burden is for retail stations to manage either a billing a month or a reimbursement payment once per week. Processing these transactions via electronic deposit should further mitigate any additional burden on the stations. The motoring customer will experience no operational difference between paying a per-gallon charge and paying a per-mile charge, although there will often be slight differences in the payment amount if compared on a per-gallon equivalent.

There are many features of the VMTCAR "true up" process that render the mileage fee system viable administratively**,** including:

- **Mileage Fee Gradually Replaces Fuel tax.** Since the fuel tax remains the primary revenue collection mechanism with the fueling stations only paying the mileage fee differential, the bulk of the mileage fee revenue system remains with stable fuel distributing businesses upon which the fuel tax revenues are based. The reliable fuel tax payment system will only gradually be replaced by the mileage fee system. The long transition period allows (1) assessment of risk points and revenue leaks before mileage fee payments become the dominant portion of the revenue stream; (2) convenience to the private fuel distribution industry; and (3) appropriate compliance mechanisms to be developed for retail fueling station payments.

- **Bulk of Revenue Stream Remains at the Distributor Level (Fewer Taxpayers).** Initially, and for many years, most state highway revenue will continue to come from the fuel tax, not the VMT, until most or all vehicles are equipped with VMT technology. For the initially small (but steadily growing over the years) VMT revenues collected at the pump, only the excess of VMT charged over the fuel tax already paid by the retailer to their supplier will be paid by the retailer to ODOT. Because of this, the bulk of VMT fee revenue will already have been collected as part of the normal fuel tax collection process.

- **Retain Current Auditing Procedures and Multi-State Anti-Evasion Processes.** Retaining fuel tax collection as the bulwark of the road revenue system will protect the new mileage fee system through application of the current ODOT auditing procedures and multi-state anti-evasion processes. Interstate anti-evasion processes for the mileage fee will develop over time as other states adopt and implement the mileage fee concept.

- **Fuels Tax Retained as Redundant System.** Continued payment of the fuel tax "at the rack" as the underlying mechanism supporting the mileage fee system provides system redundancy in the event of widespread system failure and technology tampering. In the event of extraordinary occurrences hampering the mileage fee system, the fuel tax collection system will continue to operate. The only revenue lost will be the differential between fuel tax supported collection and the mileage fee payments made by retail fueling stations.

Auditing

The Oregon Mileage Fee Concept assumes a transition period during which the majority of tax payments to ODOT will gradually shift from the distributor to the retailer over a lengthy period of time. Thus, in the early years most of the ODOT compliance resources will strategically focus on the fuels tax revenue stream paid by the wholesale distributor. By maintaining the fuels tax collection mechanism as the underlying road revenue source, proven fuels tax audit procedures and interstate cooperative tax compliance measures will continue to be applied. Thus, as noted above, the bulk of highway fund revenues will be protected from any transition difficulties that could arise from implementing the mileage fee.

To ensure a high level of mileage fee compliance, measures focused on potential evasion at retail stations and with individual vehicles will necessarily be refined. As part of ensuring optimal compliance by motorists and fueling stations, electronic data for each fueling transaction transmitted from retail fuel stations to ODOT must necessarily include the following:

- Vehicle miles traveled for all zones,
- Amount of fuel purchased,
- Station identification,
- Date of transaction, and
- Vehicle identification.

Effective system audit and compliance efforts would likely include the following steps:

For individual vehicles:

1. Electronic analyses of vehicle miles traveled and gallons purchased to identify unaccounted for mileage in excess of stated tolerance levels;
2. Standard procedures to investigate and resolve mileage discrepancies; and
3. Regular and ongoing inspection and testing of random samples of vehicle mileage counting devices and physical odometers in a manner that does not unduly inconvenience motorists.

For retail stations:

1. Comparison of gallons sold subject to the mileage fee versus mileage totals recorded at the station to identify variances above stated tolerance levels;
2. Periodic inspection and testing of mileage fee recording and point-of-sale equipment; and
3. Observation of fueling operations to observe non-compliant practices.

The Task Force has noted that evidence of tampering or intentionally damaging the mileage fee equipment should be cause for monetary fines.

Cost of Statewide Implementation

As a consequence of extensive analysis and evaluation of findings, ODOT and the Task Force have determined the Oregon Mileage Fee Concept to be affordable.

- **Cost of On-Vehicle Technology.** The per-unit cost of the on-vehicle prototype is less than $250, and the cost on a mass produced basis is expected to be significantly less. The likelihood of the marketplace providing the necessary technology for collection of the mileage fee for its own business reasons is growing rapidly. On February 2, 2005, General Motors announced that all of its 2007 models would have GPS receiver-based navigation capability as standard equipment. Task Force administrative staff has also learned from automakers that wireless data transmission capability is also likely to become standard equipment during the next ten years. By the time for implementation of the Oregon Mileage

Fee Concept, it is probable that a legislative mandate requiring on-vehicle technology to support mileage fee collection will be moot. The only legal mandate required may be for a software upgrade to allow for mileage segmentation into zones.

