Road User Fee Task Force

Report to the
72nd Oregon Legislative Assembly

On the Possible Alternatives to the Current System of
Taxing Highway Use through Motor Vehicle Fuel Taxes

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Background

Legislative Charge

Recognizing that the fuel tax is a declining revenue source for Oregon's road system, the 2001 Oregon Legislative Assembly passed House Bill 3946, mandating the formation of the Road User Fee Task Force with the following statutory mission:

> To develop a design for revenue collection for Oregon's roads and highways that will replace the current system for revenue collection.

History of Oregon Fuel Taxes

Oregon enacted the nation's first fuel tax on gasoline in 1919. The fuel tax quickly became the principal method of financing Oregon's roads. Rapid inflation during the 1970s and early 1980s seriously eroded the buying power of fuel tax revenues, motivating the Legislature to pass a series of fuel tax increases between 1983 and 1991.

While inflationary pressures continued to erode the purchasing power of the fuel tax, a new problem emerged that had an equally negative impact upon available fuel tax dollars. Since the 1970s, motorists are purchasing ever more fuel-efficient vehicles. Gasoline purchases per mile driven have dropped dramatically and, correspondingly, so have fuel tax revenues.

Importance of Fuel Taxes to Road Finance in Oregon

Fuel tax revenue constitutes the bulk of the total funding available for Oregon roads. State and federal fuel taxes make up approximately 60 percent to 70 percent of total Oregon road revenue for a given year, depending upon the annual federal contribution. In 2002, fuel taxes comprised 70 percent of the total road budget.

Technological Improvements to Allow Even Greater Fuel Efficiency

New technology will soon greatly improve the average fuel efficiency of the statewide passenger vehicle fleet in Oregon. The highly fuel-efficient hybrid electric vehicle engine will become optional for many standard models by 2006, and the non-gasoline powered fuel cell engine may appear by the end of the decade.

Projection of Fuel Tax Revenues to 2014

As a result of fuel efficiency improvements, Oregon fuel tax revenues from the sale of gasoline are likely to level off during the next 10 years and then drop permanently.

Proceedings

The Road User Fee Task Force has held eight meetings. Among numerous findings, the task force discovered the following:

- The average passenger vehicle increased fuel efficiency from 11.8 miles per gallon in 1970 to 19.7 miles per gallon in 2002.
- The fuel tax will become an ever-shrinking portion of total road revenues.
- Numerous technologies could facilitate electronic application of a mileage fee.

The task force made a number of policy choices to develop an alternative to the current revenue system for road funding and analyzed 28 potential revenue mechanisms. The task force recommends any new system be founded upon user pay methods directly related to providing road infrastructure and services.

The task force developed four revenue sources for the new revenue system. The only broad revenue source that the task force believes could ultimately replace the fuel tax is a mileage fee. The other three revenue sources would address specific problems related to road revenue and are designed for certain geographical areas, certain road projects or certain road users.

Mileage Fee
A mileage fee is a distance-traveled charge imposed according to the amount a vehicle owner/operator uses the road system. A mileage fee would ultimately replace the fuel tax as the principal revenue source for Oregon's roads.

The task force developed numerous scenarios for collection of a mileage fee, including payment at gasoline stations, at an independent collection center, at Driver and Motor Vehicle Services or as part of a statewide spot-tolling system.

For purposes of pilot testing, the task force expressed a vision for the design of a mileage fee involving collection at either fuel service stations or at an independent center. Mileage data would be gathered from vehicles through an "electronic odometer" device such as a global positioning system or odometer tag, uploaded to data readers via radio frequency transmission and forwarded to a computer for fee billing. The fee rate would be about 1.22 cents per mile.

The vision would require new electronic odometers for new vehicles. No vehicle currently in use would be retrofitted.

During the phase-in period (20 years), it would be necessary for the state to operate both the fuel tax and the mileage fee. No Oregon motorist would be responsible for both. Nonresidents and motorists driving vehicles without the necessary technology would continue to pay only the Oregon fuel tax. Motorists paying the mileage fee would get an offset of the fuel tax.

Motorists' privacy would be protected by a design for the data transmission technology that would eliminate any possibility that their movements could be transmitted.

Congestion Pricing

Congestion pricing charges the owner/operator of a motor vehicle a fee for using certain roadways during periods of high congestion. Congestion pricing would apply only to certain geographical areas with the most congested roads.

The task force determined that congestion pricing is appropriate for certain urban areas in Oregon. Cost and technology are no longer impediments.

Congestion pricing can be implemented as a rate adjustment to a systemwide road-charging mechanism (such as a mileage fee) 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 and the type of pricing preferred by policy-makers. These factors heavily influence one another.

New Facility Tolling

New facility tolling involves tolling any new road, bridge or extended lane, to the extent practicable, for construction, maintenance and operation. New facility tolling would apply only to certain new transportation projects amenable to tolling.

Although tolling roads and bridges is common practice in other states and nations in the industrialized world, Oregon has no toll roads and only two toll bridges. The task force concluded that any new roads, bridges or extended lanes should be paid for, at least in part, through tolling when practicable.

Studded Tire Use Fee

A studded tire use fee charges owner/operators of motor vehicles using studded tires for damage directly related to studded tire use. A studded tire use fee would apply only to certain owner/operators of vehicles using studded tires.

The task force found that the cost of studded tire damage repair is currently spread across all passenger vehicles, whether or not they use studded tires. Studded tire use tends to reduce the useful life of road surfaces, but the damage is not uniform across the state, ranging from 1 percent of total damage in eastern Oregon to 47 percent of total damage in the Portland Metro area.

The task force has developed a recommendation for a Studded Tire Use Permit Program. Each operator of a motor vehicle using studded tires in Oregon would be required to display a permit. Permit fees would vary by vehicle registration in one of two regions.

Introduction

Charge by Oregon Legislative Assembly (House Bill 3946)

Recognizing that the fuel tax is a declining revenue source for Oregon's road system, the 2001 Legislative Assembly sought to address the long-term viability of Oregon road finance through the passage of House Bill 3946, which mandated the formation of the Road User Fee Task Force. (See Appendix A for text of HB 3946.) The bill directs the Road User Fee Task Force, which sunsets on Jan. 2, 2010, to establish a long-term vision for Oregon road finance. The Legislative Assembly adopted the following statutory purpose for the task force:

> "… to develop a design for revenue collection for Oregon's roads and highways that will replace the current system for revenue collection." (Section 2 (2) of HB 3946, 2001)

Formation of the Road User Fee Task Force

On Nov. 21, 2001, the governor, Senate president and speaker of the House of Representatives appointed 12 members to the Road User Fee Task Force. The appointments were made according to the requirements of statute. Task force membership consists of four legislators, two Oregon Transportation Commissioners, a city mayor, a county judge, a transportation research academic, a private businessperson, a representative of the Highway Users Conference and a public policy analyst. (See Appendix B for the membership list.)

Mission Statement

The Road User Fee Task Force adopted the following mission:

> 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.

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

The Context

History of Fuel Taxes in Oregon

1917 to 1982: Fuel Taxes Finance Construction of Oregon's Highway System
Oregon enacted the nation's first fuel tax on gasoline in 1919. Build-out of the first Oregon Highway Plan provided the motivation for this new tax and several quick 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 fuel 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 fuel tax increases in 1976, 1978, 1980 and 1982.

1980s: Fuel Efficiency Reduces Gasoline Purchases and Fuel Tax Revenues
While inflationary pressures continued to erode the purchasing power of the fuel 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 relative reduction in gasoline purchases and, correspondingly, fuel tax revenues.

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

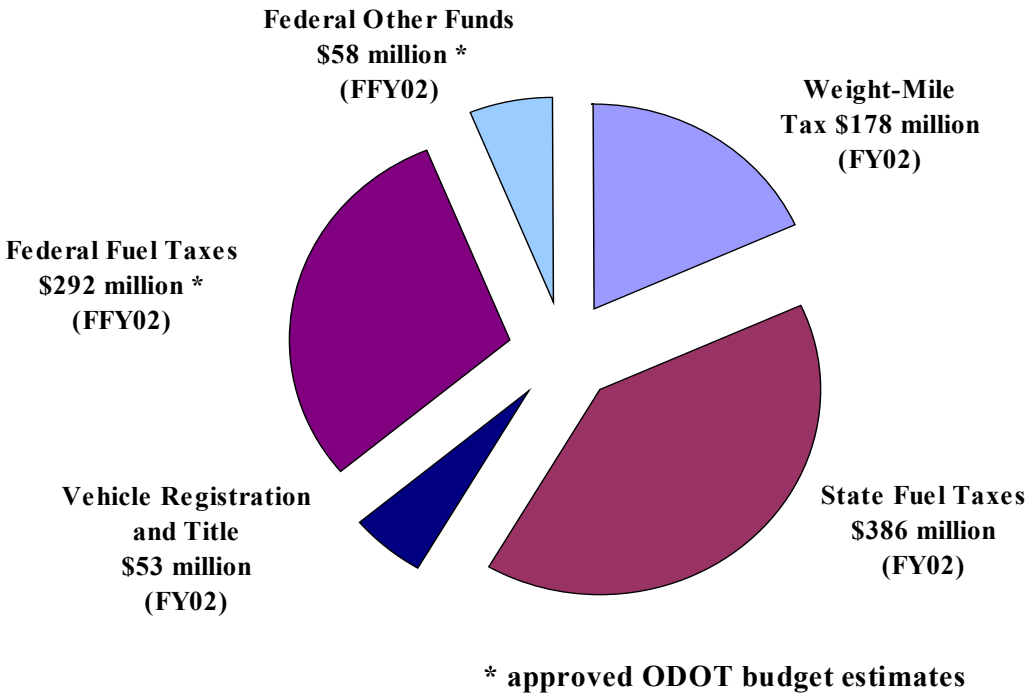
Post-1993: Fuel Tax Rate Stalls
The new road dollars allowed a limited road modernization program in the early 1990s. By the late 1990s, however, inflation, increasing statewide fleet fuel efficiency and a stagnant fuel tax rate eroded road revenues enough for the governor to mandate a maintenance-only policy. The voters rejected a fuel tax increase in 1999. By 2002, the fuel tax had not increased in almost 10 years.

Importance of Fuel Taxes to Road Finance in Oregon

Fuel tax revenue constitutes the bulk of the total funding available for Oregon roads. State and federal fuel taxes make up from approximately 60 percent to 70 percent of total Oregon road revenue for a given year, depending upon the annual federal contribution. In 2002, fuel taxes comprised 70 percent of the total road budget.

Chart 1

Oregon Road Revenue Sources for 2002 = $967 million



*** approved ODOT budget estimates**

Furthermore, under the Oregon Constitution, the level of weight-mile tax for heavy vehicles (trucks) is directly linked to revenues generated from passenger vehicles, such as fuel taxes. For example, if fuel tax revenues drop, the Oregon Legislature would be obligated to either reduce weight-mile taxes or increase fuel taxes.

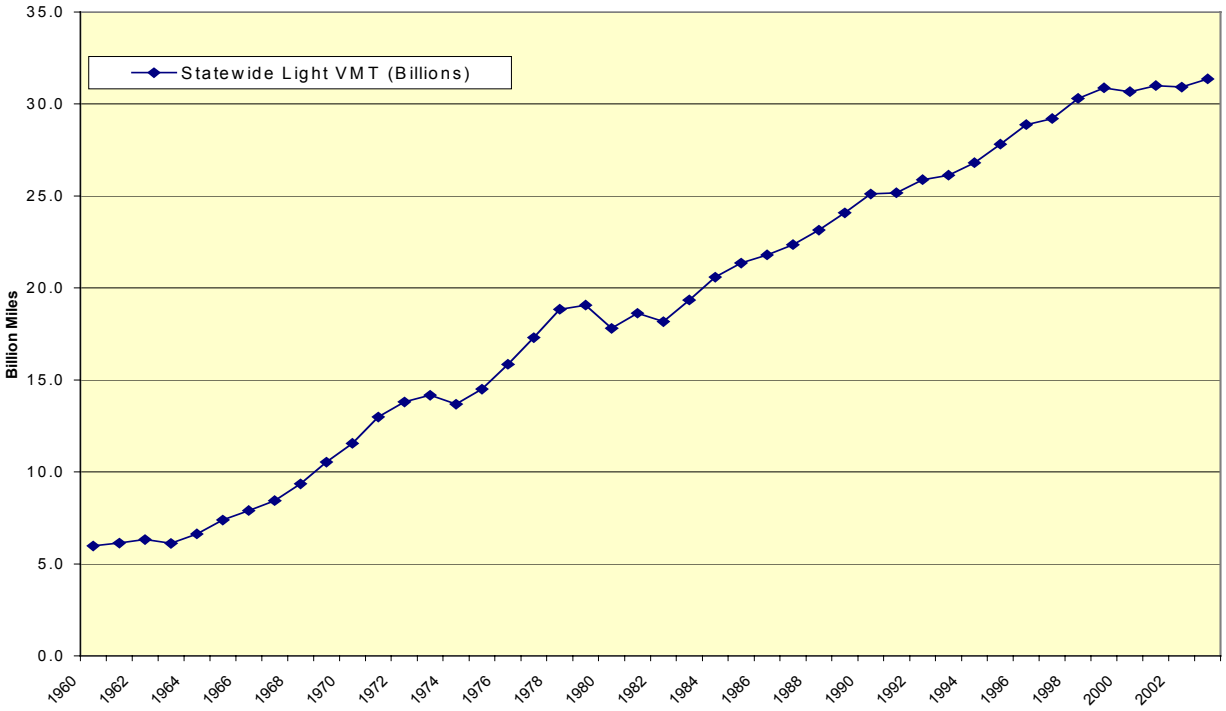
Economics of the Past: Erosion of Fuel Tax Purchasing Power as Road Needs Rise

Economic and Population Growth Foster Rise in Vehicle Miles Traveled

Over the past 40 years, Oregon experienced a population growth spurt and a leap in vehicle miles traveled—the number of miles driven per year by the average motorist.

Chart 2

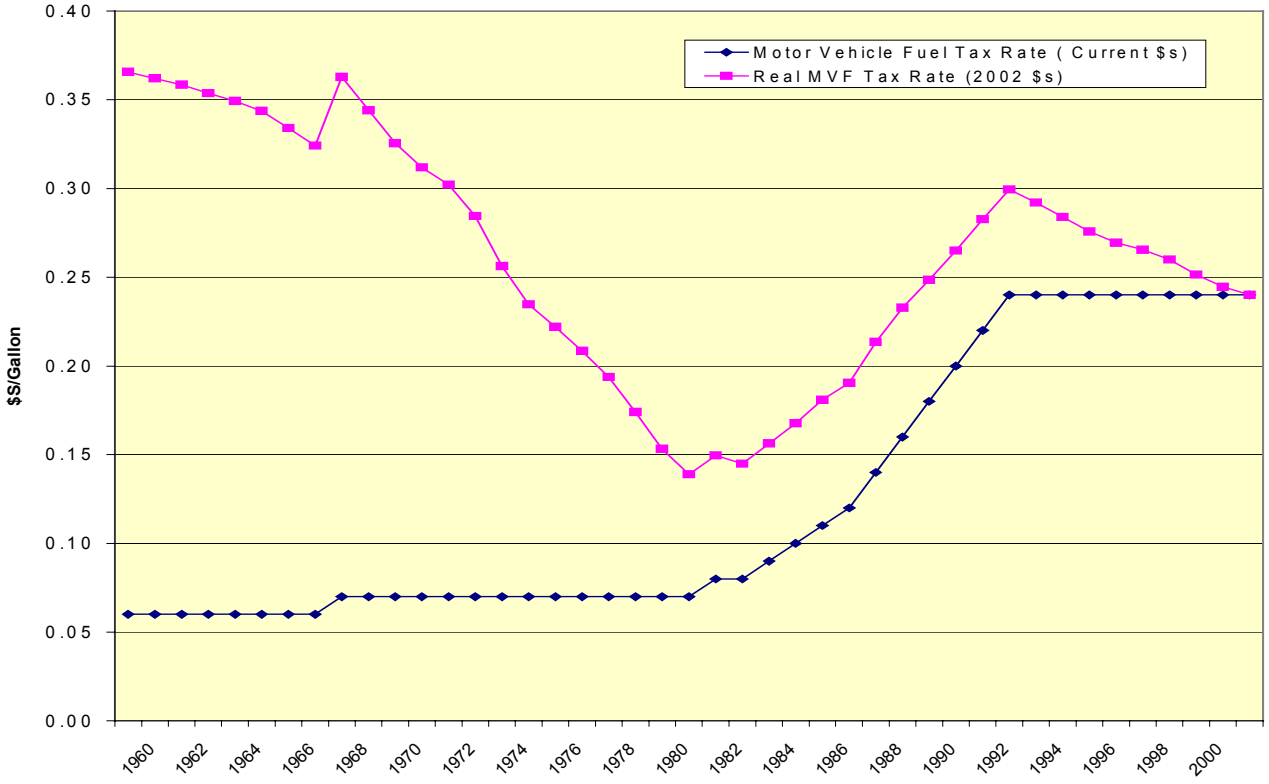
Statewide Light Vehicle Miles Traveled



Inflation of Road Costs

Starting in the late 1960s and continuing through the early 1980s, the increase in road costs seriously eroded the purchasing ability of fuel tax revenues. A number of increases in the fuel tax rate from 1982 through 1993 stalled the erosion, but the purchasing power of the current 24 cent fuel tax is dropping again.