- **Cost of Fee Collection Technology for Fueling stations.** The cost of providing mileage fee collection technology for fueling stations will vary according to the nature of the existing POS systems at fueling stations and the number of pumps per fueling station. For fueling stations with an older point-of-sale (POS) system, an entire replacement POS system may be required. For more modern fueling stations with a Windows-based POS system, all that may be necessary is an inexpensive software upgrade. All fueling stations will require mileage data readers at the approximate cost of $290 per pump.

- **Cost of Central Computer System and Database.** ODOT will require establishment of a central computer database to support interaction with fueling station POS systems during the mileage fee transaction.

Financing Capital Costs

The cost of on-vehicle equipment should be minimal and should be built into the price of new vehicles. The remaining capital costs for fueling station technology and an ODOT central database is estimated to be less than $35 million statewide, excluding depreciation. This amount could be bonded over 20 years, resulting in less than a 2 percent increase in the mileage fee rate to service the debt.

Table 3: Mileage Fee Capital Cost Estimates

Mileage Fee Capital Costs Estimate	
Data Transfer:	
Equipment	$3,874,000
Software	$2,250,000
Installation	$10,800,000
Other Fueling station Infrastructure:	
Point-of-Sale System Improvements	$9,171,000
Dedicated Telephone Lines	$236,000
Contingencies	$5,270,000
Total Fueling station Capital Costs	$31,601,000
State System Capital Costs, Including Contingencies	$1,200,000
Total Capital Costs	**$32,801,000**
*Assumes 1800 fueling stations in Oregon, including cardlock stations.	

Source: Oregon Department of Transportation (April 2005)

Fee Rate

The Task Force found that in order to provide revenues that are equivalent, on a per-mile basis, to those deriving from the current 24 cent per gallon fuels tax rate on gasoline, the mileage fee rate would have to be 1.2 cents per mile. This is determined by dividing the 24 cent fuel tax rate by the current average fuel efficiency of passenger vehicles of 20 miles per gallon (i.e. .24/20=.012). The Task Force defers to the legislature on the issue of whether to increase the mileage fee rate above 1.2 cents per mile, and makes no recommendation in this regard.

Fee Structure

A principal issue for legislative policymakers in adopting a mileage charge is the rate structure. The mileage fee could be structured in various ways – a flat rate, a graduated rate or a rate that might be applied only to high mileage vehicles, as defined by policymakers. The Task Force prefers a flat rate for reasons of simplicity and consistency with the Task Force's philosophical view that every passenger vehicle burdens the road system to the same degree and thus should bear the same burden for maintenance and improvement of the road system. The Task Force found the view that heavier passenger vehicles cause more damage to the road system was false. The Task Force determined that modern roads are built to sustain the impact of 50 ton trucks and that the difference in road damage caused by a one ton automobile and a four ton automobile was insignificant.

There are numerous policy considerations in setting a rate structure.

- **Flat Rate.** All vehicles require the same level of service from the road system. All vehicles need occupying space, signaling, bridges, braking capacity, proper pavement condition, signage, entrances, exits and safety features. If designed as a true user charge, the mileage fee rate would have a flat rate per mile driven. Thus, as a true user charge, all light vehicle motorists would pay the same rate for each mile driven notwithstanding the type of vehicle operated or any other variable.

- **Environmental and Energy Policy.** If a mileage fee were imposed on a flat fee basis, the new system would advantage some vehicles and disadvantage others when compared to the tax burdens placed on motorists under the current fuels tax on gasoline. For example, motorists driving a vehicle with low fuel economy (i.e. less than 20 miles per gallon on average) would pay less tax per mile driven under a flat mileage fee than under the current fuel tax. On the other hand, motorists driving a vehicle with higher fuel economy (e.g. more than 20 miles per gallon on average) would pay more tax per mile driven under a flat mileage fee than under the current fuel tax. Some oppose the flat rate because they value environmental and/or energy policy concerns above road capacity or user responsibility concerns.

- **Social Equity Concerns.** Unless designed with social equity in mind, the road revenue system, existing or future, will have a disproportionate burden on lower income motorists. The more fuel-efficient vehicles entering the marketplace, being

new, will be purchased by the more affluent motorists. The less affluent motorists, on the other hand, will purchase vehicles on the secondary market. Vehicles on the secondary market will be the older and less fuel-efficient (e.g. the older SUVs without the hybrid option), which also tend to lose fuel efficiency as they age. A rate structure that disadvantages the operation of low fuel efficient vehicles would tend to place a burden on the portion of society with lower incomes.