Chart 3
Real Motor Vehicle Fuel Tax Rates



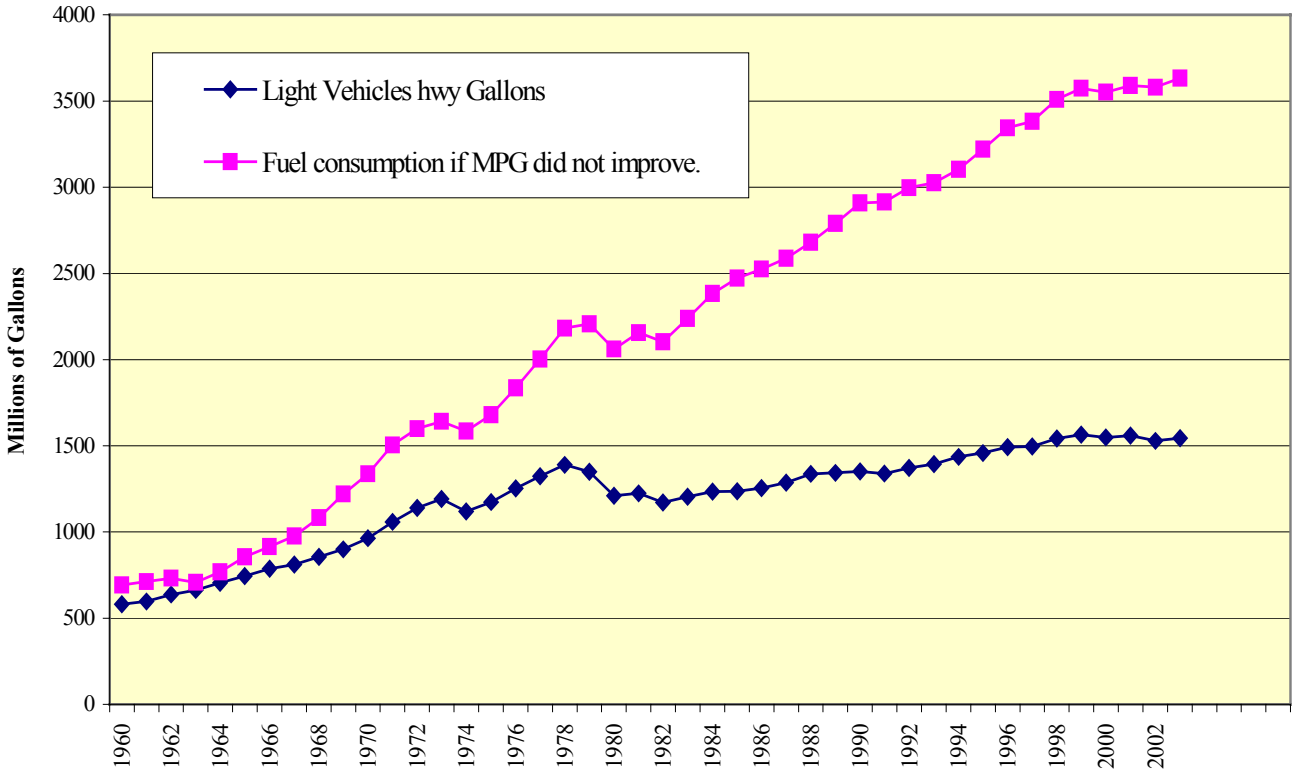
Rate of Gasoline Consumption Slows

Overall gasoline consumption has gradually increased over the past 40 years, largely due to population growth and an increasing number of vehicle miles traveled per year. Since 1978, however, a near doubling of average vehicle fuel efficiency has dramatically slowed the fuel consumption rate. As Chart 4 indicates, statewide fuel consumption would have been much greater had fuel efficiency not improved.

Chart 4

Fuel Consumption in Regard to Miles per Gallon Improvement

(See Appendix C for the data used for Chart 4.)



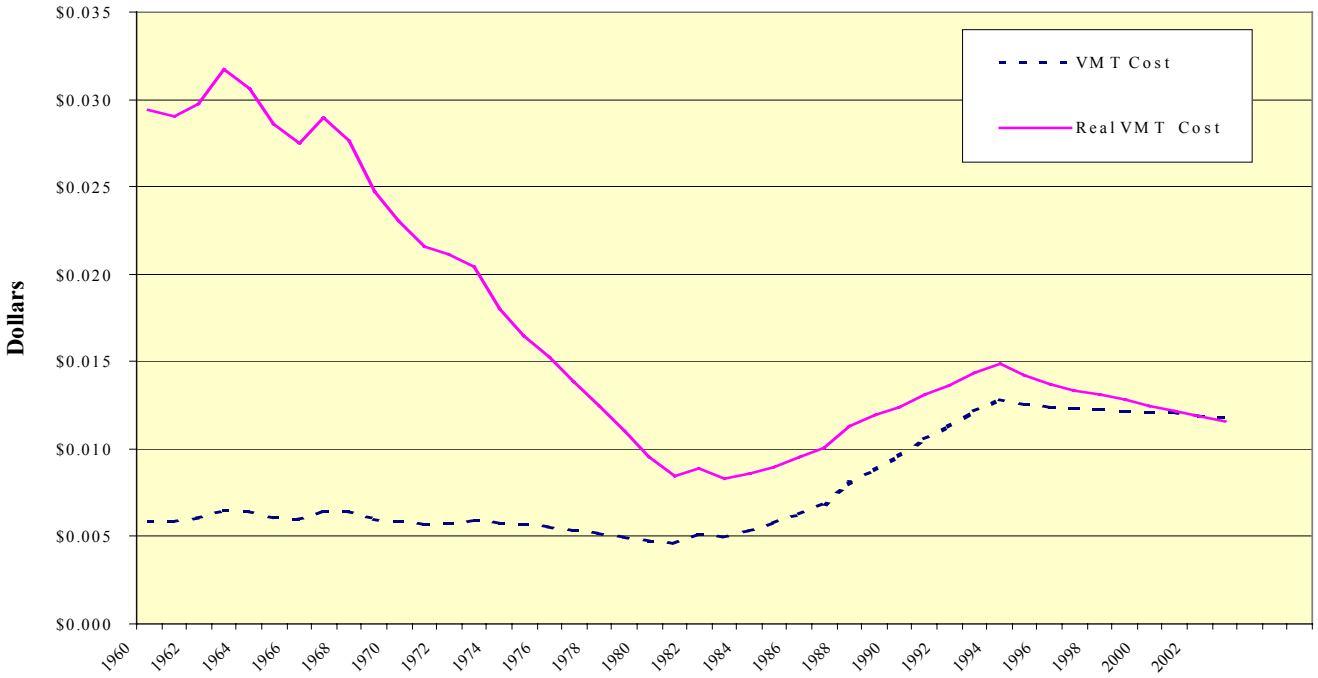
Effect of Inflation and Fuel Efficiency on Cost per Mile Driven

In 1960, the fuel tax operated much like a tax on mileage. Except for a handful of imports (for example, the Volkswagen Beetle), the average mileage per gallon was essentially the same for every vehicle. In 1960, inflation was virtually nonexistent and nearly every motorist who drove more miles paid a fair share of the increased cost to the system because of those additional miles. This condition changed with the emergence of rapid inflation and the advent of fuel efficiency improvements to vehicles. The result was a large reduction in the real cost (the cost adjusted for inflation in 2002 dollars) of driving per mile since 1960, dropping from 3.5 cents per mile in 1960 to 1.22 cents per mile in 2002.

Chart 5

Cost of One VMT (Nominal versus Real)

(See Appendix C for the data used for Chart 5.)