Peak Period Pricing

In the 2003 Legislative Report, the Task Force recommended that congestion pricing be part of the new road revenue system. Simply put, congestion pricing allows for collection of additional charges for motorists who drive on certain roadways during times of congestion. The Oregon mileage fee concept could accommodate development of strategies for peak period pricing to take into account the particular characteristics of individual communities. For example, cities could have several zones with various rates at different times of day. With sufficient computer memory added to the mileage data collection technology, the strategies employed could be quite defined and precise.

Payment of charges for peak period pricing would occur at fueling stations as an amount added to the mileage fee. Fueling station operators would be obligated to remit the charges for peak period pricing to ODOT.

Imposition of peak period pricing for a given community has legal constraints. Under the Oregon Constitution's uniformity of taxation clause, motorists driving motor vehicles equipped with the mileage fee collection technology must not be required to pay a congestion charge while motorists driving non-equipped vehicles have no such requirement.[9] Thus, until either all vehicles driven in Oregon are equipped with the necessary technology or another method is found to charge motorists driving non-equipped vehicles the same amount as those driving equipped vehicles, peak period pricing cannot legally be implemented using the technology developed under this concept.

Local Option

The Oregon Mileage Fee Concept could allow for local option rates as an addition to the statewide mileage fee. The data collection technology has the capability of delineating zones based on the boundaries of an individual city, county or other taxing district. Imposition of a local mileage fee rate would be simply a matter of defining the local zone and applying a local fee rate for that zone. Collection of the local option mileage charge would occur at fueling stations in the same manner as the statewide mileage fee. Fueling station operators would be obligated to remit the charges for local option to ODOT. ODOT would remit the local option fee collected to the local governments enacting the local option. The local option charge for a given community would be collected wherever individual motorists pay the mileage fee, which could be inside or outside the local jurisdiction.

[9] Oregon Constitution, Article I, Section 32.

Retrofitting Versus Long Phase-In

While the Task Force prefers to step into the mileage fee slowly by applying the fee only to equipped vehicles—and therefore only to new vehicles not currently on the road—ODOT recognizes that phasing may result in an overly long waiting period for full system integration. At some point, the remaining unequipped vehicles may be retrofitted to allow for more creative pricing options for the state and local governments than application of a simple mileage charge. These options include congestion pricing, time-of-day toll lanes and various variable pricing schemes. Such pricing options will not be easily employed via the mileage fee collection mechanism until all Oregon vehicles contain the necessary mileage fee technology. While these options may be applied in a mileage fee format combined with a traditional variable pricing format, application via the mileage fee format alone will not be applicable for legal reasons requiring uniformity of taxation protection under Oregon's Constitution.

The Task Force has concluded that retrofitting of currently owned vehicles is prohibitively expensive. ODOT staff has noted additional disadvantages of retrofitting including (1) problematic placement of the technology not designed for retrofitted vehicles; (2) greater likelihood of tampering with the inelegantly placed technology within retrofitted vehicles; (3) the likelihood of a significant number of highly uncooperative vehicle owners; and (4) greater system implementation risk.

Home Refueling of Alternative Fuel Vehicles

With the advent of decentralized power and energy from alternative sources comes the potential and promise of convenient home refueling of motor vehicles. Already, consumer prototypes for electric and natural gas vehicles have been in use across the nation, and as prices for these home units drop, popularity will rise. Additional study and analysis by ODOT in the future should address this issue in the context of a mileage fee, in order to ensure all motorists are paying similarly for their use of the roads.

State and Federal Funding for Concept Development and Pilot Program

In May 2004, after the completion of an operational test, the Oregon State University researchers recommended the technology be further developed to improve its ease of use. Accordingly, ODOT applied for and was awarded additional FHWA funding under the Value Pricing Pilot Program in order to ensure the technology will function as required when Pilot Program participants—real drivers, real fueling station owners, and real fueling station attendants—use it. With this additional grant, the total cost of the project rises to nearly $2.9 million, including FHWA funding of $2.1 million and the state's portion of $771,000 for the entire six years until project completion.

Concept Development Summary

ODOT and the Task Force have overseen development of a mileage fee system that is responsive to public policy requirements and concerns, notably related to privacy, system cost and practicality, and technological and administrative feasibility. In fact, all system policy requirements have been met without compromise (Table 1). ODOT is committed to maintaining and improving this close match between policy goals and quantifiable performance of this replacement for the fuel tax on gasoline, as the results from implementation, experience and new technologies become available.

PUBLIC INVOLVEMENT AND INTEREST:

For such a small program, the Road User Fee Pilot Project has generated a very large amount of national and international interest. ODOT and the Task Force have deliberately chosen to reach out to the public, not to generate publicity, but to ensure understanding of what is a public process. ODOT understands that the motoring public will not respond positively to proposed change quickly and will need time to accept the nature of the problem and become comfortable with the viable solutions.