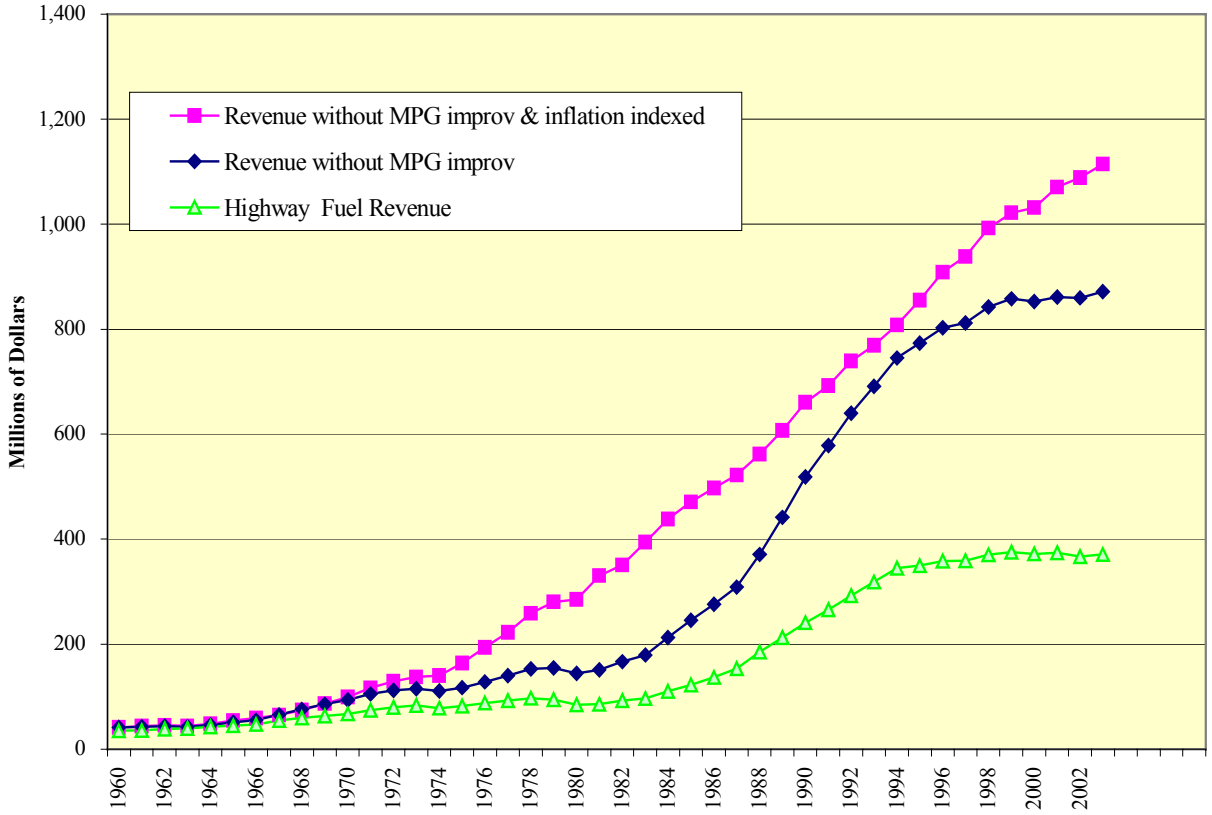


Effect of Fuel Efficiency and Inflation on Fuel Tax Revenues
The combination of the increased fuel efficiency of the statewide passenger vehicle fleet and increased road costs had the effect of a one-two punch on the purchasing power of the Oregon road dollar to meet ever-increasing demands made on the road system. This combination directly contributed to the destruction of the fuel tax's potential to raise adequate revenue.

Chart 6

Highway Fuel Revenue

(See Appendix C for the data used for Chart 6.)



Effect of Growth, Fuel Efficiency and Inflation on State Highway System and Congestion

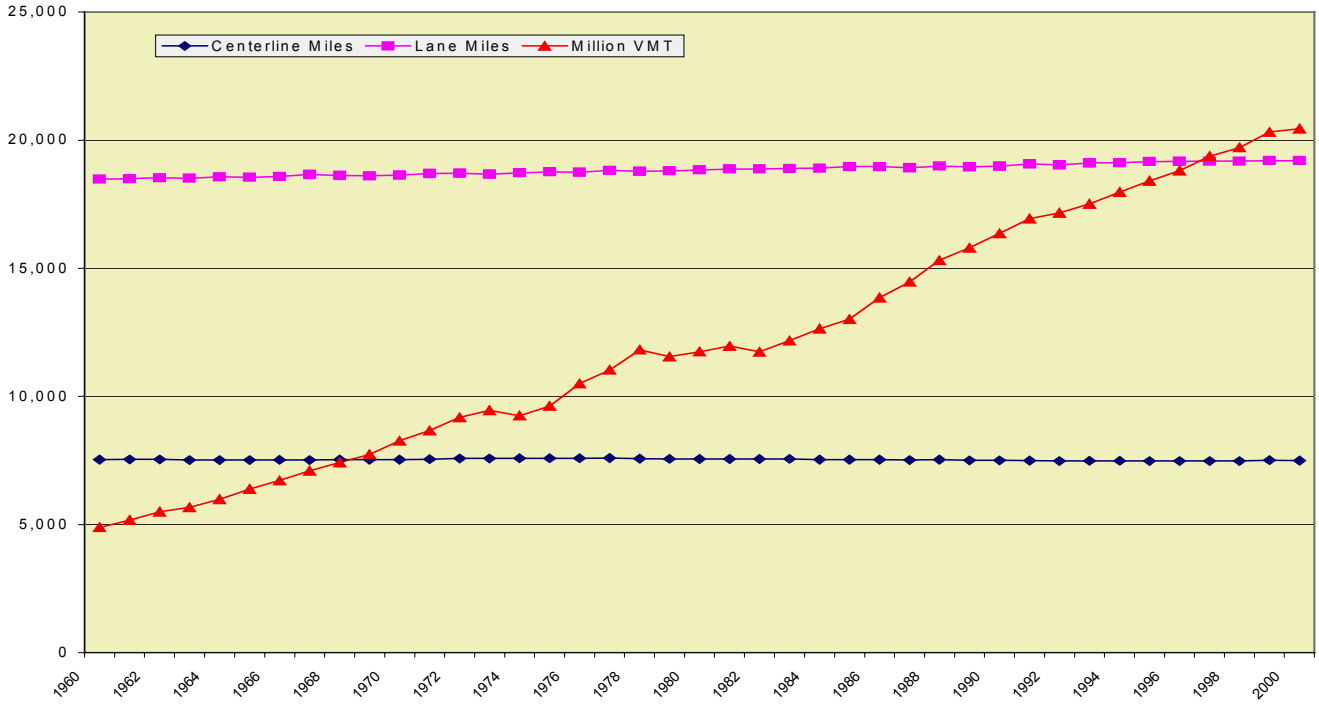
While total road revenues have tended to increase over time due to an increasing population driving more miles per vehicle, the purchasing power of these revenues has fallen behind. Available revenues are woefully behind the rate of inflation, especially taking into account the greater road system needs caused by the stress of steadily increasing numbers of vehicles on Oregon's roads.

The state highway system simply has not grown quickly enough to meet the needs of Oregon's motoring population. In 1960, Oregonians drove 4.9 billion miles on 18,478 lane miles of the state highway system. Forty years later, in 2000, Oregonians' driving quadrupled to 20.5 billion miles, but the number of lanes miles in the state highway system increased only 4 percent, to 19,200 lane miles. (See Appendix D for the state highway mileage summary.)

Chart 7

State Highway Miles and Use

(Note: For illustrative purposes, the task force set up Chart 7 using state highway system data, intending no preference for state highways over local roads.)



Economics of the Future: Further Erosion of Fuel Tax Purchasing Power as Fuel Efficiency Improves

Technological Improvements Will Allow Even Greater Fuel Efficiency

New passenger vehicle technology will dramatically improve the average fuel efficiency of the statewide passenger vehicle fleet in Oregon.

- **Hybrid Electric Vehicles**
  Every major automobile manufacturer either has hybrid electric vehicle models on the market or plans to introduce them soon. HEVs are powered by both a gasoline-fueled engine and an electric engine, automatically alternating from one to the other. HEVs generate and store electricity generated during driving activities that ordinarily cause a loss of energy, such as braking. HEVs do not require an external transfer of electric power; they do not need to be plugged in. Currently, HEVs have the ability to obtain 40 to 70 miles per gallon. The automobile manufacturers that entered the HEV market earliest are now planning HEV options for a full range of standard models. Those that entered the market later are planning to introduce several standard models with the hybrid electric engine option during the next few years.

- **Fuel Cell Vehicles**
  The Bush Administration is encouraging automobile manufacturers to develop engines powered by fuel cells and plans to spend $1.7 billion on fuel-cell research during the next five years. Fuel cell technology generates electricity and heat through a chemical reaction, other than combustion, of hydrogen and oxygen. Although several technological difficulties must be resolved before fuel cell vehicles become marketable, many automakers believe the market for fuel cell vehicles will begin around 2010.

- **Composite Materials**
  Composite materials are under development that will make vehicles stronger but weigh much less. An overall reduction in vehicle weight will increase the miles per gallon ratio and decrease gasoline consumption accordingly.

Projected Gasoline Price Increases Will Increase Demand for Technology Improvements

Before 2010, petroleum industry experts predict that the production of conventional oil will crest and enter a permanent decline. These experts estimate the United States is 30 years past the midpoint of crude-oil production capacity. If true, this means that the United States is now consuming the second half of its ultimate recovery of oil: the combination of oil extracted to date, known reserves and projected discovery of oil. The world's crude-oil production capacity would be just past its midpoint. The result would be either significant increases in the price of gasoline, as more expensive oil-extraction technologies are employed, or quite possibly a shift into the use of alternative fuels. (See "The End of Cheap Oil," *Scientific American*, March 1998.) Over the short term, gasoline prices would increase significantly. As gasoline prices rise, technological

improvements and alternative energy sources become more cost effective, affordable and in greater demand.

Projection of Fuel Tax Revenues to Fiscal Year 2014

As a result of fuel efficiency improvements, Oregon fuel tax revenues from the sale of gasoline are likely to level off and then permanently drop during the next 10 years. Furthermore, because fuel tax payments from light vehicles (passenger vehicles) affect tax rates for heavy vehicles (large trucks) as a general rule in Oregon, the state likely would experience reduced revenue from heavy vehicles as well.