Oregon's public outreach activities include:

- Establishment of the Road User Fee Task Force
- Open meetings of the Task Force
- Holding geographically diverse public hearings
- Creating a focus group
- Openness and providing assistance to the media
- Specific outreach to representatives of the retail fueling station industry
- Presentations to stakeholder groups
- Presentations to transportation professionals
- Presentations to state and local government entities
- Providing information to other jurisdictions (states, nations and localities) when requested

These activities are further described below.

Public Involvement

The Road User Fee Task Force held 13 meetings since November 30, 2001. All meetings were open and announced to the public through news releases and the ODOT website. To facilitate maximum public access and input, ODOT also created a website accessible to the public.[10] This website provides phone numbers and email access to key ODOT staff members who developed the mileage fee concept and the associated pilot project. As a result of this access, ODOT has received hundreds of phone calls and

[10] http://www.oregon.gov/ODOT/HWY/OIPP/ruftf.shtml.

email from interested people across the nation and around the world. Every attempt is made to respond to each inquiry within a few days. Most frequently mentioned concerns include privacy, tax fairness, cost, administrative complexity and encouraging vehicle fuel efficiency. When sufficient input developed, ODOT created responses to Frequently Asked Questions and posted this document on the website.

Motorists and Industry Participation in Concept and Pilot Program Development

Development of Concept

Early in the development of the Oregon Mileage Fee Concept the Task Force engaged key stakeholders from industry and public interest groups in meetings to understand issues that needed resolution. ODOT also presented elements of the concept as it developed to members of the motoring public in geographically diverse hearings and to Oregon transportation interest groups such as the Oregon Road Users Alliance and transportation technology groups. A public comment period at each of the Task Force meetings also enabled a two-way flow of information. These interactions provided valuable data on public attitudes and concerns and to identify structural challenges for development of the concept. The Task Force and ODOT then worked to resolve the issues presented by structural, technological and administrative adjustments to the concept. Through this iterative process, problems associated with early development of the concept are now resolved (although public understanding of these resolutions are lagging somewhat).

Development of Pilot Program

To ensure that the user participants in the Road User Fee Pilot Program are satisfied with operational and administrative aspects of the test, ODOT held a focus group in Eugene, Oregon to evaluate potential motorists' opinions towards the concept. As a result, ODOT identified a need for additional resources to make the technology more "user-friendly," and less of a "black box."

ODOT identified methods for recruiting volunteer motorists and fueling stations and met with representatives from the Oregon Petroleum Association, Western States Petroleum Association, the American Civil Liberties Union and auto manufacturers to discuss issues related to the Pilot Program.

The city of Eugene, Oregon was initially selected as the site for the Pilot test area. ODOT issued a Request for Information to all fueling stations in the Eugene area to solicit participation in the Pilot Program. Although interest was expressed from fueling stations in the area, they were prohibited from participating due to their contracts with the major oil companies. This led ODOT to focus on recruiting independent stations not affiliated with a major oil company. This resulted in moving the test area to the city of Portland, Oregon.

Media Interest

The Road User Fee Pilot Program was the focus of numerous news articles during the period from January 2002 to January 2006. Although some reports accurately reflected the project, many others contained factual errors and mischaracterizations of Oregon's

mileage fee concept in general and the Pilot Program in particular. Several national reports were written without ever talking with officials at ODOT. Although a complete listing of media reports and commentaries is impractical to assemble, ODOT has noticed reports made by the following news organizations:

The Financial Times (London)
The Associated Press
CBS Evening News with Dan Rather
Newsday (New York City)
CNN Money
Newhouse News Service
Gannett News Service
The Washington Times (Washington DC)
MSNBC News
The Osgood Files (CBS Radio Network)
Washington Post (Washington DC)
The Wall Street Journal
The Dallas Morning News (Dallas, Texas)
Philadelphia Inquirer (Pennsylvania)
National Public Radio
Boston Globe (Massachusetts)
The Detroit News (Detroit, Michigan)
St. Paul Pioneer Press (Minnesota)
The Atlanta Journal-Constitution (Georgia)
Atlanta Business Chronicle (Georgia)
Asheville Citizen-Times (North Carolina)
The Kansas City Star (Missouri)
CBC Radio (Canada)
Salt Lake Tribune (Utah)
BYU NewsNet (Utah)
Great Falls Tribune (Montana)
The Economist
Road & Track
Los Angeles Times (California)
Sacramento Bee (California)
San Francisco Chronicle (California)
KXTV (Sacramento, California)
Ventura County Star (California)
The Mercury News (San Jose, California)
Pasadena Star-News (California)
San Diego Union-Tribune (California)
KESQ News Channel 3 (Palm Springs, California)
The Seattle Times (Washington)
Seattle Daily Journal of Commerce (Washington)
King County Journal (Seattle, Washington)
The Daily News (Longview, Washington)
The Columbian (Vancouver, Washington)
The Register Guard (Eugene, Oregon)
Corvallis Gazette-Times (Corvallis, Oregon)
Springfield News (Springfield, Oregon)
Portland Daily Journal of Commerce (Oregon)
KVAL 13 (Eugene, Oregon)
Democrat-Herald (Albany, Oregon)
Daily Journal of Commerce
The Oregonian (Portland, Oregon)
The Bend Bulletin (Bend, Oregon)
The Statesman Journal (Salem, Oregon)
Roseburg News Review (Roseburg, Oregon)
Grants Pass Daily Courier (Oregon)
Bulletin (Bend, Oregon)
Central Oregonian (Prineville, Oregon)
Daily Courier (Grants Pass, Oregon)
Herald & News (Klamath Falls, Oregon)
The Lakeview Examiner (Oregon)
Herald (Baker City, Oregon)
Siuslaw News (Florence, Oregon)
Willamette Week (Oregon)
Valley Times (Milton Freewater, Oregon)
Graphic (Newberg, Oregon)
Western World (Bandon, Oregon)
Coquille Valley Sentinel (Oregon)
KATU TV News (Oregon)
KGW (Oregon)
KXL (Oregon)
Wired Magazine
Roads & Bridges
Governing Magazine
Government Technology
Cybercast News Service
Inside ITS
TollTrans
Toll Road News
GPS World