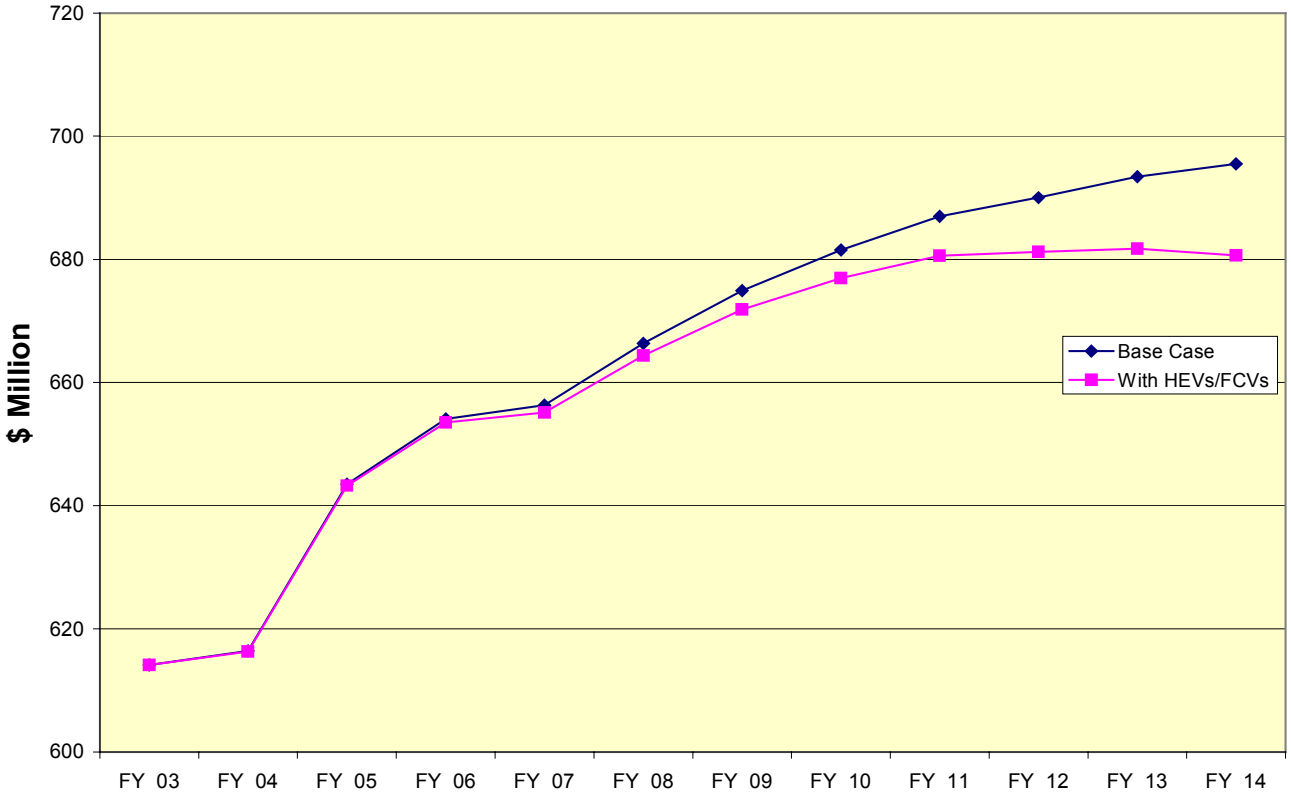
The immediate effect of the entry of highly fuel-efficient vehicles into the marketplace will be significant in five to 10 years. Chart 8 shows the effect a gradually increasing market for hybrid electric and fuel cell vehicles could have on Highway Fund revenue. After 10 years, the negative revenue impacts become large in dollar terms and grow at a very rapid rate.

Chart 8 shows a Highway Fund revenue reduction of about $15 million in fiscal year 2014. Nevertheless, the cumulative revenue reduction between FY 2004 and FY 2014 is more than $53 million. Revenue reductions of this magnitude will negatively impact the ability to maintain, preserve and modernize Oregon roads.

Chart 8

Effect of New-Technology Vehicles on Highway Fund Revenue

(See Appendix E for the data used for Chart 8.)



Proceedings

Analytical Process

The Road User Fee Task Force held eight meetings from Nov. 30, 2001, to Nov. 15, 2002. (See Appendices GG, HH, II, JJ, KK, LL, MM and NN for task force meeting minutes.) The task force received the results of a literature review on alternatives to the fuel tax, including mechanisms and technology. The task force heard 15 other presentations and reports pertinent to its analysis. (See Appendix F for a list of reports and presentations.) The task force made policy recommendations about the configuration of a new road finance system for Oregon and analyzed 28 potential revenue mechanisms. During these meetings, the task force adopted a public outreach process and received comment from a number of stakeholders.

Public Outreach Process

The task force accommodated public testimony at each of its meetings. Additional public comment was received at three public hearings in Pendleton, Portland and Coos Bay. (See Appendix G for a summary of public comment.) In addition, the task force initiated an interactive Web site (http://www.odot.state.or.us/ruftf) and received and responded to numerous public comments through this means as well as regular mail communications. Media reports also informed the public about the work of the Road User Fee Task Force. News articles and editorials appeared in newspapers and newsletters across Oregon and the nation. In addition, the task force administrator and task force members gave numerous radio interviews to stations broadcasting throughout Oregon and the nation. Task force staff held two stakeholder meetings in January and June 2002 to inform stakeholders of the process and proceedings and to gather comment on process and task force recommendations. Task force staff made several presentations to stakeholder groups and legislative panels. (See Appendix H for a list of the staff presentations.)

Findings of Fact

The task force made the following findings of fact:

Average Motorist's Road Taxes and Fees

The average Oregon motorist pays $165 per year in state taxes and fees for the road system. The average motorist pays $115 per year in federal tax for the road system.

Effect of Technology Improvements

Since 1970, when the average passenger vehicle in Oregon achieved 11.8 miles per gallon, the Oregon fleet of passenger vehicles has become ever more fuel efficient, reaching an average of 19.7 miles per gallon in 2002. This trend will continue in the future, with dramatic increases in statewide fleet fuel efficiency expected. Newer engines, particularly hybrid electric vehicles and fuel cell powered vehicles, and

improved materials such as lighter but stronger composite materials, will gradually allow the statewide fleet to achieve further significant increases in fuel efficiency and thus consume relatively less fuel.

Fuel Tax Unsustainable

Attributable to the greatly improving technology for fuel-efficient automobiles, the fuel tax will become an ever-shrinking component of the road revenue system. Soon total fuel tax revenues for gasoline and other fuels, such as propane, liquid natural gas and hydrogen, will permanently drop off unless increases in fuel taxes occur. Even if fuel tax increases are enacted by the Legislature, these increases are highly likely to be political reactions to the serious erosion of fuel tax purchasing power rather than a steady, regular increase that mirrors improvements to motor vehicle fuel efficiency. The last round of Oregon fuel tax increases, from 1981 through 1991, were political reactions to a road-funding crisis after the crisis had reached a critical level. With a growing population, Oregon cannot afford a similar road-revenue crisis without suffering economic hardship.

Functionality of the Fuel Tax on Gasoline

The task force found that from the standpoint of function and cost of administration, the fuel tax on gasoline is an excellent revenue source. The administrative cost for the fuel tax is $1 million per year, or one-fourth of 1 percent of revenue raised.

Legality of Running Two Concurrent General Revenue Systems

During a phase-in of a new road revenue system, it is likely that one set of vehicle owner/operators will pay one tax or fee and another set of vehicle owner/operators will pay another tax or fee. Upon conferring with a representative of the Oregon Department of Justice, the task force found that offering the newer system to those desiring to use it in place of the old system would likely eliminate any legal impediment.

Rural Roads' Ability to Self-Sustain

The task force found that many rural highways are essential to the Oregon economy, and the efficient movement of raw materials, goods and services along rural highways is desirable. After initial research on the question of whether rural roads generate enough revenue on a vehicle miles traveled basis to pay for annual maintenance and preservation, the task force found that the available information is inconclusive to prove subsidization is necessary and that additional research should be conducted on this question. (See Appendix I for estimates of revenue earned on selected rural roads.)

Geographical Comparisons of Annual Mileage

Available evidence does not indicate that residents of rural counties drive substantially more miles per year than people living in urban counties. Anecdotal information presented during task force meetings and hearings indicates rural residents may drive longer distances for some purposes, such as trips to doctors or dentists, interschool events and public meetings. On the other hand, statistical evidence indicates commute times are shorter in rural areas, including a greater likelihood of walking. Overall, statistical evidence from a sampling of Oregon counties indicates residents of rural counties may drive 10 percent more than residents of urban counties, but this evidence

is not conclusive because the Oregon Department of Transportation has identified statistical aberrations within the data. (See Appendices J and K for geographical mileage data.)