Inaccuracies in Media Coverage

In the many media reports focusing on Oregon's mileage fee concept, frequent inaccurate statements are made when describing the technology and policy underlying it. The three issues most often represented inaccurately relate to privacy, a perceived potential for the Oregon Mileage Fee Concept, as described, to undercut moves toward more fuel-efficient vehicles, and the characterization of the mileage fee as a "new tax," although by statute and design it is a replacement for the fuels tax on gasoline.

- **Privacy.** Media reports often assume the Oregon concept includes "tracking" motorists' movements. In fact, the mileage-counting device installed in automobiles simply tells the odometer in which zone to record the miles driven. This is necessary to prevent Oregonians from being charged for miles driven outside the state. Certainly, the mileage-counting device knows its own location but no one else is able to electronically determine (except at fueling) the location of the mileage-counting device nor, accordingly, the location of the vehicle. No location data is stored in the device or elsewhere; since vehicle location data is not stored, it cannot be accessed. The only datum collected and transmitted is the mileage, sent to the gas pump reader through a radio frequency that will travel only about eight to ten feet. Should ODOT identify unauthorized uses of the mileage data, policies will be developed and put in place to protect travelers' privacy.

- **Rewarding Fuel-Efficiency.** Media reports often charge that if a mileage-based fee were to replace the fuels tax, the result would be to discourage the purchase of fuel-efficient vehicles. This assumes the mileage fee would be implemented as a flat fee on miles driven with the result that operators of low fuel efficiency vehicles would be rewarded and operators of high fuel efficiency vehicles would be penalized. This is not necessarily the case because the legislature would have the opportunity to structure the mileage fee in such a way to take into account external factors such as environmental concerns. For example, the mileage fee can be designed to increase the monetary reward for use of fuel-efficient vehicles. This option is likely to be considered by lawmakers, since studies show that although all passenger vehicles, regardless of weight, inflict approximately the same amount of damage to the roads; vehicle and fuel types vary greatly with respect to the amount of total environmental damage they cause.

  However the rate is structured, the mileage fee would immediately affect driving behavior by directly connecting road use with the motorist's road revenue obligation—the mileage fee would serve to reward less driving. Furthermore, even if the rate were structured as flat, the mileage fee itself would not eliminate existing (and increasingly strong) market signals to consumers to make fuel-efficient decisions when purchasing vehicles. At current prices, the state fuels tax is only about 10% of the cost of fuel. Finding the balance between a straightforward mileage-based system of paying for roads and taking into account environmental impact will be an issue for the lawmakers if the mileage fee is ultimately adopted for jurisdictional implementation.

- **A Fuels Tax Replacement, Not a New Tax.** The charge from the Oregon Legislature to the Road User Fee Task Force was "to develop a design for revenue collection for Oregon's roads and highways that will replace the current system for revenue collection." The mileage fee is in no way intended or designed as an additional tax for Oregon.

  The Oregon purpose for developing the mileage fee concept notwithstanding, the concept as structured has great flexibility for application of purposes other than replacement of the fuel tax on gasoline. For example, other jurisdictions may implement the mileage fee as an addition to its road tax system or structure the mileage fee rates for other purposes such as congestion pricing.

National Interest

ODOT has received numerous inquiries from other jurisdictions on the development of the mileage fee concept. In particular, the California Performance Review specifically stated that California should develop and implement a pilot program and review Oregon's efforts on the matter. The Puget Sound Regional Council in Washington State is also conducting a pilot program that has many similarities. The United States Congress has adopted legislation for the purpose of implementing its own pilot program to study mileage fees. The Bush Administration has also proposed extensive pilot testing of alternatives to the fuel tax on gasoline, including distance charging.

- **California Performance Review.** The California Performance Review Commission conducted a complete look at California state government at the direction of Governor Schwarzenegger with the ultimate goal of restructuring, reorganizing and reforming state government to make it more responsive to the needs of its citizens and business community.

  One of the recommendations in the infrastructure section states:

  > *"The Secretary of the Business, Transportation and Housing Agency or its successor should develop and implement a pilot project to test the feasibility of implementing a user fee based on actual individual use of the transportation system for funding future operations, maintenance and improvements to the transportation system. Vehicle miles traveled should be considered. The Secretary should review efforts by the Oregon State Department of Transportation to implement a pilot project for a user fee based on actual miles traveled." – www.report.cpr.ca.gov/cprrpt/issrec/inf/inf15.htm.*

- **US Chamber of Commerce Foundation Report: *Future Highway and Public Transportation Financing*.** This 2005 report on the impending need for alternatives to the fuel tax on gasoline recommends distance-based user charging (a.k.a. VMT fees) by state and local jurisdictions as the long-term (2015-2030) solution to road funding problems in the US.

- **Transportation Research Board Special Report 285: *The Fuel Tax and Alternatives for Transportation Funding.*** This national US study on fuel tax alternatives addresses the Oregon Mileage Fee Concept extensively. This study recommends that states and the US federal government undertake serious exploration of the potential for a system of distance-based charging as the solution for declining fuel tax revenues in a post-2015 world. The study was released in January 2006.

- **Puget Sound Regional Council Traffic Choices Study.** The Puget Sound Regional Council is conducting a pilot project that is similar in some aspects to Oregon's Pilot Program. In this pilot, on board "meters" will be placed in the vehicles of voluntary participants. Different prices per mile will be imposed depending upon the location and time of travel. Drivers will be made aware of the pricing both through maps and other printed material, as well as a real-time read-out on the in-vehicle meter.

- **Federal Pilot Program.** The U.S. Congress recently approved the Safe, Accountable, Flexible and Efficient Transportation Act: A Legacy for Users" that establishes the National Surface Transportation Policy and Revenue Study Commission. This Commission is expected to study alternative revenue sources for the Federal Highway Trust Fund.

Presentations

ODOT officials have delivered numerous presentations in North America on the Oregon Mileage Fee Concept and on the Road User Fee Pilot Program. These presentations are listed below, beginning with the most recent.

- ***Maine Transportation Conference****, Augusta, Maine, December 1, 2005*
- ***Pennsylvania Highway Information Association,*** *Hershey, Pennsylvania, Nov, 9, 2005*
- ***ITS Oregon Electronic Payment Systems Workshop,*** *Portland, Oregon, Nov. 2, 2005*
- ***Southeast Michigan Council of Governments****, Detroit, Michigan, October 11, 2005*
- ***Northeast Area Commission on Transportation,*** *La Grande, Oregon, Aug. 4, 2005*
- ***National League of Cities Transportation Infrastructure Committee****, Rochester, Minnesota, May 20, 2005*
- ***International Bridge, Tunnel and Turnpike Association Annual Meeting****, Toronto, Canada, May 16, 2005*
- ***2005 Oberstar Forum on Transportation Policy and Technology****, Minneapolis, Minnesota, April 18, 2005*
- ***Alternative Fuels Conference****, Irvine, California, March 3, 2005*
- ***Oregon Highway Users Alliance****, Salem, Oregon, February 15, 2005*
- ***Oregon House Transportation Committee****, Salem, Oregon, February 9, 2005*
- ***ITS Oregon Annual Meeting****, Portland, Oregon, February 1, 2005*
- ***Transportation Research Board Annual Meeting****, Washington, D.C., January 13, 2005*