Technological Opportunity for Mileage Fee

The task force identified numerous technologies that could facilitate application of a mileage fee. These include global positioning system, automatic vehicle identification, radio frequency transmission, cellular transmission, bar code identification, electronic toll tags (transponders) and license plate recognition systems. These devices have become more accurate and less costly in the past few years. The task force finds it technically feasible to implement a mileage fee dependent upon numerous combinations of these technology components. (See "Technology Issues Related to Fuel Tax Alternatives" by Robert L. Bertini, *Alternatives to the Motor Fuel Tax*, Chapter 4, November 2001, pp. 29-48.)

Policy Decisions for Alternative Road Finance System

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 it. 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.

Potential Revenue Sources Not Developed

Section 2 of the enabling legislation requires the task force to consider "*all* potential revenue sources," and the task force has followed this directive. Since November 2001, the task force analyzed 28 different possible road finance mechanisms identified by staff, task force members, ODOT employees, legislators and members of the public. (See Appendix L for descriptions of the potential revenue sources considered by the task force.)

The following potential revenue sources are not included in the task force's recommendation for the reasons stated:

	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

Development of Potential Alternative Revenue Sources

The task force chose to develop the following four revenue sources to form the new revenue system design. The task force considers these revenue sources to be precise user fees, able to generate sufficient revenue, not a local government revenue source,

transparent, enforceable, able to support the highway and road system in all jurisdictions and not imposing an undue burden on the private sector or road users. Furthermore, comments at task force meetings and 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.

- **Mileage Fee.** 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.

Broad Revenue Source Alternative to Motor Vehicle Fuel Taxes

Policy Recommendations for Mileage Fee

The task force recommends that 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 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.
- **Retrofitting Affordability.** Any retrofitting of new technology into older vehicles should be affordable.
- **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 is not 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.

Mileage Fee Scenarios

The task force developed six scenarios for a mileage fee. They are differentiated by the method of fee collection and payment. The scenarios range from fee and data collection at a private collection center, at DMV, at service stations and through systemwide spot tolling. (See Appendices M, N, O P, Q, R, S and T for descriptions of each of the six scenarios, the advantages and disadvantages of each scenario as identified by the task force, and the list of options considered by the task force under each scenario.)

Issues Concerning Configuration of a Mileage Fee

Several critical issues must be resolved in designing a mileage fee.

Technology: Reliability, Security, Feasibility and Interoperability
The technology supporting a mileage fee must perform the following functions:

- Calculation of mileage traveled only within Oregon
- Data storage
- Data transmission
- Data processing
- Calculation of fee owed

The technology configuration implemented must be reliable, secure, feasible and interoperable with the other technology components. The task force engaged the Mobile Technology Group of Oregon State University to analyze these issues. The OSU researchers found two mileage data-collection technologies that can meet the criteria. One is the global positioning system with data transmission via radio frequency. The other technology is an odometer tag device.

A global positioning system involves a device that includes a data receiver and a computer that can determine current location by using triangulation from the satellite network developed by the U.S. Department of Defense. GPS receivers have no ability to transmit the information received without being combined with other devices. GPS-based devices can be configured to transmit only a miles-traveled data total from an identified vehicle.

It is important to distinguish GPS from automatic vehicle location systems. AVL systems combine GPS with a radio transmission system that transmits the current location back to a central system for tracking. It is not necessary to use AVL to calculate vehicle miles traveled within a state.

An automatic vehicle identification device allows identification of a particular vehicle at a particular point in space by a reader placed along the roadside. AVI often is a component of modern electronic toll-collection systems because of its ability to identify ownership of traveling vehicles for purposes of charging tolls to the appropriate customer account.

An odometer tag is a radio-frequency-based AVI device that interfaces with a vehicle's speed sensor for purposes of measuring mileage traveled. Mileage data is stored within the device and transmitted via radio frequency to readers.

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.

Expense of Retrofitting
The expense of retrofitting vehicles already in use makes certain technology options cost prohibitive to implement over a short time frame. For example, GPS devices can range from simple to complex models that range from $300 to more than $1,000 per device plus installation cost. Even retrofitting the least-expensive version can make a one-step implementation practically impossible. Adding the cost of retrofitting data transmission technology to the cost of installing a simple GPS device on 3 million Oregon passenger vehicles makes the total price tag for retrofitting enormous. On the other hand, an independent AVI device costs only $10 (plus installation) but is not as precise as the GPS device, so application is limited. The task force is exploring applications of an odometer tag device that links an AVI device to a vehicle's odometer, an option that may cost approximately $150 to retrofit.

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.

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.

One possibility is to phase in the retrofitting over a definite period, such as six years. This would require an estimated annual public expenditure of $167 million per year, based on the current off-the-shelf capital costs of retrofitting the GPS technology, or $50 million to $58 million per year, based on the projected capital costs of retrofitting odometer tag technology.

Another possibility is to apply the mileage fee only to new or newly registered vehicles combined with a mandate for these new vehicles to enter Oregon properly equipped with the necessary device, thus avoiding cost to the state for retrofitting. Research on the frequency of vehicle turnover in Oregon indicates this strategy could take more than

20 years to reach the point of 90 percent market penetration. Thus, the range for a full phase-in of a mileage fee is roughly six to 20 years.

A third possibility is to apply the mileage fee not only to new and newly registered vehicles entering Oregon but also to vehicles with high fuel efficiency. A program for retrofitting vehicles with higher fuel efficiency can pay for itself through increased revenues compared to the fuel tax. Research indicates the optimum application of a mileage fee for in-use vehicles would be for vehicles with U.S. Environmental Protection Agency fuel efficiency ratings of 28 miles per gallon or greater. (See Appendix U for analysis of retrofitting odometer tags only on fuel-efficient vehicles and Appendix V for phase-in data.)

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 years, as a practical necessity.

Retention of Fuel 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 fuel tax on gasoline 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.

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. The task force believes an income tax credit for actual fuel taxes paid is the simplest method of handling this problem.

Capital Costs of Implementation

A mileage fee will require significant capital expenditures beyond retrofitting, however configured. In a report entitled *Technology Evaluation for Implementation of VMT-Based Revenue Collection Systems*, researchers led by Professors David S. Kim and David Porter of Oregon State University assisted the task force in determining the capital costs of the technology options for implementation of the six scenarios. In a report entitled *Data Transmission Options for VMT Data and Fee Collection Centers,* researchers led by Professor Robert L. Bertini of Portland State University assisted the task force in determining capital costs for an independent data and fee collection center. The Oregon DMV assisted the task force in determining capital costs for DMV collection. Based on these research reports, a 67 percent increase in the base rate of a mileage fee would be necessary for the retrofitting of GPS technology over a six-year phase-in. The base rate increase for odometer tag retrofitting would need to be 20 percent for a six-year phase-in. (See Appendix W for the estimated capital costs for implementing a mileage fee under each of the six scenarios.)

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.

Administrative Overhead Costs

Depending upon the scenario selected for a mileage fee, the administrative costs of operation could be significant. To assist in the determination of the costs for the six scenarios, the task force engaged research consultants at Portland State University and Oregon State University. (The consultants' research reports are mentioned above.) DMV also assisted the task force in determining administrative overhead costs for DMV collection. The research indicates that administrative costs to operate a data and fee collection center for a mileage fee would be very high. Research estimates for operating a collection center are $49 million annually, requiring a base rate increase of 12 percent. PSU researchers estimate that cellular transmission of mileage data would make central collection even more expensive by an additional $55 million annually. ODOT estimates the public administrative costs for collection at service stations, by contrast, to be $1.6 million annually, an affordable cost in comparison with the fuel tax on gasoline. (See Appendices X, Y and Z for the estimated annual administrative costs for operating a mileage fee under each of the six scenarios.)

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 service stations.

Public versus Private Administration

A mileage fee could be administered either through an existing private collection mechanism (for example, payment at service stations), an existing government collection mechanism (for example, DMV registration fees), a new government collection mechanism or a new private collection mechanism. In a report entitled *Institutional Options for VMT Data and Fee Collection Centers,* researchers led by Professor Anthony Rufolo of Portland State University assisted the task force in evaluating the advantages and disadvantages of the private collection of a mileage fee in contrast to the governmental collection of a mileage fee.

Task Force Conclusion

A private fee collection mechanism is likely to be the most cost effective and administratively efficient mileage fee collection system.

Public Acceptance: Privacy

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. Without safeguards such as data transmission technology limitations, improperly configured global positioning system devices could conceivably allow such tracking. Transfer of only summary data would prevent the ability to establish a travel history. Similarly, the use of transmission technology within the GPS device that allows only occasional transmission of summary mileage data over a short distance, rather than continuous transmission of location points over a wide area, would provide the necessary privacy protections. Radio frequency transmission covers only a few feet to a reader at central locations. Cellular transmission covers a wide area. Privacy issues for automatic vehicle identification-based devices, such as an odometer tag, are insignificant because AVI devices are technologically incapable of tracking vehicle movement.

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.