- ***Association of General Contractors/WSDOT Annual Meeting****, Fircrest, Washington, January 6, 2005*
- ***California Self-Help Counties Coalition's Focus on the Future Conference****, Palm Springs, California, November 16, 2004*
- ***Central Oregon Area Commission on Transportation****, Redmond, Oregon, November 9, 2004*
- ***Petroleum Association of Oregon****, Tualatin, Oregon, October 13, 2004*
- ***Oregon Transportation Commission****, Newport, Oregon, September 30, 2004*
- ***Wisconsin Transportation Builders Association****, Madison, Wisconsin, September 21, 2004*
- ***American Association of State Highway and Transportation Officials' Annual Meeting****, Philadelphia, Pennsylvania, September 20, 2004*
- ***National Conference of State Legislators' Annual Meeting****, Salt Lake City, Utah, July 22, 2004*
- ***Northwest Regional Economic Conference****, Tacoma, Washington, May 21, 2004*
- ***Lane Council of Governments' Metropolitan Policy Committee****, Eugene, Oregon, May 13, 2004*
- ***Transportation Research Board's Study Committee on the Long-Term Viability of the Fuels taxes for Transportation Finance****, Irvine, California, March 8, 2004*
- ***"Partnerships in Transportation: The Northwest Transportation Conference,"*** *Corvallis, Oregon, February 12, 2004*
- ***Presentation to USDOT Staff****, Washington, D.C., January 15, 2004*
- ***Transportation Research Board Annual Meeting,*** *Washington, D.C., January 13, 2004*
- ***Oregon Highway Users Alliance****, Newport, Oregon, November 14, 2003*
- ***Washington Transportation Commission****, Olympia, Washington, August 18, 2003*
- ***Transportation Research Board's Mid-Year Meeting****, Portland, Oregon, July 17, 2003*
- ***Metropolitan Policy Committee****, Eugene, Oregon, February 13, 2003*
- ***Oregon Highway Users' Alliance****, Portland, Oregon, January 28, 2003*
- ***Joint Policy Advisory Committee on Transportation****, Portland, Oregon, January 16, 2003*
- ***Oregon Transportation Conference****, Seaside, Oregon, October 28, 2002*
- ***Joint Policy Advisory Committee on Transportation****, Portland, Oregon, October 10, 2002*
- ***Oregon Highway Users' Alliance****, Portland, Oregon, September 23, 2002*
- ***Westside Economic Alliance****, Beaverton, Oregon, July 10, 2002*
- ***National League of Cities TEA-21 Reauthorization Task Force****, Medford, Oregon, June 13, 2002*
- ***APWA Annual Meeting****, Stevenson, Washington, March 27, 2002*
- ***ITE (Institute of Transportation Engineers) Annual Meeting****, Portland, Oregon, January 23, 2002*

Facilitating Public Acceptance/Consent

Even before the Oregon Legislature established the Road User Fee Task Force in 2001, ODOT recognized the public's strong resistance to change; especially when an

existing system is simple and efficient. The public needs strong reasons to change. ODOT understands these very natural and logical human characteristics. This understanding has lead ODOT to focus, not on our proposed solution to the problems with fuel taxes, but on the problems themselves.

This focus on the problems has had two effects. First, members of the public who take an interest in this issue soon recognize there is a major problem with our current tax/fee structure. Even if they disagree with ODOT's proposed solution, this makes the discussion much more collegial, and causes interested parties to begin thinking about (and suggesting) solutions.

Second, there is a subtle effect on the agency itself. A continuous focus on the problem, rather than defending a "set in stone" solution, means the ODOT is willing to explore unusual and innovative ideas. VMTCAR is one example; ODOT's VMT-based area-pricing concept is another. The Task Force and ODOT seriously consider and analyze ideas (and challenges) from the public, no matter how unusual, on a continuing basis.

Several other items that have been important for gaining public consent, if not yet acceptance, of ODOT's process and program include:

- An early and on-going effort to identify issues the public may have with the Oregon mileage fee program.
- A willingness to address these issues head-on in a deliberative and analytical process.
- Having an open process, including open meetings, open hearings, an unabridged website, and continuing dialogue with the media and members of the public.
- Being persistent -- ODOT did not surrender simply because a few (usually ill-informed) newspapers published negative editorials or when rigid talk show hosts bashed our efforts with dubious or downright inaccurate assertions.[11]
- Reminding the public that there are no short-term implications for the Oregon mileage fee program; i.e., imposition of a new fee structure is not imminent.
- Emphasizing the long-term nature of this pilot project, and highlighting the efforts of a public agency to proactively head-off a potential long-term problem.
- It also helped that the third generation Toyota Prius came on to the market in the fall of 2003 and that oil prices have risen steadily since then.

Overcoming the public's resistance to change requires having good reasons for making a change and ensuring the public understands those reasons. Whatever change is made, the public will have questions and concerns. A key part of ODOT's success thus

[11] Critics often make inaccurate claims about the Oregon mileage fee concept, citing invasion of privacy, added taxation, unfair taxation, excessive cost, complexity—all generated by unfounded and inaccurate assumptions. The propagation of inaccuracies over new ideas must be expected and weathered as a necessary hurdle in modern policymaking. The Oregon Mileage Fee Concept, as refined and tested over the past several years in response to input from the motoring public and industry, resolves every issue generated by these claims—carefully, effectively and simply.

far can be attributed to thorough identification of, and responsiveness to, the public's concerns in an early, but also on-going, way.

ODOT expects further development of public acceptance (or consent) of the Oregon Mileage Fee Concept will occur through operation of the Road User Fee Pilot Program during the one-year period commencing Spring, 2006 to Spring, 2007. ODOT expects that testimony from ordinary citizen participants and ordinary gasoline distribution stations as to the ease and acceptability of the Oregon Mileage Fee Concept will calm public fears and nervousness about change to the new system. During this period, ODOT will also engage in public education about the impending problem with the future of fuel tax revenues. ODOT expects this combination of efforts to gradually assist a shift in public attitudes that will allow lawmakers to respond to an expected fuel tax revenue crisis in the making. Contrasting with the early period for introduction of the Oregon Mileage Fee Concept, the markers for public belief in the necessity of this change now exist in abundance – the steady entry of new hybrid-electric and alternative fuel vehicles into the marketplace and the volatile but steady increase in the price of oil.

In July 2003, ODOT determined the most likely way for Oregon to someday have access to electronically collected mileage fee revenues would be for the federal government, including Congress, and national transportation interests to accept the inevitability of adopting a new system for road revenues and seriously investigate the possibility of an electronically collected mileage fee system. From that point on, ODOT's communications efforts, including national presentations, communications and media strategy, were conducted with the goal of stirring the interest and actions of the national institutions for development of the electronically collected mileage fee.

The idea behind this strategy "to go national" is the determination that only a serious national discussion conducted with the resources of the federal government can realistically gain the acceptance of necessary industries and organizations (e.g. gasoline distribution, automobile manufacturers, automobile clubs, privacy advocates) in a way that will ease public resistance. It now appears that ODOT's strategy has worked. Over the course of the past six months national organizations with transportation interests have endorsed electronically collected mileage fees (See US Chamber of Commerce Foundation's 2005 report, *Future Highway and Public Transportation Financing* and the Transportation Research Board Study Committee's 2006 Report on the Long-Term Viability of the Gas Tax.) Further, the US Federal Highway Administration and transportation committees in the US House of Representatives and US Senate are also undertaking serious examination of the feasibility of an electronically collected mileage fee to ultimately replace the gasoline tax as the principal road financing mechanism for funding America's road and highway system.

In essence, the ODOT's understanding of the best way to attain public acceptance is to communicate early and often to the public, the media, lawmakers and transportation professionals on all aspects of the Oregon Mileage Fee Concept. ODOT understands that even the best ideas generate resistance during the early stages of development but also predicts that with consistently clear communications with appropriate responses

and program adjustments, as necessary, the public can begin to see not only the need for an alternative road revenue system but also the wisdom of the Oregon Mileage Fee Concept. Oregon's researchers will continue to refine the concept, in accordance with additional input from the motoring public and industry, as technology developments reveal simpler and more effective approaches to meeting the criteria of the Road User Fee Task Force and the goals of the Oregon Legislature.

For the motoring public to get to the point of acceptance of (or consent for) electronically collected mileage fees, the public will need to become comfortable with the idea over a fairly lengthy period of time. As they see the mileage fee-related technology deployed for other ordinary purposes, such as vehicle navigation; as they hear reports and testimony from participants participating in pilot projects; as they hear policymakers consistently explain the need and the wisdom of adopting the electronically collected mileage fee; and as they begin to see the markers of the need for transition to a new road revenue system, then members of the public will, at some point, begin to soften their attitudes towards electronically collected mileage fee as the solution to the impending fuel tax revenue generation problem. This point may not occur until desperation is reached. Current public resistance notwithstanding, it is incumbent upon transportation professionals and lawmakers to prepare in advance for this day in order to be ready when acceptance, or consent, comes – the sooner the better.

OBSERVATIONS AND FINAL THOUGHTS

A majority of the motoring public will soon obtain and operate newer, highly fuel efficient vehicles and will pay less and less gasoline tax per mile, over time, as the marketplace responds to increasing gasoline prices. As a result, revenues generated will become insufficient to maintain the road system. At some point, Oregon, America and the world will need to shift to a different revenue mechanism, something more reliable, if the road system is to survive.

Transition to a new road revenue system will not be easy. Most people are not fond of change and many actually fear it. Working through the policy issues, managing public sensibilities and attaining public consent (if not consensus) will take a significant amount of time, perhaps as much as a decade. Given this needed lead time, it is incumbent upon policymakers to start this effort early—now, in fact—so that the new system can be implemented before the road funding situation becomes an emergency.

Oregon's Road User Fee Task Force has concluded that the best approach for replacing the per-gallon fuel tax is a per-mile charge—the mileage fee. After more than four years of technical research and policy analysis, the Task Force and ODOT staff have developed a mileage fee system that is administratively and technologically feasible, affordable and more reliable from a revenue standpoint than the fuels tax. As a practical alternative to the fuels tax, this new mileage fee system could become the foundation for a new road revenue system for Oregon, America and other nations.

As demonstrated in the 2003 and 2005 Legislative Reports, the Oregon concept is workable and practical, a genuine alternative to the gasoline tax. Other creative alternatives may, in time, be devised that provide intriguing additional possibilities. Whichever alternative ultimately proves to be best suited to meet the transportation needs of travelers, it is no longer debatable that *some* alternative needs to be selected and implemented. The fuels tax must eventually be replaced. The Oregon Mileage Fee Concept is one viable possibility in this quest.

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