Public Acceptance: Transparency vis-à-vis Ease

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 service 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 service stations hampers both visibility of the fee payment and recognition of the

mileage driven and fee amount paid. For fee collection other than service stations, the effect is the opposite. Non-service 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.

Enforcement
The ability to ensure payment of a mileage fee varies depending upon configuration. For context, approximately 200 gasoline distributors pay the current fuel 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 service 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 incidence of fuel tax shifts to the service stations from the gasoline distributors. See Appendix AA for analysis of shifting taxation of gasoline to the pump.) Non-service 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 service stations as part of the fuel purchase.

Rate Structure: Base Rate Overlays
For every scenario, the base rate for the mileage fee can be adjusted to take into account factors other than raising revenue. (See Appendix BB for a description of the alternatives for base-rate adjustments.)

- **Congestion Pricing.** This allows for variable pricing above the base rate for travel during peak hours in congested areas sufficient to divert some travel to other transportation modes or to other times of day. It is unlikely that congestion pricing can be implemented on a revenue-neutral basis, because the probable allocation policy for congestion pricing dollars will be to spend these dollars on the roads subject to the variable pricing.

- **Fuel Efficiency.** This would allow for a base-rate adjustment depending upon the fuel efficiency of the passenger vehicle. It could be applied across the entire statewide fleet on a revenue-neutral basis. It could be applied to owner/operators of passenger vehicles with fuel efficiency below a set U.S. EPA rating per gallon.

- **Geography.** This would allow for a base-rate adjustment depending upon the geographic location in which the passenger vehicle is registered.

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.

Rate Structure: Base Rate Adjustments
The base rate for a mileage fee, on a revenue-neutral basis compared to fuel tax revenues, would be 1.22 cents per mile in 2002 dollars. (The 1.22 cents per mile figure is calculated by dividing the current fuel tax of 24 cents per gallon by the 2002 average vehicle's fuel efficiency of 19.7 miles per gallon.)

- **Adjustment for Inflation.** This would allow for a periodic automatic adjustment in the base rate for road cost increases due to inflation.

- **Adjustment for Recovery of Administrative Costs and Capital Expenditures.** At the base rate of 1.22 cents mile, a mileage fee would raise insufficient revenue to recover both the higher costs of administration and capitalized expenses and maintain the current level of revenues available for roads under the fuel tax.

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.

Recommended Pilot Testing Scenario for Mileage Fee Collection

Vision for a Mileage Fee
The task force expressed a vision for the design configurations of a mileage fee to enable pilot testing that is a vehicle miles traveled fee.

The task force vision for a mileage fee would involve data and fee collection at either fuel service stations or at an independent center. Mileage data would be gathered through an "electronic odometer" such as a global positioning system or odometer tag. The mileage data from the electronic odometer would be uploaded to data readers via radio frequency transmission and forwarded to a computer for fee billing. The rate applied would be approximately 1.22 cents per mile driven, which is roughly equivalent to the current state fuel tax on gasoline.

The electronic odometer device would be required for new vehicles purchased in Oregon. The task force does not recommend retrofitting vehicles already in use, except for newly registered vehicles, until the cost and feasibility of doing so becomes practical.

The task force recognizes that phasing in the mileage fee will be necessary until the needed devices are installed in every passenger vehicle in Oregon. During the phase-in period, currently estimated to be about 20 years, it will be necessary to operate two revenue systems at once—the fuel tax and the mileage fee. Nonresidents and motorists driving vehicles without the necessary technology would continue to pay the Oregon fuel tax until other states adopt a similar mileage fee that could be integrated with Oregon's mileage fee. Because the task force intends that no motorist be responsible for paying both the mileage fee and the gas tax, the mileage fee would offset against the allocated fuel tax paid. Any excess allocated fuel tax would be eligible for an income tax credit.

Enforcement of a mileage fee would be by traffic fines and private collection for those motorists who resist payment.

The privacy of motorists would be protected by a data transmission design that would allow only summary data to be periodically transmitted. The task force finds that a legal restriction may also be needed to ensure that no Oregon motorists are at risk of having their vehicle movements transmitted.

The task force designed the mileage fee to be revenue neutral so that the base rate at the time of implementation would be equivalent to the gas tax rate for the average passenger vehicle. The task force does not propose any adjustments to the base rate except for driving within certain areas during periods of congestion (congestion pricing).

Comparison of Motorist Fuel Tax Payments with Mileage Fee

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. (See Appendix CC for comparison of fuel tax and VMT fee payments for selected vehicles.)

Mileage Fee Testing Scenario Recommended

Although task force members individually favor more than one mileage fee collection scenario, the consensus of the task force is not to recommend a particular collection scenario at this time. Several factors will ultimately determine the best mileage fee collection scenario, including financial, technological, political and public acceptability factors, and the task force prefers to keep options open until the pilot test program has generated sufficient data to enable a precise recommendation to the Oregon

Legislature. The task force recommends the following configuration for a mileage fee for purposes of pilot testing.

Mileage Fee
(Vehicle Miles Traveled Fee)

The Vision for Pilot Testing

Description
Actual mileage data is uploaded to a reader for transmission to either a service station computer or an independent collection center for fee calculation and payment. All operators of vehicles containing necessary technology would be charged a mileage fee based on mileage since the last reading. The user receives an income tax credit for fuel tax paid.

Data Collection Technology
Global Positioning System versus Odometer Tag Technology. The task force prefers a policy that encourages or mandates installation of technology that facilitates electronic collection of mileage data for purposes of straight application of a fee charge per mile. In this respect, the task force chose electronic odometer options of either a global positioning system device or an odometer tag device, depending upon the interoperability of these technologies with other elements of the mileage fee system. (Note: These options are research dependent.)

Data Upload Technology
Radio Frequency Upload. The mileage data would be uploaded from the electronic data collection device via radio frequency to readers at service stations or other central locations for purposes of calculating the fee based on actual mileage. (Note: This option is research dependent.)

Data Collection and Fee Retrieval (Two Options)
Paid at Service Stations. The mileage fee would be paid at service stations by application of the fee rate to actual mileage data collected by readers at the service stations. Service stations would forward the fees collected to the Highway Fund net of an administrative charge.

OR

Collection Center. The mileage fee would be paid via monthly billing. A collection center would calculate the mileage fee on a periodic basis, by application of the fee rate to actual-mileage data collected by readers at service stations or other central locations, and send the vehicle owner a billing. The vehicle owner would pay the billing, and the collection center would remit the fees collected to the appropriate taxing authority net of an administrative charge and costs.

Phasing In to Current Oregon Road Finance System
(Credit for Estimated Fuel Tax Paid by Mileage Fee Taxpayers)

Collection of Mileage Fee Net of Fuel Tax Credit. The incidence of fuel taxation for gasoline would remain at the distributor level. Service stations would apply a credit for estimated fuel tax paid against the mileage fee before forwarding the net amount to the Highway Fund. If the fuel tax credit exceeded the mileage fee assessment for any transaction, there would be no rebate of any portion of the estimated fuel tax paid, but the payer would be eligible for an income tax credit of the excess amount.

OR

Fuel Taxes Refunded as Income Tax Credit. Passenger vehicle owners who pay a mileage fee would be eligible for an income tax credit for allocated fuel taxes paid for the same period provided documentation of receipts is retained.

Enforcement

Mandated Collection of Mileage Fee. Collection of the mileage fee would be mandated as a condition for the sale of fuel for passenger vehicles in the state of Oregon.

OR

Private Collection and Traffic Fines. A collection center would have the authority to collect nonpayment of fees through the private collection system (civil judgments, debt collection agencies, liens, etc.). Traffic fines also would be assessed for operation of a motor vehicle without payment of mileage fees. Suspension of vehicle registration would occur upon accumulation of fines above a threshold amount. (Note: This option is legal research dependent.)

Retrofitting/Phase-In Application

Phase-In of Acquisition of Electronic Data Calculation and Transmission Device (New Vehicles)/No Mandatory Retrofitting. The mileage fee would be phased in for vehicles containing an electronic odometer, with either a simple GPS device or an odometer tag device and associated data transmission technology. An electronic data collection device would be required only for newly purchased vehicles and newly registered vehicles. Owners of in-use vehicles would be allowed to participate in the mileage fee system by voluntarily retrofitting the necessary technology.

Privacy Protections

Design Limitation. The state would be required to build in to the data collection system a design limitation that prevents the state from monitoring location of vehicle movements in real time or to determine travel history of vehicles other than to upload summary mileage data. If the automatic vehicle identification/odometer-link technology is ultimately selected, there will be no need for a design limitation because this technology has no ability to track vehicle location, either concurrently with use or retrospectively (other than on specific facilities).

AND

Legal Prohibition. A civil and/or criminal law statute would prohibit anyone connected with a state agency from accessing an electronic mileage data collection and transmission device, without the consent of the vehicle owner, for the purpose of

locating vehicles in real time or to determine detailed travel history of vehicle locations other than to upload summary data.

Nonresident Fee Payments

Defer Resolution of Nonresident Road Tax Issue. Wait to resolve nonresident tax issues until after the mileage fee is fully phased in. An interstate compact will likely resolve taxation issues pertaining to interstate travel before fuel taxes are fully phased out.

AND

Continue Fuel Taxes. Continue the fuel taxes indefinitely for vehicles traveling in Oregon without the necessary electronic mileage data collection and transmission device.

Setting Rate, Including Administrative Cost Recovery

Revenue Neutrality Plus Cost Recovery. The mileage fee rate would be based on three factors: 1) A rate of 1.22 cents per mile (based on the 24 cent fuel tax divided by the current statewide passenger vehicle fleet average of 19.7 miles per gallon); 2) An amount per mile for the cost recovery of fee collection overhead; 3) An amount per mile for the cost recovery of amortized capital expenditures related to implementation of the new fee system.

Rate Adjustment Overlay

Congestion Pricing (See next section, targeted revenue options). The mileage fee rate would be adjusted only for congestion pricing as applied by area. (Implementation of area pricing must be deferred until all Oregon vehicles are properly equipped with the necessary technology.)

Targeted Revenue Source Alternatives to Motor Vehicle Fuel Taxes

Congestion Pricing

Philosophical Basis

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.

Application to a Mileage Fee

Congestion pricing can be implemented either as a rate adjustment to a general systemwide 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.

Manner of Pricing

Congestion pricing can be implemented as a rate adjustment to a systemwide 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.

Different types of technologies have different capabilities and different costs. For example, automatic vehicle identification technologies are inexpensive but can be used only to identify vehicle use at points where the highway is equipped with special reader devices. This means congestion-pricing systems based upon AVI technology will be specific to a particular facility (freeway segment, bridge, on-ramp, etc.). AVI devices cannot determine statewide vehicle miles traveled.

Global positioning system-based technologies are currently relatively expensive but can be used to determine a vehicle's general location (whether a vehicle is within or outside a congested pricing area) and distance traveled by time of day. At present, GPS-based

systems can be used to calculate in-state VMT and VMT during peak hours in preselected congested areas.

Types of Pricing Strategies
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. The task force desires to pilot-test area pricing for both technologies.

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. A “simple” 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 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.

Phasing In Congestion Pricing
The Oregon Department of Justice has advised the task force that 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.

Allocation of Congestion Pricing Funds
There are four basic options for allocation of funds generated from congestion pricing:

- Allocate congestion pricing revenue to the 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.

Congestion Pricing Testing Scenario Preferred
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. (See Appendix DD for the list of options considered by the Road User Fee Task Force in configuring the congestion-pricing scenario.)

Pilot Testing Scenario for Congestion Pricing
The task force tentatively recommends the following configuration for pilot testing of congestion pricing.

Congestion Pricing
(Value or Peak-Period Pricing)

Area Pricing

Rate Adjustment to Mileage Fee. Congestion pricing integrated with a mileage fee would be implemented as a base-rate adjustment. Owing to legal limitations, this methodology for congestion pricing cannot be implemented until the mileage fee is applicable to all passenger vehicles that will travel in the congested area.

GPS or Odometer Tag System. A GPS-based system would allow effective congestion pricing through peak-hour pricing by area, pricing primary routes and side roads and streets equally. Implementation of this option would not occur for 20-plus years because of the lengthy phase-in period required for necessary electronic devices to be installed in every passenger vehicle that will travel in the congested area.

Area Pricing (Deferred). Area pricing would involve charging variable rates within a defined geography without specification or discrimination for a particular roadway or street because all routes are priced the same per mile driven within the area during the same periods. Area pricing would require installation of a simple GPS device or odometer tag device in participating vehicles. Area pricing would be deferred to a time when simple GPS devices or odometer tag devices, or a combination thereof, are ubiquitous in Oregon passenger vehicles.

Allocation By Category. All funds generated from congestion pricing within a defined area would be allocated to the modernization of state, city or county roadways within the defined area by appropriate jurisdiction based on vehicle miles traveled estimates for each category of roadway.

New Facility Tolling

Background

Although tolling roads and bridges is common practice in other states and nations in the industrialized world, Oregon has no toll roads and only two toll bridges. Research shows that Oregonians support tolling only, if at all, on new projects providing some transportation advantage not currently existing. Experience elsewhere indicates the most likely candidate projects for tolling from an economic perspective are large bridges and highly traveled limited-access highways. Oregon has potential projects of this magnitude.

Task Force Conclusion

Any new roads, bridges or extended lanes should be paid for, at least in part, through tolling when practicable. Tolling will make newer, and often sorely needed, large projects more likely to be built and likely on shorter timeframes.

Studded Tire Use Fee

Findings of Fact

In keeping with the philosophy to charge user fees to pay for road needs, the task force explored the damage caused by studded tires to road surfaces in the state. Drawing extensively from the ODOT Studded Tire Report of December 2000, the task force made the following findings:

- **Effect upon Cost Allocation.** Currently, under Oregon's cost-allocation policy, the cost of studded tire damage repair is spread across all passenger vehicles, whether or not they use studded tires.

- **Broad Spectrum of Damage.** Studded tire usage tends to reduce the useful life of road surfaces, but the damage is not uniform across the state. The ODOT Studded Tire Report indicates that studded tire damage is distributed across the five ODOT regions in the following percentages:

Region 1 (Portland Metro)	47%
Region 2 (Willamette Valley/North Coast)	21%
Region 3 (Southwest)	0 %
Region 4 (Central)	31%
Region 5 (Eastern)	1%

Studded Tire Use Permit

Loosely modeled after the Sno-Park Permit Program, the task force has developed legislation for a Studded Tire Use Permit Program, House Bill 2139. Each operator of a motor vehicle using studded tires in Oregon would be required to obtain a permit based on where the vehicle is registered. Permit fees would vary by region. The legislation would require two regions, one being the Willamette Valley and north coast and the second being southern, central and eastern Oregon.

Future Development

Pilot Program for Mileage Fee

House Bill 3946 requires the Road User Fee Task Force to make recommendations for a pilot program to test alternatives to the current system of taxing highway use through motor vehicle fuel taxes.

Status
The task force is developing a pilot test program based on the pilot testing scenarios the task force has selected for a mileage fee and congestion pricing.

Description of Pilot Program
The pilot program will consist of a two-step process that supports potential adoption of a mileage fee for Oregon that contains a time-of-day pricing component. The first step will involve small-scale testing of an electronic odometer, either global positioning system or odometer tag, for mileage data collection; radio frequency technology for summary mileage data transmission; and related technology to support a mileage fee. The second step will involve using the same technology for large-scale testing of the behavioral elements of a time-of-day component to a mileage fee (congestion pricing) as well as the mileage fee.

Timeline for Pilot Program
HB 3946 requires ODOT to commence the pilot test program no later than July 1, 2003. The pilot program will operate for approximately three years.

Pilot Program Design Recommendations
The task force has recommended to ODOT the design of the pilot program, as described above, according to the requirements of HB 3946. (See Appendix EE for the pilot test program recommendations.)

Pilot Test Program Evaluation Criteria
The task force adopted recommended criteria to evaluate the pilot test program. The task force has supplied ODOT with the evaluation criteria for the pilot test program as required by HB 3946. (See Appendix FF for the pilot test program evaluation criteria.)

Summary

Fuel tax revenues built and maintained the bulk of the Oregon road system for more than 80 years. The fuel tax is an excellent revenue source, but it must be replaced. Owing to technology improvements in motor vehicles that have dramatically increased fuel efficiency and the inability to make up fuel tax revenue losses by fuel tax increases, the Road User Fee Task Force concludes that the fuel tax is not a sustainable tax long term for Oregon's roads.

The Road User Fee Task Force believes the best replacement mechanism for the fuel tax will be a user fee. The task force philosophy is that those using the roads should pay for them. The best user fee for general support of Oregon roads is one based on vehicle miles traveled.

A mileage fee will perform much like the fuel tax did before vehicle fuel efficiency took hold in the marketplace. The task force believes that when motorists drive more, they should pay more for the additional burden placed on the road system.

The new mileage fee can be collected electronically to avoid assessment of miles driven outside Oregon. The technology to be used to support a mileage fee can be configured in such a way that Oregonians' privacy can easily be protected. The fuel tax should be retained during the necessary lengthy phase-in period and for out-of-state drivers.

The task force recommends other targeted user fees to solve specific problems related to Oregon roads. Congestion pricing can be used to efficiently distribute motorists' use of congested facilities and provide additional revenue for modernization of the congested facility. New facility tolling can provide needed modernization dollars to upgrade existing roads or provide new roads and bridges. A studded tire use permit can provide revenue for repairing damage attributable to stud use.

The Road User Fee Task Force will pursue a pilot test program over the course of the next three years, concluding in 2006. At that point, the Road User Fee Task Force hopes to have generated sufficient information to be able to recommend legislation for a road revenue system to replace the current system of taxing highway use through motor vehicle fuel taxes.